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THE
GARDENERS DICTIONARY:

CONTAINING
The Best and Newest METHODS
OF
CULTIVATING and IMPROVING
THE
Kitchen, Fruit, Flower Garden, and Nurſery;
As alſo for Performing the
Practical Parts of AGRICULTURE:
INCLUDING
The Management of VINEYARDS,
WITH THE
Methods of making and preserving WINE,
According to the preſent Practice of
The moſt ſkilful Vignerons in the ſeveral Wine Countries in *Europe.*
TOGETHER WITH
DIRECTIONS for propagating and improving,
From real Practice and Experience,
ALL SORTS OF TIMBER TREES.

THE EIGHTH EDITION,
Reviſed and Altered according to the lateſt System of BOTANY; and
Embelliſhed with ſeveral Copper-Plates, which were not in ſome former Editions.

By PHILIP MILLER, F. R. S. K
Gardener to the Worſhipful Company of Apothecaries, at their Botanic Garden
in *Chelſea*, and Member of the Botanic Academy at *Florence.*

. . . . *Digna manet divini gloria ruris.* Virg. Georg.

LONDON,
Printed for the AUTHOR;
And Sold by John and Francis Rivington, at No. 62, *St. Paul's Church-yard*; A. Millar,
J. Whiston, W. Strahan, J. Hinton, R. Baldwin, B. White, L. Hawes and
W. Clarke and R. Collins, W. Johnston, T. Caslon, S. Crowder, T. Longman,
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M. DCC. LXVIII.

G.R. III.
BRITISH MUSEUM

J. Miller inv. et fecit

To the Moſt Noble

HUGH,

Duke and Earl of NORTHUMBERLAND,

EARL PERCY,

Baron WARKWORTH of Warkworth Caſtle,

Lord Lieutenant and Cuſtos Rotulorum of the Counties of
MIDDLESEX and NORTHUMBERLAND,

Of the City and Liberty of WESTMINSTER,

And of the Town and County of NEWCASTLE upon TYNE,

VICE ADMIRAL of all AMERICA,

And of the County of NORTHUMBERLAND,

One of his MAJESTY's Moſt Honourable Privy Council,

Knight of the Moſt Noble Order of the GARTER,

And Fellow of the ROYAL SOCIETY.

MAY IT PLEASE YOUR GRACE,

YOUR Grace's kind Acceptance of two former Editions of this Work, has emboldened me to lay this at Your Grace's Feet, as a public Acknowledgment of the many uſeful Obſervations and Inſtructions, which Your Grace has at ſeveral Times communicated to me for its Improvement. If I have been ſo happy as to employ them in ſuch manner, as to merit Your Grace's Approbation, I ſhall have leſs Reaſon to doubt that of the Public; ſince the moſt ſkilful Perſons in this uſeful Branch of Science, pay the higheſt Regard to Your Grace's Judgment.

The many Improvements which Your Grace is annually making ſo happily upon Your various Eſtates, ſufficiently demonſtrate Your Grace's ſuperior Judgment; but more particularly in a Country almoſt deſtitute of Timber: Where, if Your Grace continues planting, ſo ardently as for ſeveral Years paſt, the whole Face of the Country will be much altered for the better, and Your Grace's Eſtate thereby greatly improved.

That Your Grace may long live to continue theſe Improvements, and to be an Example to others, is the ſincere Wiſh of

Your GRACE'S

Moſt obedient humble Servant,

CHELSEA,
March 1, 1768.

Philip Miller.

PREFACE.

THE GARDENERS DICTIONARY having already gone through ſeveral editions, it may reaſonably be ſuppoſed, the public are well acquainted with the nature of it, which renders it leſs neceſſary to enlarge on that ſubject. The author therefore thinks himſelf obliged to return his thanks for the kind reception his work has met with.

But as there may be ſome, who may think that the republiſhing it is doing them an injury, eſpecially thoſe who have purchaſed a former edition, it may not be amiſs to make ſome apology for this.

When the firſt edition was publiſhed, gardening was then much leſs known than at preſent; and therefore, as the knowledge of the art increaſed, it became more neceſſary to enlarge on the ſubject, by adding the new improvements to the former, without which it would have been deemed imperfect; for as the author's ſituation in life rendered him capable of being well informed of the progreſs made in the art, by his great correſpondence both at home and abroad, he thought it would not be unpleaſing to communicate thoſe improvements to the public: in doing which, he has been careful not to publiſh any thing imparted to him, until he was fully ſatisfied of the facts by experiments.

Others have ſuggeſted, that printing the improvements ſeparately would give ample ſatisfaction in this point; but the author had made trial of former purchaſers ſome years paſt, by publiſhing ſeveral ſheets of new articles, by way of Supplement, for which there was ſcarce any demand; ſo that the few which were ſold, would not defray the expence of paper and printing.

As the number of plants now cultivated in England, are more than double thoſe which were here when the firſt edition of this book was publiſhed, the mentioning of them, together with their culture, could not well be avoided in a work of this nature, therefore the author hopes his care in inſerting them will not be cenſured.

From the title of this book it may ſeem to be only a Dictionary on the art of gardening, but all the branches of agriculture are included in it, in a more complete manner than can be found in any other book extant, though written wholly on the ſame ſubject. Nor are the inſtructions here given for performing the work in every part taken up haſtily, or upon ſlight experiment; but moſt of them are the reſult of more than twenty years practice in different parts of England, where the author has been permitted to ſuperintend and direct the whole: therefore he can aſſure the public he has been very cautious in recommending any thing, which he is not thoroughly convinced to be true.

It is amazing to ſee, in moſt of the books which have been publiſhed concerning huſbandry, that ſcarce any of the compilers have taken the leaſt notice of the common practice of ſowing eight times the quantity of Corn upon land that is neceſſary, to the great expence and detriment of the farmers, who are ſo wedded to their old cuſtoms, as not to be convinced of the error: for ſo obſtinate are they in this matter, that unleſs the whole ground be covered with the blades of Corn by the ſpring, they judge it not worth ſtanding, and in conſequence thereof frequently plough up their Wheat and winter Corn, to ſow the land with Barley, or other Lent Corn; whereas, if the former had been left ſtanding, it would have produced a better crop than any land can do where the blades are very thick, as the author has frequently obſerved. I have mentioned this to ſeveral farmers, but the anſwer has conſtantly been, that on rich ground a thin crop of roots will often produce a large crop of Corn, but on poor land it will not pay coſt, which is a very great abſurdity; for how is it poſſible, that bad land can ſupply proper nouriſhment to a greater number of roots than better ground? and where this practice is obſerved, ſeldom more than three or four buſhels are reaped from one ſown; whereas, where the ſame quantity is ſown upon the ſame, or a like ſoil, and has room to grow, the produce will be at leaſt ſix or ſeven buſhels. Yet I have ſeen growing upon land not very good, and uncultivated, for more than twenty years, which and was ſown with

Wheat in drills, where three gallons of ſeed were allowed to an acre, a produce of nine quarters per acre; now this is no more than an eighth part of the ſeed uſually ſown by farmers, who ſeldom reap more than one-third of this produce; by which it appears plainly, that in the common method of huſbandry, there is at leaſt eight times the quantity of ſeed ſown upon the land that is neceſſary. How great a ſaving this would be in a whole country, I leave every one to judge, eſpecially in ſcarce years, when Corn is dear; and what an expence is occaſioned by the contrary practice to the farmers, who notwithſtanding ſeem unwilling to alter their ancient cuſtoms. Theſe matters are treated of under the articles AVENA, HORDEUM, SECALE, and TRITICUM.

Nor are the common farmers better managers of their paſture lands; for on them they ſeldom are at the trouble of rooting up bad weeds, which frequently over-run them; theſe are often permitted to ſcatter their ſeeds, by which the land is ſtocked with a ſupply of weeds for ſeven years or more, tho' the utmoſt care be taken afterward to deſtroy them: but tho' there are ſome farmers who may be ſuppoſed more careful in this reſpect, yet theſe leave in their head lands, and on their banks, hedgerows, and the ſides of ditches, a ſufficient number of weeds to ſtock their fields when the ſeeds are permitted to ſcatter: beſide, theſe paſtures have rarely a ſufficient quantity of manure allowed them, eſpecially where there is much arable land; nor is the dreſſing laid on at a proper ſeaſon; the general rule with moſt of the farmers being to carry and ſpread the dung upon their paſtures, ſoon after the crop of hay is taken off the ground; and as this is done in ſummer, the heat of the ſun draws all the moiſture from it, whereby the greater part of its goodneſs is evaporated and loſt. But as theſe points are more fully treated of in the body of this work, the author deſires the reader to refer to them.

On the article of TIMBER perhaps many may ſuppoſe, the author has been too diffuſe in his inſtructions; but if thoſe who are of that opinion will only conſider, how material an article this is to the welfare of this country, he flatters himſelf they will change their ſentiments, eſpecially when they reflect upon the great waſte that has been made of it for many years paſt; as alſo that the perſons now employed by the government to cultivate and improve it, deriving their own profits from the waſte of timber, ſeem to think, that as their predeceſſors have long practiſed it, they have a right to do the ſame; this is now carried to ſo great an extravagance, that unleſs a ſpeedy ſtop be put to it, the government will be greatly diſtreſſed for their marine. For although this practice began in the Royal Foreſts, &c. yet ſeveral of the nobility and gentry, who had very great quantities of timber growing upon their eſtates, have deſtroyed a conſiderable part of theirs alſo; therefore, from a due regard for the public, the author has treated of the beſt methods for propagating and preſerving timber, which he hopes may not be diſpleaſing to the generality of his readers.

The ſeveral plants here propoſed for trial in the Britiſh dominions in America, are ſuch as there is reaſon to believe will ſucceed in thoſe parts where the experiments are deſired to be made, and confined to ſuch only, as may be of utility to the public, and real advantage to the inhabitants of thoſe countries: furthermore, theſe experiments are propoſed to be tried upon plants which will not ſucceed well in England, ſo as to render their culture practicable, and therefore will not interfere with the growth or trade of this country, and the conſumption of which is very great here, many of them being of very conſiderable uſe in our manufactures, which cannot be carried on without them; as namely the Safflower, Indigo, and ſeveral other ſorts uſed in dyeing, none of which will thrive in this country to advantage, with many medicinal drugs, which, if introduced into the iſlands of America, will certainly thrive there as well as in their native ſoils. Coffee and Chocolate grow equally well there; but the former being gathered before it is ripe, ill dried, and brought over to England in ſhips freighted with rum and ſugars, the effluvia of theſe commodities are imbibed by the Coffee, whereby it is rendered leſs valuable: as to the latter, it was formerly cultivated by the Spaniards in the iſland of Jamaica, when they were in poſſeſſion of it, ſo as to furniſh the inhabitants with a quantity ſufficient for their own conſumption; whereas the Engliſh inhabitants now reſident there, purchaſe it of the Spaniards: theſe articles therefore require the public attention, for if the above commodities may be eaſily produced in the Britiſh colonies in America, they will not only ſupply us with ſuch as are genuine, but alſo turn the balance of trade, greatly to the advantage both of Great-Britain and her colonies.

It is alſo a great neglect of the inhabitants of the ſugar iſlands in America, to commit the care of their plantations to overſeers, who at beſt go on in their uſual courſe, planting eight or ten ſugar canes in each hill, ſo that if five or ſix of them grow, they will be ſo cloſe as to ſpoil each other; for whenever theſe plants are ſtinted in their growth, they are ſoon attacked by vermin, which ſpread and multiply ſo greatly, as frequently to deſtroy the whole crop, or at leaſt very much to damage it; and this they lay upon inclement ſeaſons, calling it a blight, whereas it proceeds from their own covetous cuſtom. A gentleman of learning, who had a conſiderable eſtate in Jamaica, which was bequeathed to him upon his arrival there, was determined to make trial of the horſe-hoeing huſbandry among his canes. Accordingly he ſet out one acre of land in the middle of a large piece, which he cauſed to be planted with canes at five feet diſtance, putting but one to each hill; theſe grew to a very large ſize, and when ripe were cut, as alſo an acre from the beſt part of the piece in which the others were planted: each of them then were boiled ſeparately to examine their produce, which was nearly equal in the weight of ſugar; but where the plants grew ſingle, the juice was boiled with a ninth part of the fuel which the other required, and he ſold the ſugar for ſix ſhillings per hundred weight more than he could get for the former. This ſhews what advantages may be expected, if the poſſeſſors of lands were careful to make trials.

The alterations made in the catalogues of trees and plants which are added at the end of the book, have been done to prevent ſwelling the work to too great a ſize, therefore their ſpecific differences are not inſerted at full length; but as their generical titles are mentioned, and the figures to each ſpecies denote them according to their reſpective ſpecies referred to in the body of the book, the reader is deſired to turn to the ſeveral genera, where under each article, their ſpecies with their reſpective titles are inſerted at length, as alſo their culture and natural places of growth. The uſe of theſe catalogues, eſpecially to ſuch as are not acquainted with the art of gardening, but particularly to thoſe who ſet up for deſigners of gardens, may be of great ſervice; for if this part of planting were duly attended to, there would not be ſo many abſurdities committed, as are now to be found in moſt of theſe deſigns, where we often ſee ſome of the ſmalleſt growing ſhrubs placed, where the largeſt trees ſhould have been planted.

In the whole of this performance, the author has principally aimed at rendering the inſtructions given, as clear and intelligible as poſſible to the practitioners, as well as to thoſe who are leſs acquainted with the art; in every particular he has obſerved all poſſible regard to truth, not having advanced any thing as ſuch, but what he has been fully convinced of by his own experience: he hopes therefore for indulgence from the public, for any imperfections or omiſſions which may appear in the book, ſince in a work of ſo great extent, it cannot be expected to be abſolutely perfect, though it is humbly hoped there will not be found in it many faults.

Some errors of the preſs have accidentally crept in, occaſioned by the author's other neceſſary avocations, which frequently called him into the country during the time it was printing; but as moſt of theſe are corrected, and are not beſides of themſelves of great importance, he hopes the candid reader will pardon them.

The Gardeners Kalendar, inſerted in moſt of the former editions, is in this omitted, many editions of that piece having been printed in octavo; it is preſumed therefore that few perſons who have any inclination for the innocent diverſion of gardening, are without it; and as the adding any thing to this work would have ſwelled it greatly, which the author wiſhes he could have ſtill further ſhortened; and moreover it having been obſerved to him, by many of his friends, that few perſons would chuſe to turn over ſo large a volume, to find in it the articles they may have in a portable one,. the omiſſion of the Kalendar was thought more adviſeable.

In the laſt edition of this work, the author adopted in a great meaſure the ſyſtem of Linnæus, which was the prevailing method of ranging plants then in uſe among botaniſts; but as many of the plants which were treated of in the Gardeners Dictionary, were not to be found in any of Linnæus's works then publiſhed, Tournefort's ſyſtem was alſo applied to take in ſuch as were not fully known to Dr. Linnæus; but ſince that time the learned profeſſor having made great additions to his works, and thoſe additions being generally conſulted for the names of plants, the author has now applied Linnæus's method entirely, except in ſuch particulars, where the Doctor not having had an opportunity of ſeeing the plants growing, they are ranged by him in wrong claſſes; as for inſtance, the Ilex or Agrifolium is ranged in his fourth claſs, with thoſe plants whoſe flowers have four ſtamina or male organs, and four ſtigmas or female parts of generation; whereas thoſe plants have male flowers upon ſome, and female upon other plants. The Laurus Linnæus has placed in his ninth claſs, with thoſe plants whoſe flowers have nine ſtamina or male organs of generation, and one female part; but theſe plants ſhould alſo be ranged in his twenty-ſecond claſs, for all the ſpecies of this genus have male and female flowers on different plants. Theſe, with ſome other alterations from Linnæus's ſyſtem, have been made in this edition, where the author has given his reaſons for ſo doing, which he hopes will be approved by the public.

Many plants are likewiſe omitted in this edition, ſeveral of them natives of England, but rarely cultivated in our gardens; as alſo many varieties accidentally ariſing from ſeeds, as are moſt of thoſe with double flowers, which, if enumerated, would have ſwelled the book to an immoderate ſize; however, moſt of theſe varieties are caſually mentioned, to inform the reader of their reſpective difference, which the author hopes will be deemed ſufficient But as the variety of fruits, as well as of eſculent

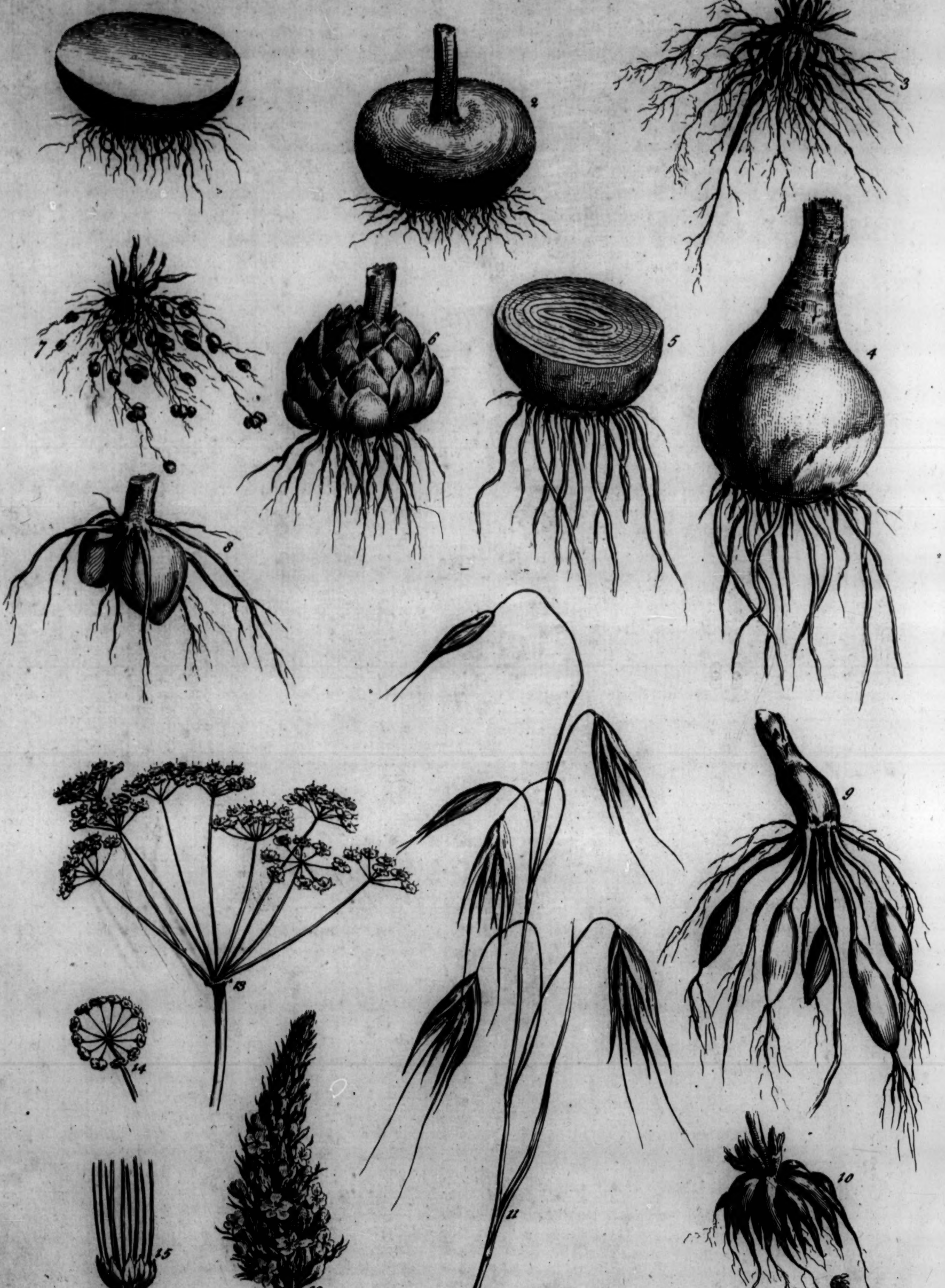
lent plants, have been moſt of them, at leaſt the fine ſorts, greatly improved by culture, they are fully treated of under their proper genera.

On this article a long ſeries of obſervations has been made by the author, who for near fifty years has applied himſelf cloſely to this ſubject; for as many former botaniſts have enumerated a great number of varieties as ſo many ſpecies, the ſtudy of botany was thereby rendered greatly perplexed; ſome of the modern writers on this ſubject, by going into the contrary extreme, have abridged the ſpecies almoſt as much. Indeed it muſt be allowed, that aſcertaining the real ſpecific difference of plants, would be of great ſervice to the ſcience of botany; but this cannot be done otherwiſe, than from many years experience in their culture, eſpecially by obſerving the varieties which ariſe from the ſame ſeeds, as alſo the difference produced by different ſoils and ſituations, which is frequently ſo great as to perplex very good judges in this matter. There are likewiſe many other varieties which have ariſen from ſeeds, ſaved from plants, and grown near others of a different ſpecies, by which means they have partaken of both; but theſe hybridine plants rarely producing any ſeeds afterward, the alteration goes no farther.

G.R. III.
BRITISH MUSEUM

Plate. 1.

The different Parts of Plants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I. Miller. delin. et Sculp.

AN EXPLANATION OF THE TECHNICAL TERMS of BOTANY Mentioned in this WORK.

A ROOT, *Radix*, is that part of a plant, by which it naturally receives its nouriſhment. There are ſeveral ſorts of theſe, as

A fibrous Root, *Radix fibroſa*, is that which conſiſts only of fibres. See plate 1. fig. 3.

A tuberous Root, *Radix tuberoſa*, is that which conſiſts of an uniform fleſhy ſubſtance, and is of a roundiſh figure. See plate 1. fig. 1, 2. where it is cut horizontally through the middle.

A bulbous Root, *Radix bulboſa*, is that which conſiſts of ſeveral coats involving one another, as is ſhewn plate 1. fig. 4, 5. or of ſeveral ſcales lying over one another, as in plate 1. fig. 6. The firſt of theſe is called a tunicated Root, the laſt a ſquamous Root.

A granulous Root, *Radix granuloſa*, is a kind of grumous root, with ſmall knobs reſembling ſo many grains of Corn. See plate 1. fig. 7.

A teſticulated Root, *Radix teſticulata*, is a double tuberous root, conſiſting of two fleſhy knobs reſembling a pair of teſticles. See plate 1. fig. 8.

An aſphodel Root, *Radix aſphodeli*, is a kind of grumous root, whoſe fleſhy fibres ſwell into large knobs toward the bottom, reſembling the dugs of animals. See plate 1. fig. 9.

A grumous root, *Radix grumoſa*, is one which is compoſed of ſeveral fleſhy knobs ending in fibres. See plate 1. fig. 10.

A Stalk, *Caulis*, is a part of a plant, receiving the nouriſhment from the root, and diſtributing it into the other parts with which it is cloathed, not having one ſide diſtinguiſhable from the other. The ſtalk of a tree is called the trunk or ſtem, i. e. *Caudex*.

A Branch, *Ramus*, is the diviſion of a ſtalk. In trees it is generally called a bough.

A Pedicle, *Pediculus*, is that part of a ſtalk, which immediately ſuſtains a leaf, a flower, or a fruit. Dr. Linnæus has diſtinguiſhed theſe. Thoſe which ſuſtain the leaves he calls *Petiolus*, and thoſe which ſuſtain the fruit, *Pedunculus*.

A Spike, *Spica*, is a part of a ſtalk thick ſet with flowers or fruits, in ſuch a manner as to form an acute cone. See plate 1. fig. 12.

A Thyrſe, ſee *Thyrſus*, differs from a ſpike in that the flowers or fruits are ſet more looſely on it, ſo that there are ſpaces viſible between them.

A Panicle, *Panicula*, is a ſtalk diffuſed into ſeveral pedicles ſuſtaining the flowers or fruits. See Plate 1. fig. 11.

An Umbel, *Umbella*, is the extremity of a ſtalk or branch, divided into ſeveral pedicles or rays, beginning from the ſame point, and opening in ſuch a manner as to form an inverted cone. See plate 1. fig. 13. When the pedicles (*a*), into which the ſtalk is divided, are ſubdivided into others of the ſame form, upon which the flowers or fruits are diſpoſed (*b*). The firſt order (*a*) is called rays, the ſecond (*b*) Pedicles. That umbel which conſiſts of one pedicle only is called a ſimple umbel. See fig. 15. plate 1. That which is compoſed both of rays and pedicles, is called a compound umbel, as fig. 13.

A Corymbus differs from an umbel, in that the rays or pedicles are diſpoſed in ſuch a manner, as to form a ſphere. See plate 1. fig. 14.

A twining ſtalk, *caulis volubilis*, is one which twiſts about any prop or tree without the help of tendrils.

A climbing Stalk, *Caulis ſcandens*, is that which faſtens itſelf to any prop or neighbouring ſupport by the help of tendrils.

A creeping Stalk, *Caulis repens*, is that which lies on the ground, and propagates itſelf by emitting roots at the joints.

A trailing, or procumbent ſtalk, *Caulis procumbens*, is that which lies on the ground unleſs it is ſupported, but does not emit roots.

A Tendril, *Capreolus* or *Clavicula*, is a part of a ſtalk, or rather a branch from the ſide of a ſtalk, placed oppoſite to the leaf, which curls and lays hold on any adjacent body, and thereby ſupports the ſtalk, as in the Vine, &c.

A Fruit, *Fructus*, is that part of a plant which contains the ſeed with its covering. Of this there are many different forms.

A Cone, *Conus*, is a dry ſeed-veſſel, conſiſting of ſeveral ligneous parts, adhering cloſely together, and ſeparating when ripe. Of this there are ſeveral ſorts which differ in their form and texture, as in plate 2. fig. 1. is a cone of the Pineaſter, whoſe ligneous ſcales end in ſharp protuberances, which open by the warmth of the ſun in the ſpring, and eaſily emit the ſeeds. Fig. 2. plate 2. ſhews the cone of the Cedar of Libanus, whoſe ſcales are ſmooth, lying cloſe over each other, and drop off, leaving the middle column on the branches. Fig. 3. plate 2. exhibits a cone of the Firtree, whoſe ſcales are ſmooth, and the form oblong. Fig. 4, 5. plate 2. ſhews the cone of the Cypreſs, which is of an irregular ſpherical form, and the ſcales ſeparate, emitting the ſeeds from between them. Fig. 6. plate 2. repreſents the cone of the Pine-tree, whoſe ſcales terminate in blunt protuberances.

Dry Seed-veſſels, according to the number of cells into which they are divided, are called Unicapſular, Bicapſular, Quinquecapſular, &c. See plate 2. fig. 8, 9.

An Apple, *Pomum*, is generally underſtood to be a fleſhy fruit incloſing ſeveral hard ſeeds in the center; but it is very difficult to know what the ancients meant by the title Pomum, for this title is frequently uſed in their writings to expreſs things of different forms, therefore this epithet ſhould be only applied to thoſe fruits which are umbilicated, and contain many ſeeds. See fig. 11, 12. plate 2.

An EXPLANATION of the Technical Terms of BOTANY.

Acini is by ſome ſuppoſed to be the berries of Grapes and Currants, but is uſed in a more extenſive ſenſe by moſt of the writers on botany, who ſtile the ſmall protuberances of Mulberries, Strawberries, &c. fig. 7. plate 2. Acini.

A Cluſter, *Racemus*, is a ſtalk divided or branched into ſeveral pedicles, ſuſtaining the flowers or fruits thick ſet together in an oblong form. See fig. 12. plate 2. The firſt of theſe conditions diſtinguiſhes it from a ſpike, the laſt from a panicle.

A Pod, *Siliqua*, is a long membranaceous ſeed-veſſel, either flat or round, containing one or two rows of ſeeds. See fig. 13, 14. plate 2. Some of theſe are jointed, each of the ſwellings containing one ſeed, as is ſhewn, fig. 15. plate 2.

The Seeds of Corn and Graſs are called Grains, *Grana*. The leaf which covers the grain is called Chaff, *Gluma*, fig. 16. plate 2. *a* The Beard, *Ariſta*. *b* is a ſmall needle proceeding from the chaff. The chaff which has no beard is called naked.

A Plum, *Prunum*, is a fleſhy veſſel incloſing a hard brittle ſhell, in which is one or two ſeeds.

A Nut, *Nux*, is a ſeed covered with a hard, dry, brittle ſhell.

A Flower, *Flos*, is the organs of generation of both ſexes, adhering to a common placenta, together with their common coverings, or of either ſex ſeparately, with its proper coverings, if it have any.

Flowers are either male, female, or hermaphrodite. The male flowers have ſtamina and ſummits, but have no ovary or ſtyle. Female flowers have an ovary and ſtyle, but have no ſtamina or ſummits. Hermaphrodite flowers have both organs of generation.

The Ovary, *Ovarium*, or *Germen*, according to Linnæus, is the rudiment of the fruit. See *a*, fig. 13. plate 3. and ſo is properly the female organ of generation.

The Style, *Stylus*, is a body accompanying the ovary, either ariſing from the top of it. See *b* fig. 13. plate 3. or ſtanding as an axis in the middle with the embryos of the ſeeds round it, fig. 12. plate 3. and *c* is the ſtigma.

The Empalement, *Calyx*, is generally underſtood to mean, thoſe leſs tender leaves, which cover the other parts of the flower. See fig. 11. *a*, plate 3. Theſe, according to Mr. Ray, are of an herbaceous colour.

The Petals, *Petala*, are thoſe tender fine-coloured leaves, which are the moſt conſpicuous parts of a flower. See fig. 11. *b*, plate 3.

The Stamina or Filaments, according to Linnæus, which ſome call Chives, are thoſe ſlender threads which generally ſurround the ſtyle. See *c*, fig. 11. plate 3.

The Summits, or Apices, which Linnæus calls *Anthera*, are thoſe bodies which contain the farina fœcundans, or prolific powder, analagous to the male ſperm in animals; theſe generally terminate the ſummits. See *d*, fig. 11. plate 3.

Flowers, according to the number of their petals, are called monopetalous, dipetalous, tripetalous, tetrapetalous, &c.

A regular monopetalous flower is that in which the petal is not at all divided. See fig. 1. plate 3. or if divided, the ſegments are equal, as in fig. 2. plate 3.

An irregular monopetalous flower, is that in which the parts of the petal are unequal, as in fig. 3. plate 3. theſe Dr. Linnæus calls ringent flowers. Mr. Ray, Tournefort, and others, call all thoſe monopetalous flowers, whoſe petals are connected at their baſe, and fall off without ſeparating; but Dr. Linnæus calls them tetrapetalous or pentapetalous, when the petal is divided into ſo many parts near the bottom.

A regular polypetalous flower, is when the petals are equal in ſize, and agree in poſition, as in fig. 3. plate 3.

An irregular polypetalous flower is when the petals do not agree together in figure and poſition. See fig. 9, 10. plate 3.

A labiated, or Lip-flower, *Flos labiatus*, is an irregular monopetalous flower, divided uſually into two lips, as in fig. 6. plate 3. The upper lip *a*, is called the Creſt, *Galea*, and the under one *b*, the Beard, *Barba*. Sometimes the creſt is wanting, as in fig. 4. plate 3. and then the ſtyle and ſtamina ſupply its place. This is by ſome called an unilabiated flower.

A papilionaceous Flower, *Flos papilionaceus*, in ſome meaſure reſembles a butterfly with its wings extended. See fig. 5, 7. plate 3. It always conſiſts of theſe four parts: the ſtandard, *Vexillum*, *a*, which is a large ſegment or petal; the two Wings, *Alæ*, *b*, which compoſe the ſides; and the Keel, *Carina*, *c*, which is a concave petal or ſegment, reſembling the lower part of a boat; the keel is ſometimes of one petal or ſegment and entire; ſometimes it conſiſts of two petals or ſegments adhering pretty cloſely together.

A Floret, *Floſculos*, is a little tube expanded at the top, uſually into five ſegments. See fig. 17, 20. plate 3. and ſitting upon the embryo of a ſingle ſeed *a*; from the inner part of the floret ariſe five ſtamina *b*, which uniting together form a ſheath *c*; from the embryo of the ſeed *a*, ariſes a ſtyle *d*, which paſſes through the ſheath *c*, to which it is connected, and is terminated by a bifid ſtigma which is generally reflexed, *e*. Theſe are hermaphrodite.

A Semifloret, *Semifloſculus*, is tubulous at the baſe, and afterwards expanded in form of a tongue. See fig. 18. plate 3. Theſe generally form the rays of compound flowers, and are female.

A compound Flower, *Flos compoſitus*, is that which is compoſed either of florets, fig. 19. plate 3. or ſemiflorets, fig. 15. plate 3. or both together, fig. 16. and fig. 20.

A Diſk, *Diſcus*, is an aggregate of florets forming, as it were, a plain ſurface, as in fig. 19. plate 3. Such flowers are called diſcous flowers.

A Ray, *Radius*, is ſeveral ſemiflorets ſet round a diſk. See fig. 16. *a*, plate 3. in form of a radiant ſtar. Such flowers are called radiated diſcous flowers; thoſe which have no ſuch ray, are called naked diſcous, as fig. 19. plate 3.

A headed flower, *Flos capitatus*, is that which is compoſed of florets and ſemiflorets collected into a roundiſh head, and are all incloſed in one common ſcaly empalement, as in fig. 14. plate 3.

A whorled Flower, *Flos verticillatus*, is when the flowers are collected in whorls round the ſtalks at the baſe of the leaves, as in fig. 20. plate 3.

A Moſs Flower, which riſes on a ſlender foot-ſtalk from the plant, fig. 27. plate 3. with the head (or *Capitulum*), fig. 28. and the cover (or *Calyptra*) which opens and falls off when the ſeeds are ripe.

A Cone cut through the middle longitudinally to repreſent how the ſeeds are lodged between the ſcales. See fig. 22. plate 3.

Fig. 24. plate 3. ſhews the parts of a flower, *a* is the empalement, *b* the germen, *c* the ſtyle, *d* the ſtigma, *e* the ſtamina, *f* the ſummit, and *g* the ſame entire.

Fig. 21. plate 3. ſhews a flower with ſeveral nectariums which ſit cloſe to the germen *a*.

Fig. 25. *a* ſhews a germen, *b* a ſtyle, and *c* a ſtigma.

Fig. 26. ſhews a grain of farina fœcundans magnified.

An Explanation of Fruits.

Plate. 2.

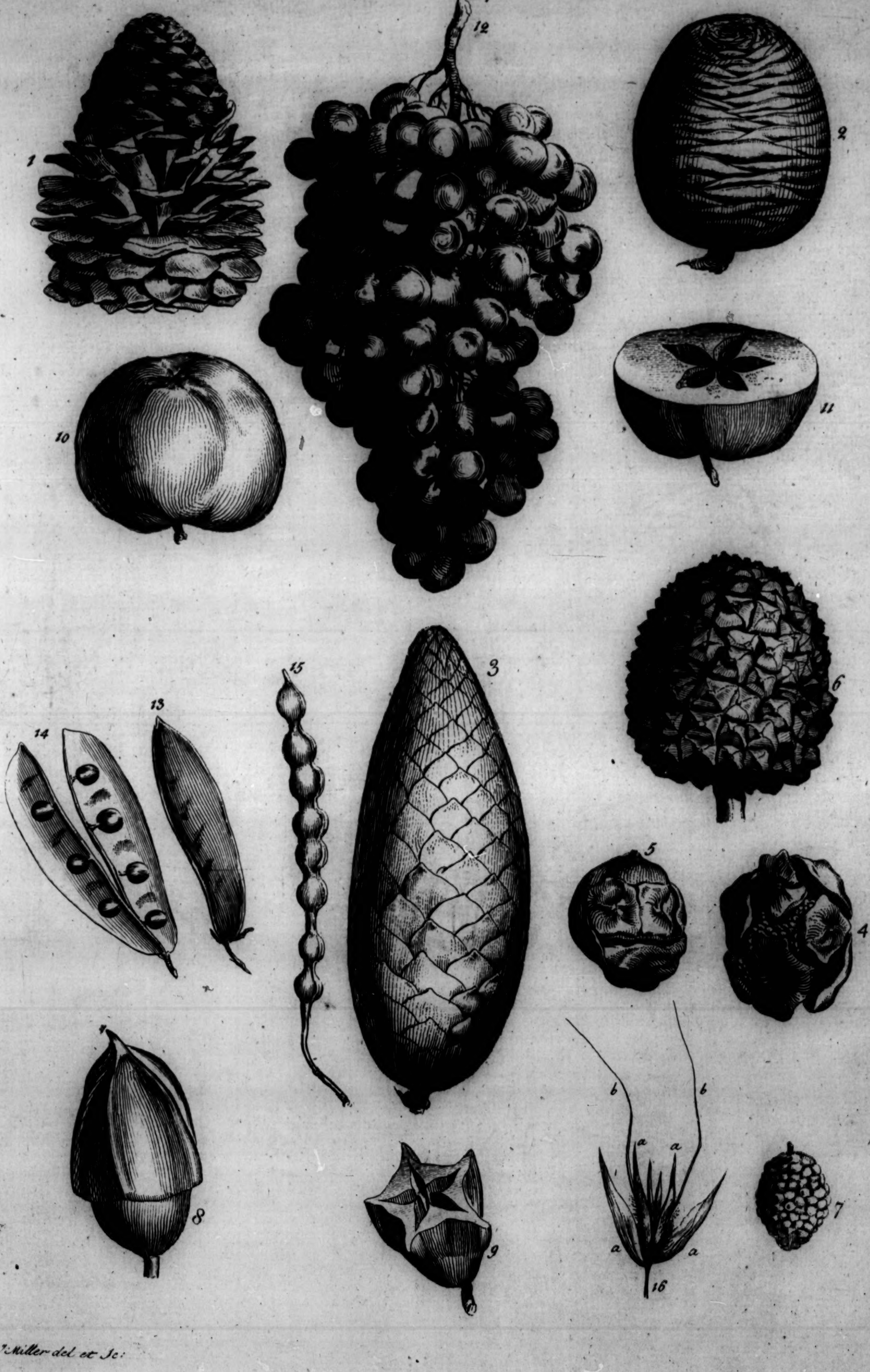

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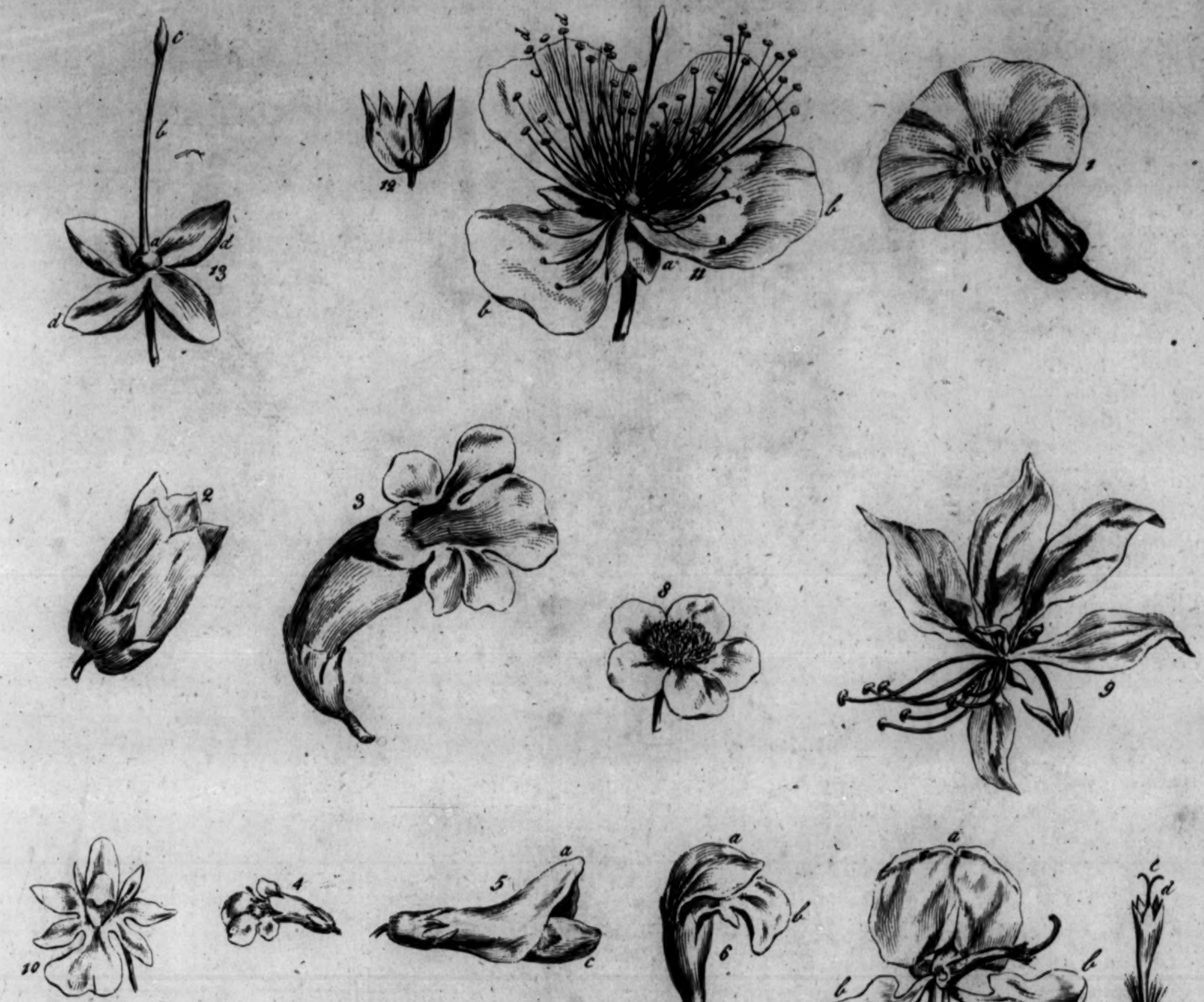
Plate. 3.

Different Structures of flowers.



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Different Structures of the Sexual parts of plants.

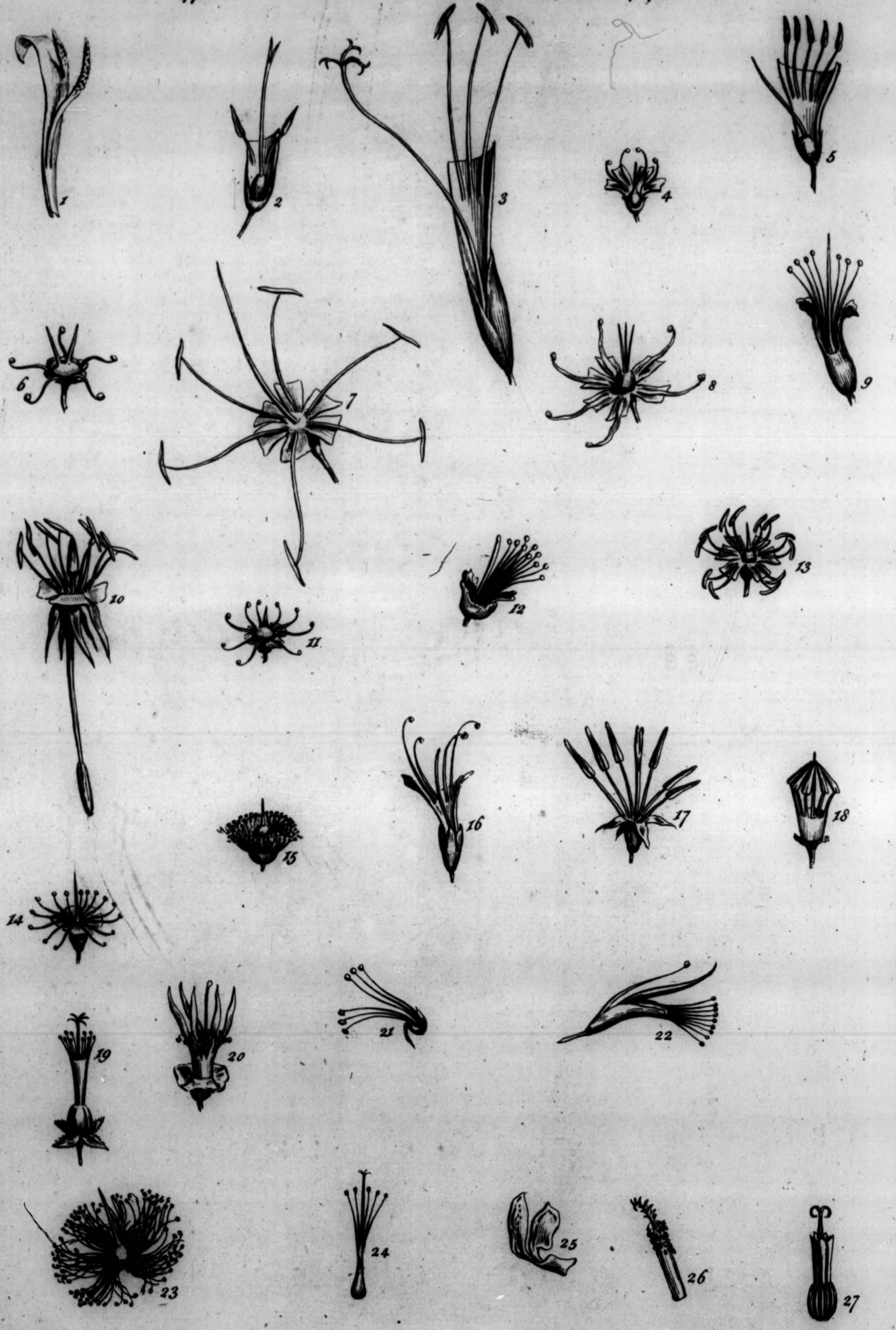
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PLATE IV.

Contains the figures which explain the Syſtem of Dr. Linnæus, who claſſes the plants by the number of ſtamina in their flowers.

FIG. 1. ſhews a flower with one ſtamina and one ſtyle, which he titles *Monandria Monogynia.*

Fig 2. ſhews a flower with two ſtamina and one ſtyle, which he titles *Diandria Monogynia.*

Fig. 3. ſhews a flower with three ſtamina and one ſtyle, which he titles *Triandria Monogynia.*

Fig. 4. ſhews a flower with four ſtamina and one ſtyle, which he titles *Tetrandia Monogynia.*

Fig. 5. ſhews a flower with five ſtamina and one ſtyle, whice he titles *Pentandria Monogynia.*

Fig. 6. ſhews a flower with five ſtamina and two ſtyles, which he titles *Pentandria Digynia.*

Fig. 7. ſhews a flower with ſix ſtamina and one ſtyle, which he titles *Hexandria Monogynia.*

Fig. 8. ſhews a flower with ſix ſtamina and three ſtyles, which he titles *Hexandria Trigynia.*

Fig. 9. ſhews a flower with ſeven ſtamina and one ſtyle, which he titles *Heptandria Digynia.*

Fig. 10. ſhews a flower with eight ſtamina and one ſtyle, which he titles *Octandria Digynia.*

Fig. 11. ſhews a flower with nine ſtamina and one ſtyle, which he titles *Enneandria Monogynia.*

Fig. 12. ſhews a flower with ten ſtamina and one ſtyle, which he titles *Decandria Monogynia.*

Fig. 13. ſhews a flower with twelve ſtamina and one ſtyle, which he titles *Dodecandria Monogynia.*

Fig. 14. ſhews a flower with more than twelve ſtamina, but leſs than twenty, and theſe ariſe either from the petals or the empalement, and with one ſtyle, which he titles *Icoſandria Monogynia.*

Fig. 15. ſhews a flower with a great number of ſtamina and one ſtyle, which he titles *Polyandria Monogynia.*

Fig. 16. ſhews a flower with two long, and two ſhorter ſtamina, and one ſtyle, which he titles *Didynamia.*

Fig. 17. ſhews a flower with four long and two ſhorter ſtamina, and one ſtyle, which he titles *Tetradynamia.*

Fig. 18. ſhews a flower with five ſtamina, which are connected with the ſtyle in one body, which he titles *Monadelphia Pentandria.*

Fig. 19. ſhews a flower with ten ſtamina and one ſtyle, which are joined at the baſe into one body, which he titles *Monodelphia Decandria.*

Fig. 20. ſhews a flower with many ſtamina joined in one body, with a many-pointed ſtyle, which he titles *Monadelphia Polyandria.*

Fig. 21. ſhews a flower with ſix ſtamina joined in two bodies, which he titles *Diadelphia Hexandria.*

Fig. 22. ſhews a flower with ten ſtamina, nine of which are joined together at their baſe, and the other is ſeparated, with one ſtyle. This he titles *Diadelphia Decandria.*

Fig. 23. ſhews a flower with many ſtamina, which are connected at their baſe into ſeveral cluſters or bunches, which he titles *Polyadelphia Polyandria.*

Fig. 24. ſhews a ſingle floret of a compound flower. Theſe which are hermaphrodite have five ſtamina and one ſtyle, which are connected at their baſe. This claſs he titles *Syngeneſia.*

Fig. 25. ſhews a flower whoſe ſtamina are connected with, and ſeem to proceed from, the ſtyle, which is divided into two parts. This he titles *Gynandria.*

Fig. 26. ſhews a flower of the ſixteenth claſs, which is of a different figure from thoſe before repreſented. The ſtamina of this ſtand round the column formed by the ſtyle.

Fig. 27. ſhews a floret of the compound flowers ſitting upon the germen or embryo of the ſeed, with the two reflexed ſtigmas on the top of the ſtyle.

AN

AN EXPLANATION OF THE AUTHORS NAMES and WORKS Referred to by the ABBREVIATIONS in this WORK.

ACT. Phil. The Philoſophical Tranſactions of the Royal Society.

Act. Reg. Sc. The Memoirs of the Royal Academy of Sciences at Paris.

Aldin. A Deſcription of ſome Rare Plants which were cultivated in the Farneſian Gardens at Rome, by Tobias Aldinus. Printed at Rome 1625, fol.

Alpin. Ægypt. Proſper. Alpinus's Natural Hiſtory of Egypt, in two Parts. Reprinted in 4to at Leyden, 1735.

Alpin. Exot. Proſper Alpinus of Exotic Plants in two Books. Printed in 4to at Venice, 1656.

Amman. Char. Paul Amman's Characters of Plants. Printed in 12mo.

Amman. Hort. Paul Amman's Deſcription of the Plants in the Garden of Boſius. Printed in 4to.

Amman Joh. John Amman's Hiſtory of Ruſſian Plants. Printed in 4to at Peterſburgh, 1739.

Baniſter. A Catalogue of Plants obſerved in Virginia, by John Baniſter. Printed in Ray's Hiſtory of Plants.

Barrel. Icon. Jacob Barrelier's Hiſtory and Figures of the Plants which he obſerved in France, Spain, and Italy. Printed at Paris in fol. 1714.

Bocc. Rar. Figures and Deſcriptions of Rare Plants, obſerved by Paul Boccone in Sicily, &c. Printed at Oxford 1674, in 4to.

Bocc. Muſ. Paul Boccone's Muſeum of Rare Plants. Printed in Italian, in two Parts, at Venice, 1697, 4to.

Boerh. Ind. An Index of the Plants growing in the Phyſic-Garden at Leyden, by Dr. Herman Boerhaave. Printed at Leyden 1719, in 4to.

Breyn. Cent. I. The firſt Century of Exotic Plants, by Dr. James Breynius. Printed at Dantzick, 1678, folio.

Breyn. Prod. I. & II. The firſt and ſecond Prodromus to the Collection of Rare Plants, by Dr. James Breynius. The firſt printed in 1680, the ſecond in 1689, at Dantzick, in 4to. Both reprinted at Dantzick in 4to, by his Son John Philip Breynius.

Burman. Dec. John Burman's Decades of Rare African Plants. Printed in 4to at Amſterdam, 1738.

Burman. Theſ. John Burman's Treaſury of Ceylon Plants. Printed in 4to at Amſterdam, 1737.

Buxbaum. Cent. I. & II. John Chriſtian Buxbaum's Century the Firſt. Printed at Peterſburgh 1728, the Second 1729, both in 4to.

Cæſalp. Andrew Cæſalpinus of Plants. Printed at Florence 1583, in 4to.

Camer. Hort. Joacim Camerarius's Garden of Plants. Printed in 4to at Frankfort, 1588.

Cateſb. Hiſt. Mark Cateſby's Natural Hiſtory of Carolina, Florida, and the Bahama Iſlands. In two large volumes, fol. with cuts. Printed at London in ſeveral years.

C. B. P. Caſpar Bauhinus's Pinax to his Theatre of Plants. Printed at Baſil 1671, 4to.

C. B. Prod. Caſpar Bauhinus's Prodromus to his Theatre of Plants. Printed at Baſil 1671, 4to.

Cluſ. Hiſt. Charles Cluſius's Hiſtory of Rare Plants. Printed at Antwerp 1605, fol.

Cluſ. Exot. Charles Cluſius's Exotics, in ten Books. Printed at Antwerp 1601, fol.

Column. Ecphr. Fabius Columna's Ecphraſis, in two Parts. Reprinted in 4to at Rome, 1616.

Commel. Rar. Deſcriptions and Figures of Rare Exotic Plants, which were in the Phyſic-Garden at Amſterdam, by Caſpar Commelin. Printed at Leyden 1706, 4to.

Commel. Præl. Caſpar Commelin's Prelude to Botany. Printed at Leyden 1703, 4to.

Corn. James Cornutus's Hiſtory of Canada Plants. Printed at Paris 1635, 4to.

Dale. Samuel Dale's Pharmacologiæ, in two volumes 8vo. Printed at London 1710, and reprinted in one volume in 4to at London, 1735.

Dale. Thom. Thomas Dale's Obſervations on many new Plants which he diſcovered in America. MS.

Dalech. Hiſt. Jacob Dalechamp's General Hiſtory of Plants. Printed at Lyons 1587, in two vols. fol.

Dillen. Cat. John Jacob Dillenius's Catalogue of the Plants which grow naturally about Giſſam in Germany. Printed at Frankfort 1719, 8vo.

Dod. Pempt. Dodonæus's Six Pemptedes. Printed at Antwerp 1616, fol.

Dodart. Dodart's Commentaries to the Hiſtory of Plants. Printed at Paris 1676, fol.

Elchr. Elchrodt's Index to the Plants in the Garden at Carolſruhan. In three parts, 8vo.

Ferrar. Heſp. John Baptiſt Ferrarius's Heſperides. Printed at Rome 1646, fol.

Ferrar. Fl. Cult. The Culture of Flowers, by J. Baptiſt Ferrarius. Printed at Rome 1633, 4to.

Feuille. Ludovick Feuille's Phyſical, Mathematical, and Botanical Obſervations, made in South America. Printed in three vols. 4to, at Paris. The firſt and ſecond in 1714, and the third 1725.

Flor. Virg. Flor. Virginica, or an Account of the Plants which have been obſerved to grow in Virginia, by John Clayton, Eſq; Publiſhed by Frederic Gronovius at Leyden, in two parts, 8vo, 1739.

Flor. Lugd. Flora Lugduno Batava, or a Catalogue of the Rare Plants which were growing in the Garden at Leyden. Printed in 8vo at Leyden, 1695.

Flor. Zeyl. Flora Zeylanica, or a Catalogue of the Plants which were collected by Paul Herman in the Iſland of Ceylon, from 1670 to 1677. Printed at Amſterdam in 8vo, 1748, by Dr. Linnæus.

Garidel. Peter Garidel's Hiſtory of the Plants growing about Aix in Provence. Printed at Paris 1719, fol.

An EXPLANATION of the AUTHORS NAMES.

Ger. Emac. Gerard's Hiſtory of Plants, improved by Thomas Johnſon. Printed at London 1633, folio.

Grew. Nehemiah Grew's Anatomy of Plants. Printed at London 1652, fol.

Hort. Chelſ. A Catalogue of the Plants in the Chelſea-Garden, by Mr. Iſaac Rand, F. R. S. Printed at London 1739, 8vo.

Hort. Amſt. The Hiſtory of Rare Plants which were in the Phyſic-Garden at Amſterdam, by Caſpar and John Commelin, in two volumes, folio. Printed at Amſterdam 1697, and 1701.

H. Beaum. A Catalogue of the Exotic Plants which were in the Gardens of Mynheer Van Beaumont in Holland. Printed at the Hague 1690, 8vo.

Hort. Elth. Hortus Elthamenſis, or a Deſcription of the Rare Plants which were growing in the Garden at Eltham, by John James Dillenius, in two volumes, fol. with figures. Printed at London 1732.

Hort. Mal. The Plants which grow naturally at Malabar, figured and deſcribed by Henry Rheede Van Draakenſtain, in twelve volumes folio. Printed at Amſterdam from 1679 to 1703.

Hort. Maur. A Catalogue of the Plants in the Garden of Signior Mauroceni, by Anthony Tita, 8vo. Printed at Padua 1713.

Hort. Cliff. Hortus Cliffortianus, or a Catalogue of the Garden of Plants at Hartechamp, belonging to Mr. George Clifford of Amſterdam, ranged according to the new Method of the ſexes of Plants, by Dr. Charles Linnæus. Printed at Amſterdam in folio 1736, with elegant figures.

H. C. Hortus Catholicus, i. e. the Univerſal Garden, by Franſciſcus Cupani. Printed at Naples 1696, 4to.

H. Edin. A Catalogue of the Plants growing in the Phyſic-Garden at Edinburgh, by James Sutherland. Printed at Edinburgh 1683, 8vo.

H. Eyſt. Hortus Eyſtettenſis, by Baſilius Beſler. Printed at Neurenberg 1613, fol.

H. L. A Catalogue of the Plants growing in the Phyſic-Garden at Leyden, by Paul Herman, M. D. Printed at Leyden 1687, 8vo.

H. R. Monſp. A Catalogue of the Plants growing in the Royal Garden at Montpelier, by Peter Magnol. Printed at Montpelier 1697, 8vo.

H. R. Par. A Catalogue of the Plants growing in the Royal Garden at Paris. Printed at Paris 1665, fol.

Hort. Upſal. Hortus Upſalienſis, or a Catalogue of the Exotic Plants growing in the Garden at Upſal in Sweden, by Charles Linnæus. Printed at Amſterdam in 8vo, 1748.

Houſt. Houſtoun, Dr. William, a Manuſcript Catalogue of the Plants which he had obſerved growing in the Iſlands of Jamaica and Cuba; as alſo at Campeachy and La Vera Cruz, in the years 1728, 1729, and 1732.

J. B. An Univerſal Hiſtory of Plants, by John Bauhin, in three volumes. Printed at Embrun 1650, fol.

Juſſ. Juſſieu. Anthony Juſſieu, Profeſſor of Botany in the Royal Garden at Paris, who has publiſhed ſome Memoirs of Plants, in the Acts of the Academy of Sciences at Paris.

Juſſ. Bern. Dr. Bernard de Juſſieu, Demonſtrator of the Plants in the Royal Garden at Paris, who has delivered to the Royal Academy of Sciences many curious Obſervations on Plants which are printed in their Memoirs.

Kemp. Ex. Dr. Englebert Kœmpfer's Deſcription of the curious Plants which he obſerved in Japan. Printed at Limoguen in 1712, 4to.

Lin. Gen. Plant. Charles Linnæus, F. R. S. Doctor of Phyſic, and Profeſſor of Botany at Upſal in Sweden, who has publiſhed ſeveral Editions of his Method of ranging Plants according to their Parts of Generation. The firſt at Leyden in 1737, and the ſecond in 1754, at Stockholm, 8vo.

Lin. Sp. Plant. The Species of Plants by the ſame Author in two volumes, 8vo. Printed at Stockholm in 1753, and the ſecond Edition in 1765.

Lin. Mat. Med. Linnæus's Materia Medica, 8vo. Printed at Stockholm 1749.

Lob. Adv. Matthias Lobel's Adverſaria Stirpium. Printed at Antwerp 1676, folio.

Lob. Ic. Icons of Plants by Matthias Lobel. Printed at Antwerp 1576, fol.

Lugd. A general Hiſtory of Plants by Dalechamp. Printed at Lyons 1586, two volumes in fol.

Magn. Peter Magnol, his Catalogue of the Plants growing about Montpelier. Printed in 8vo at Montpelier, in 1686.

Magn. Hort. Peter Magnol, his Catalogue of the Plants in the Garden at Montpelier. Printed at Montpelier in 1697, 8vo.

Malp. The Anatomy of Plants, by Marcellus Malpighius. Printed at London in fol. 1679.

Marcg. George Marcgrave, his Natural Hiſtory of Braſil. Printed at Leyden 1648, fol.

Martyn. Cent. John Martyn, Profeſſor of Botany at Cambridge, his five Decades of Rare Plants. Printed at London 1728, 1729, &c. in large folio, with figures of the Plants in their proper Colours.

Matth. Peter Andrea Matthiolus, his Commentaries on Dioſcorides. Printed at Venice 1558, fol.

Mentz. Chriſtian Mentzelius's Indexes of Plants in ſeveral Languages. Printed at Berlin in fol. 1682.

Michel. Peter Anthony Micheli, his New Genera of Plants. Publiſhed at Florence 1729, fol.

Moriſ. H. R. Robert Morriſſon, his Catalogue of the Royal Garden at Blois, to which is joined his Prelude to Botany. Printed at London 1699, 8vo.

Mor. Hiſt. An univerſal Hiſtory of Plants, by Robert Morriſſon. Printed at Oxford 1679, 1680, and 1699, three volumes in folio.

Munt. Aloid. An Hiſtory of Aloes, by Abraham Muntingius. Printed at Amſterdam 1668, 4to.

Munt. Phyt. Muntingius's Phytographia. Printed at Leyden 1702, fol.

Munt. Herb. Brit. Muntingius's true Herba Britannica, 4to, to which is frequently added his Aloidærum. Printed at Amſterdam in 4to, 1698.

Niſſol. Niſſole, his Memoirs of Plants. Printed in the Acts of the Academy of Sciences at Paris.

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An EXPLANATION of the AUTHORS NAMES.

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THE

GARDENERS DICTIONARY.

ABELE-tree. See POPULUS.

ABIES; the Fir-tree.

The name is derived from *abeo*, to extend or advance. Others ſay, it is derived from *abeo*, to go away, becauſe the bark ſplits, and, as it were, falls away, or is broke off eaſily.

The CHARACTERS are, *The male flowers are diſpoſed in a looſe bunch, having no corolla, but many ſtamina, joined in form of a column at their baſe, but ſeparate above, having erect ſummits. The female flowers are collected in an oblong cone, each ſcale including two, which have no corolla, a ſmall germen with a ſingle ſtigma. Theſe are ſucceeded by membranaceous winged ſeeds.*

Dr. Linnæus, profeſſor of botany at Upſal, whoſe ſyſtem is generally followed at preſent, ranges this genus in the ninth ſection of his twenty-firſt claſs of plants, which includes ſuch as have male and female flowers, placed at diſtances on the ſame tree, whoſe ſtamina are joined together in form of a column.

To this genus he joins the Pine, Cedar, and Larch-tree, ſuppoſing them only different ſpecies of one genus; however, as there is great difference in the culture of theſe trees, we ſhall chooſe to continue the former method of arranging them under their different genera. It may not be amiſs however to obſerve, that in the former editions of Linnæus's Genera Plantarum, theſe plants were ranged under the article Abies, but in the laſt edition he has thought proper to place them under Pinus.

The SPECIES, which are at preſent to be found in the Engliſh gardens, are,

1. ABIES (*Alba*) foliis ſubtus argenteis apice emarginatis, conis erectis. *Fir-tree whoſe leaves are white on their under-ſide, and indented at their points, commonly called Silver Fir.* Abies taxi folio, fructu ſurſum ſpectante. Tourn. Inſt. R. H.
2. ABIES (*Picea*) foliis ſubulatis mucronatis lævibus bifariam verſis. *The Norway Fir, or Pitch-tree.* Abies tenuiore folio, fructu deorſum inflexo. Tourn. Inſt. R. H.
3. ABIES (*Balſamea*) foliis ſubtus argenteis apice ſubemarginatis bifariam verſis. *The Balm of Gilead Fir.* Abies taxi foliis, odore balſami Gileadenſis. Raii Hiſt. App.
4. ABIES (*Canadenſis*) foliis linearibus obtuſiuſculis ſubmembranaceis. *The Newfoundland White Spruce Fir.* Abies foliis piceæ brevioribus, conis parvis biuncialibus laxis. Rand.
5. ABIES (*Mariana*) foliis linearibus acutis, conis minimis. *The Black Spruce Fir of North America with very ſmall cones.*
6. ABIES (*Americana*) foliis linearibus obtuſiuſculis bifariam verſis conis ſubrotundis. *The Hemlock Spruce Fir.*

There is alſo another ſort of Fir, which has been of late years introduced from North America, by the title of Red Spruce Fir of Newfoundland; but ſo far as we can judge by the young trees now growing in the Engliſh gardens, it appears to be only a variety of the Black Newfoundland Spruce Fir. There was alſo many years paſt a tree of the China Fir, growing in the garden of Mr. Morgan of Weſtminſter, which is mentioned by Dr. Pluknet, but being in a bad ſituation it made little progreſs, the ſmoke of London being very hurtful to all ſorts of evergreen trees; but whether it was killed in that garden, or removed to any other, I do not know, for the ground has been built upon many years.

The firſt and ſecond ſorts of Firs are very common in gardens and plantations of evergreen trees.

The firſt grows in great plenty about Straſburgh, and other parts of Germany; from whence the turpentine is brought to England. But it is ſuppoſed, that moſt, if not all of theſe were originally planted; however, the moſt beautiful of theſe trees are now growing upon mount Olympus, from whence I have received cones, which were upwards of a foot in length. Theſe are certainly natives of the place. Dr. Tournefort, in his travels, mentions the Firs of mount Olympus as the moſt beautiful trees in the Levant.

The ſecond ſort, which is very common in the woods of Norway, is the tree that affords the white deals, and grows in the vallies where the ſoil is very deep. There are two varieties of this ſpecies, greatly differing in the length and colour of their leaves, as alſo the ſize of their cones; one of which has been diſtinguiſhed by nurſery-gardeners, under the title of

Long Coned Corniſh Fir. The leaves of this are whiter, and much longer than the others; the cones are alſo of a greater length than thoſe of the common ſort, ſo that by the appearance of the trees, any perſon might ſuppoſe them to be a diſtinct ſpecies. But from the ſeeds which were carefully taken from this ſort, both varieties of plants have riſen, therefore they muſt be only deemed varieties.

From this tree the pitch is drawn, and hence it had the title of Picea, or Pitch-tree.

The third ſort was formerly growing in the Biſhop of London's garden at Fulham; and of late years there has been a great number of the trees raiſed from the ſeeds which have been brought from America. This ſort makes very little progreſs after eight or ten years growth; the only place in which the trees have made any figure, is at his Grace the Duke of Bedford's at Woburn-abbey in Bedfordſhire.

The fourth ſort is a native of North America, from whence the ſeeds have been brought to England, and great numbers of the plants raiſed. This is called by the inhabitants in America, the White Spruce Fir. It grows naturally on the mountains and higher lands, and arrives to a much greater ſize than moſt of the other ſorts. Thoſe in the gardens of the late Duke of Argyle, at Whitton near Hounſlow, are by much the fineſt I have ſeen: but there muſt be ſome trees of a greater age in Devonſhire, unleſs they have been deſtroyed; for in the year 1724, I received ſome branches of this tree full of cones, from a gentleman of that county, who had ſeveral of the trees then growing, which were of a conſiderable ſize.

The fifth ſort grows naturally on moiſt land, in many parts of North America, but rarely arrives to the ſize of the fourth: however, the inhabitants of America uſe the branches of both indifferently in making of Spruce-beer, from whence the trees obtained the title of Spruce-trees.

From both theſe ſpecies of Fir, exſudes a fine clear turpentine of a ſtrong ſcent, which the native Indians uſe to cure green wounds, and alſo for ſome internal diſorders; and of late years the Engliſh phyſicians in North America, have likewiſe adopted it into their practice.

The ſixth ſort is alſo a native of America, from whence the ſeeds have been brought into Europe. This tree does not thrive well in any part of England, nor in many places of America; though in ſome particular ſpots I have been informed there are very large high trees now growing. It is a native of many parts of North America.

Theſe trees are all raiſed from ſeeds taken out of their polyſpermous cones. The way to get out the ſeeds is, by expoſing the cones to a gentle fire, which will cauſe their ſquamous cells to open, and readily emit the ſeeds: but they ſhould not be expoſed to too great a heat, for the cones of all the Firs open much eaſier than thoſe of Pines, eſpecially thoſe of the Silver and Balm of Gilead Firs, which, if permitted to hang late in the autumn, fall to pieces and ſcatter their ſeeds. This ought not to be done until the time of ſowing them, which is beſt performed the latter end of March.

Theſe plants ſhould be all raiſed in a nurſery, where they may be protected from the birds, otherwiſe they will be in danger of being deſtroyed when they firſt come up. For as they bring up the huſk of the ſeed on the top of the plant, the birds, in picking off the huſk, will break off the tops of the plants, whereby a whole bed may be loſt in a few hours, if not carefully guarded from them.

The beſt time for ſowing theſe ſeeds is about the latter end of March, or the beginning of April, according as the ſeaſon is more or leſs forward, on a bed of light earth, covering the ſeeds about half an inch deep with the ſame mould. If this bed be netted over to keep off the birds, it will be a ſure method of preventing them from deſtroying the young plants at their firſt coming out of the ground; at which time they ſhould likewiſe be ſcreened from the ſun in the middle of the day, by covering the beds with mats, becauſe too much ſun frequently deſtroys the plants when they are young. In this bed the plants ſhould remain until the following ſpring, when there ſhould be a number of beds prepared in the nurſery to receive the ſeedlings. In the beginning of April they ſhould be tranſplanted into the beds, at the diſtance of ſix inches row from row, and in the rows at three inches aſunder, ſetting them in a quincunx order. In removing theſe plants, they ſhould be very carefully raiſed up with a trowel, ſo as not to break off the fibres of their roots; nor ſhould they be kept long out of the ground. During the time they are out, their roots ſhould be covered, to prevent the wind from drying their fibres; and in planting, the earth ſhould be preſſed cloſe to their roots, to prevent the air from penetrating to them. If the ſeaſon proves dry, it will be proper to water the plants every week once or twice, according to the warmth of the weather; the beds ſhould alſo be covered with mats, to ſcreen the plants from the ſun, and drying winds, until they have taken good root; after which time they will require little farther care, than to keep them clean from weeds. In theſe beds the plants may remain two years, at the end of which they ſhould be tranſplanted into an open ſpot of ground, for their roots will in that time meet quite over the beds. This ground, to which they are to be removed, ſhould be well trenched and cleared from all noxious weeds, and made level. The beginning of April, juſt before the plants begin to ſhoot, will be a good time to remove them. In taking up the plants, great care ſhould be taken not to tear off or injure their roots; nor ſhould too many of the plants be taken up at one time, but rather plant them as faſt as they are taken up, that they may be as little time out of the ground as poſſible. For the drying winds, which uſually happen at this ſeaſon, will greatly injure the roots of theſe plants, if much expoſed thereto.

The diſtance at which they ſhould be placed in the nurſery, ſhould be four feet row from row, and in the rows two feet aſunder. This diſtance may by ſome be thought too great; but if it be conſidered how much their roots ſpread in the ground, as alſo that when they are planted nearer together, it will be very difficult to take up the plants again without cutting and tearing off their roots, eſpecially if they are not all taken up clean at the ſame time: theſe conſiderations muſt have greater weight than that of the loſs of a little ground, with all who have any regard to the future welfare of the plants. In planting them, it will be adviſeable to draw a line croſs the ground, and to dig out a trench of a foot wide, into which the plants may be placed at the diſtance of two feet aſunder. Then fill the earth into the trench, covering the roots of the plants with the fineſt part of it, ſcattering it carefully between the roots; and when the whole trench is filled in, preſs the earth gently down with your feet; but by no means tread it too hard, eſpecially if the ground be ſtrong, or apt to bind too cloſe.

When the plants are thus planted, if the ſeaſon ſhould prove dry, they ought to be watered, in order to ſettle the earth to their roots; and if this be repeated three or four times, (if the ſeaſon ſhould continue dry) it will greatly promote their taking new root, and ſecure them from the injuries of the drying winds. In this nurſery the plants may remain two or three years, according to the progreſs they ſhall have made; and during this time, the ground between the plants ſhould be conſtantly kept clean from weeds, and dug between the rows every ſpring; in doing of which, care muſt be taken not to cut or injure the roots of the plants: this is all the culture they will require during their continuance in the nurſery. When they are tranſplanted into the places where they are to remain, the neceſſary care to be taken is, in taking them up, not to injure or cut off their roots, and to let them be as little time out of the ground as poſſible;

and while they are out, to guard their roots from the drying winds. The ſureſt time for removing theſe trees is about the beginning of April; for though they may be, and often are, removed with ſucceſs at Michaelmas, yet the ſpring is the more ſure ſeaſon, eſpecially in moiſt land.

Moſt of the kinds of Firs may be removed at the height of ſix or ſeven feet; but thoſe of two feet high are much better to tranſplant, and will in a few years gain the aſcendant of taller trees: I would not, therefore, adviſe the tranſplanting of theſe trees when they are much above two feet high, eſpecially if they have ſtood in the nurſery unremoved. For then their roots will have extended themſelves to a diſtance, which muſt be cut in taking them out of the ground; and where great amputation is uſed either to the roots or branches of theſe trees, the quantity of turpentine which commonly iſſues from theſe wounds, will greatly weaken the trees. There is another advantage alſo in planting them when ſmall, which is that of not requiring ſtaking to ſecure them from being blown down by ſtrong winds, which in tall trees is a great trouble or expence. And whoever will give themſelves the trouble to obſerve, how much trees of two feet high exceed in growth thoſe which are removed at a much greater height, will, I am ſure, be convinced of the truth of what is here ſaid.

The common Spruce Fir is what affords the white deals. The trees grow in the deep ſtrong ſoils of Norway and Denmark; but will grow likewiſe in almoſt any ſoil or ſituation in England, provided it be not within the reach of the ſmoke of great cities, which is very injurious to all theſe ſorts of trees; nor do they thrive near ſo well in dunged land, as in freſh uncultivated ſoils. The diſrepute theſe trees have been under for ſome years paſt, has been occaſioned by their being planted too cloſe together, or too near other trees, whereby the air has been excluded from their branches, which has occaſioned moſt of their under branches to decay; ſo that when viewed from the ground under their branches, they have a greater appearance of dead than living trees. But where they have been allowed a good diſtance, and planted in a ſtrong freſh ſoil, they have had their branches quite feathered within ſix or eight feet of the ground, and that too in trees upward of ſixty feet high; therefore ſhould not be planted nearer than twelve feet apart, nor ſhould they be ſo near, where the plantation is more than three rows deep. In this caſe, eighteen or twenty feet aſunder will be full near enough, eſpecially where the trees are deſigned to have their branches feathered near the ground, in which one of the beauties of theſe trees conſiſts.

The Silver Fir requires a ſtronger land than the Spruce, for in dry ground they ſeldom make any great progreſs; and many times, even after they have arrived to a conſiderable ſize, are deſtroyed by very dry ſeaſons, where the ſoil is ſhallow, or too dry. But when they are planted in a proper ſoil, they grow to a very large ſize, and are extremely beautiful, having the under ſide of their leaves white, and the upper ſide of a dark green colour.

This ſort of Fir, however, is frequently injured by froſts, when they happen late in the ſpring, eſpecially while the plants are young. For when theſe are planted in a warm ſituation, they are apt to ſhoot pretty early, and if any ſharp froſts happen after they have puſhed, the young ſhoots are killed; ſo that they loſe a year's growth, and are rendered ſo very unſightly, that many times they have been pulled up and thrown away. In cold ſituations, however, where they do not begin to ſhoot ſo early, they are not ſubject to this diſaſter; and, in many ſuch places, theſe trees grow to a large ſize, and have their beauty. I have ſometimes ſeen ſome fine trees of this ſort of Fir, which grew upon natural bogs, where, by extending their roots, they had drained the ground to a conſiderable diſtance round them. There were ſome trees of this kind lately growing in England, upwards of ninety feet high.

The method of raiſing the other ſorts of Firs.

About the latter end of March, or the beginning of April (according to the forwardneſs of the ſeaſon, by which every perſon muſt be guided) prepare a very moderate bed, in length proportional to the quantity of ſeeds to be ſown, and where there are frames which can be ſpared for this purpoſe, theſe may be placed upon the bed; but where theſe are wanting, the bed ſhould be cradled over with hoops, that they may be covered with mats or canvaſs; then plunge the bed full of ſmall pots, ſuch as are commonly ſold about London for four ſhillings and two pence per hundred. Theſe pots ſhould be filled with light undunged earth, and the interſtices between the pots may be filled up with any other earth which is neareſt to the place; then ſow the ſeeds in theſe pots, covering them about half an inch with the ſame light earth. In drying winds the bed ſhould be covered, to prevent the earth from drying too faſt, which would prove hurtful to the ſeeds; nor ſhould the ſeeds have too much wet, which would be equally injurious to them: therefore the earth ſhould be but ſeldom watered, and it muſt never be given in great quantities. When there is any appearance of froſt at night, the bed ſhould alſo be covered. With this management the plants will appear in five or ſix weeks time, when they muſt be carefully guarded from birds, as was before directed for the common ſorts, and alſo ſcreened from the ſun in the middle of the day; but they muſt now have freſh air admitted to them at all times when the weather will permit. They may alſo be allowed to receive any gentle ſhowers of rain, but they ſhould not have too great plenty of moiſture, which will frequently rot the young plants, and cauſe them to drop. Upon the judicious care of this, depends the whole ſucceſs; for I have frequently ſeen great numbers of theſe plants deſtroyed in one day, by being either too much expoſed to the ſun, or from having too much wet.

It may, perhaps, ſeem ſtrange to many, that I ſhould direct the ſowing the ſeeds of theſe trees which are ſo very hardy upon a hot-bed; but from many trials I have always found they have ſucceeded much better this way than any other, for the gentle warmth of the bed will not only cauſe the ſeeds to vegetate much ſooner than they would naturally do in the cold ground, but the plants will alſo riſe much ſtronger, and, conſequently, be in leſs danger of rotting in their ſhanks. And as the warmth of the bed is only to bring up the plants, ſo there ſhould be but little dung employed in making it; for after the plants are up, they muſt be inured to the open air, and treated as hardily as the common ſorts.

There may be others, perhaps, who will object to the directions given for ſowing the ſeeds in ſuch ſmall pots, becauſe, where there is any quantity of the ſeeds, it is uſual to ſow them in boxes, or large pots: but I can from many years experience aver, that moſt ſorts of ſeeds ſucceed better when ſown in ſmall pots, than in boxes, or larger ones, and therefore recommend this practice.

As the ſeeds of the Hemlock Fir will frequently remain in the ground four or five months, the pots, in which they are ſown, ſhould not be diſturbed, if the plants come not up ſo ſoon as may be expected; for unleſs upon ſtirring the ground, the ſeeds are found to be decayed, there may be hopes of their growing the ſecond ſpring, for I have ſometimes had the ſeeds remain a whole year in the ground, and afterwards come up very well: this caution, therefore, is given to prevent the pots from being too haſtily turned out.

The plants of theſe ſorts of Fir muſt be afterwards treated in the ſame way as the common ſorts, with this difference only, that they ought to be tranſplanted into a more ſhady ſituation and moiſter ſoil. For while the plants are young, they will not thrive if they are much expoſed to the ſun, or in a dry ſoil; but when they have obtained ſtrength, they will bear the open ſun very well, and in a moiſt ſoil will make great progreſs; whereas in dry ground they frequently ſtint, and produce plenty of male flowers and cones, by the time they get to the height of four or five feet. When the branches of theſe trees are cut off to trim them up to have ſtems, it ſhould be done gradually, never cutting more than one tier of branches in one year; for if too many wounds are made at the ſame time on theſe reſinous trees, the turpentine will iſſue out in ſuch quantities as to weaken and check their growth. The beſt time for pruning theſe trees is in September, at which time they abound not ſo much in turpentine as in the ſpring, and, conſequently, do not bleed much. What flows out at that ſeaſon, is ſeldom more than is neceſſary for covering the wounds, to prevent the wet and cold of the ſucceeding winter from penetrating the wounded parts. Theſe branches ſhould be cut cloſe to the trunk.

ABROTANUM, or Southernwood. See Artemisia.

ABROTANUM FŒMINA. See Santolina.

ABRUS. See Glycine.

ABSINTHIUM, Wormwood. See Artemisia.

ABUTILON. See Sida.

ACACIA, Egyptian Thorn, or Binding Bean Tree. See Mimosa.

ACALYPHA, three ſeeded Mercury. This genus of plants is by Dr. Linnæus ranged in the ninth ſection of his twenty-firſt claſs, which comprehends ſuch plants as have their male flowers furniſhed with one ſet of united ſtamina.

The Characters are,

The male flowers are in cluſters ſituated above the female in the ſame plant. Theſe have no corolla: they have a four leaved empalement with ſeveral ſhort ſtamina, which are joined at their baſe, having roundiſh ſummits. The female flowers have a large empalement, a three leaved cup which is permanent: they have no corolla. A roundiſh germen with three branching ſtyles, and a long ſtigma. The cup afterwards turns to a capſule with three cells, each containing one roundiſh ſeed.

The Species are,

1. Acalypha (*Virginica*) involucris fœmineis cordatis inciſis, foliis ovato-lanceolatis petiolo longioribus. Hort. Upſal. 290. i. e. *Three ſeeded Mercury, whoſe female flowers have a heart-ſhaped empalement, and oval ſpear-ſhaped leaves, with long foot-ſtalks.* Mercurialis tricoccos hermaphroditica.
2. Acalypha (*Virgata*) ſpicis fœmineis involucris cordatis ſerratis; maſculis aphyllis diſtinctis foliis lanceolato-ovatis. Amœn. Acad. 5. p. 410. *Three ſeeded Mercury, whoſe female flowers have an indented heart-ſhaped empalement, diſtinct from the male.*
3. Acalypha (*Indica*) involucris fœmineis cordatis ſubcrenatis, foliis ovatis petiolo brevioribus. Flor. Zeyl. 341. *Mercury, whoſe female flowers have heart-ſhaped crenated empalements and oval leaves.*

The firſt ſort grows naturally in Virginia, and ſeveral other parts of North America, from whence I received the ſeeds. It is an annual plant, which ſeldom grows more than a foot high, ſending out ſeveral ſide branches towards the bottom. The leaves are very like thoſe of the broad leaved Pellitory of the wall, and are placed alternately, having long foot-ſtalks, from the alæ, or wings of the leaf. The flowers are produced in ſmall cluſters, the male always being above the female. Theſe make but a poor appearance, and reſemble thoſe of the Pellitory ſo much, that at a ſmall diſtance, any perſon might ſuppoſe them to be the ſame, till convinced by a nearer inſpection.

If the ſeeds of this ſort are permitted to ſcatter, the plants will come up in the ſpring, better than if ſown by hand; for if they are not put into the ground in Autumn, they rarely grow the firſt year. All the culture this plant requires, is to keep it clear from weeds, and let it remain where it was ſown, for it doth not bear removing well. It flowers in Auguſt, and the ſeeds ripen in October.

The ſecond ſort is a native of the warmeſt countries, I received the ſeeds of this from Jamaica, where it grows in great plenty. This is alſo an annual plant, which in England ſeldom exceeds the former ſort in its ſtature. The leaves of this greatly reſemble thoſe of the annual Nettle, and ſting full as much when touched. It is too tender to thrive in the open air in England, therefore the ſeeds ſhould be ſown in pots, plunged into a hot-bed; and if the plants do not come up the firſt year, (which often happens) the pots ſhould be put in ſhelter in winter, and the following ſpring plunged again into a hot-bed, which will bring up the plants. Theſe muſt be tranſplanted into pots, and brought forward in hot-beds, otherwiſe they will not produce ſeeds ripe in England.

Theſe plants have no beauty to recommend them, but as they are preſerved in ſeveral gardens for the ſake of variety, I thought it neceſſary to inſert them here.

ACANACEOUS plants [ſo called from ἄκανθα, *Gr.* a thorn or prickle] are ſuch as have prickly heads.

ACANTHUS [ἄκανθος, ſo called, as ſome ſay, from ἄκανθα, a thorn.] It is alſo called Branca Urſina, or Bear's-breech.

The Characters of this plant are,

The empalement is compoſed of three pair of unequal leaves. The flower is unequal, of one leaf, with a ſhort tube, the beard, or lower lip, being large, plain, and erect. It has no upper lip. The ſtamina and ſtyle occupy the place of it. Theſe are arched and ſtretched out beyond the empalement. There are two long and two ſhorter ſtamina, which cloſely coaleſce to the ſtyle, which is ſituated upon a roundiſh germen, and afterwards become an oval capſule, having two cells, each containing one fleſhy ſmooth oblong ſeed.

This genus of plants is by Dr. Linnæus ranged in the ſecond ſection of his fourteenth claſs, intitled Didynamia Angioſpermia, from the flowers having two long, and two ſhorter ſtamina, and the ſeeds growing in a cover.

The Species are,

1. Acanthus (*Mollis*) foliis ſinuatis inermibus. Hort. Cliff. *The common, or ſmooth garden Bear's-breech.* Acanthus Sativus vel Mollis Virgilii. C. B.
2. Acanthus (*Nigra*) foliis ſinuatis inermibus glabris lucidè virens; *Portugal Bear's-breech, with ſmooth ſinuated leaves of a lucid green colour.* Acanthus Luſitanicus ampliſſimo folio lucido. Juſſ.
3. Acanthus (*Diſcoridis*) foliis lanceolatis integerrimis margine ſpinoſis. Gron. Ov. *Middle Bear's-breech, with intire leaves, having ſpines on their borders.*
4. Acanthus (*Spinoſus*) foliis pinnatifidis ſpinoſis. Hort. Cliff. 326. *Prickly Bear's-breech.* Acanthus aculeatus. C. B. P. 383.
5. Acanthus (*Ilicifolius*) foliis repandis dentato-ſpinoſis, caule fruticoſo aculeato. Oſb. it. 92. *Shrubby Bear's-breech, with prickly leaves like Holly.* Acanthus malabarius, agrifolii folio. Pet. ſic. 10.

The firſt ſort is what is uſed in medicine, and is ſuppoſed to be the Mollis Acanthus of Virgil. The leaves of this plant are cut upon the capitals of Corinthian pillars.

Various have been the diſputes among the learned about the plant, which is mentioned under this title by Virgil, who have given ſo many different characters to it, that no plant yet known will agree with them all. Many, therefore, have been of opinion, that there were two ſorts of the Acanthus, one of them a tree, and the other an herb. The tree is ſuppoſed to be the Egyptian Acacia, and the plant the firſt ſort here mentioned; but there yet remains a difficulty with regard to ſome of the epithets applied to that plant, as firſt, where it is mentioned to be an evergreen berry-bearing plant. *Baccas ſemper frondentis Acanthi.* As to its being evergreen, that may be eaſily conceived of our Acanthus, in the warm climate of Italy; for in England, where the plants grow in a warm ſituation, they are ſeldom deſtitute of leaves more than ſix weeks, unleſs the winter proves very ſevere. We may alſo ſuppoſe, that the fleſhy oval ſeed-veſſels of this plant might be taken for berries. But then with regard to its being a twining plant, *flexi* *tacuiſſem vimen acanthi*, it will by no means agree with this, or the Egyptian Acacia. However, as the botaniſts in general have agreed that the plant here mentioned is the Acanthus of Virgil, and there being ſeveral entire columns of the Corinthian order yet remaining at Rome, upon whoſe capitals the leaves of this plant are ſo well expreſſed, as not to admit of any doubt of their being deſigned from our Acanthus, and theſe columns being as antient as the time of Vitruvius, there can be no doubt that this is the plant from whoſe leaves Callimachus, a famous architect, compoſed the capitals of the Corinthian pillars.

The ſecond ſort was diſcovered in Portugal by Dr. Bernard de Juſſieu, demonſtrator of plants in the royal garden at Paris, from whom I received the ſeeds in 1725, which ſucceeded in the Chelſea garden, and frequently perfects ſeeds there; which being ſown, conſtantly produce the ſame plants as the parent, and therefore muſt be a diſtinct ſpecies.

The third ſort is at preſent very rare in England; it grows naturally in the eaſt, and is by Dr. Linnæus ſuppoſed to be the Acanthus of Dioſcorides, but with what certainty I cannot determine. This ſort is not ſo hardy as either of the two former, ſo requires ſhelter in the winter; therefore the plants, while young, ſhould be kept in pots, and placed under a common frame during the winter ſeaſon; where they may enjoy the open air in mild weather, but ſcreened from hard froſts. When the plants have acquired ſtrength, ſome of them may be turned out of the pots, and planted in a border near a ſouth wall, and in hard froſts if they are covered with mats or hand-glaſſes, they may be ſecured, and theſe plants will more certainly flower than thoſe in the pots.

The leaves of the fourth ſort are deeply jagged, in very regular order, and each ſegment is terminated with a ſharp ſpine, as are alſo the foot-ſtalks of the leaves, and the empalement of the flower, which renders it troubleſome to handle either of them.

The fifth ſort grows naturally in both Indies; I received it from the Spaniſh Weſt-Indies. There is a good figure of this plant in Pluknet's Phytographia, tab. 261, fig. 4. under the following title, Frutex Indicus ſpinoſus, foliis Agrifolii ſiliqua geminata brevi. This is a ſhrub which riſes about four feet high, is divided into many branches, garniſhed with leaves, very like thoſe of the common Holly, both in ſize and ſhape, and are armed with ſpines in the ſame manner; the flowers come out ſingly, which are white, and ſhaped like thoſe of the common Acanthus, but ſmaller. After the flower is paſt, the germen becomes an oval bicapſular veſſel, having one oblong ſeed in each cell. This ſhrub is evergreen, but is too tender to thrive out of a ſtove in England, and can only be propagated by ſeeds, which do not ripen in Europe.

The other ſorts are laſting plants, which may be propagated either by ſeeds, or parting of their roots; if by the former method, the ſeeds ſhould be ſown in a light dry ſoil, towards the end of March: if the ſeaſon proves favourable, the plants will appear in May, and all the culture they require, is to keep them clean from weeds, and where the plants are too cloſe, to thin them, ſo as to leave them about ſix inches aſunder, which will be room enough for them to grow till autumn, when they ſhould be tranſplanted where they are deſigned to remain. The firſt, ſecond, and third ſorts, being tenderer than the others, ought to be planted in a warm border near a wall; and as theſe do not multiply ſo faſt by their roots, ſo they do not require more room than three feet; but the fourth ſort ſpreads its roots to a great diſtance, therefore muſt have more than twice that room. This being hardy in reſpect to cold, may be planted between ſhrubs, to fill up vacant ſpaces, where it will thrive faſt enough, provided the ground be light, and not over wet, and when the plants are in flower, will make an agreeable variety. If this ſort is propagated by its root, it may be performed either in ſpring or autumn; but the three firſt muſt only be removed in the ſpring, for if they are tranſplanted in the autumn, and the following winter prove cold, they will be in danger of being deſtroyed.

Theſe plants take root very deep in the ground, ſo that when they are planted in wet ground, their roots will rot in winter: I have frequently traced them more than four feet, therefore they ſhould not be removed after they have been growing long in a place, but the ſide ſhoots may be annually taken off, eſpecially from the creeping kinds, otherwiſe they will ſpread ſo far, as to over-bear any of their neighbouring plants or ſhrubs. When the ſorts with creeping roots are once eſtabliſhed in a garden, they are with difficulty eradicated, for every root which may happen to be left, will ſhoot again, ſo as to become troubleſome.

ACARNA. See Cnicus.

ACAULIS, or **ACAULOS** [of *α neg.* and *caulis* a ſtalk or ſtem; i. e. without ſtalk;] a plant is ſaid to be *acaulis*, or without ſtalk, whoſe flower reſts on the ground, having no viſible ſtalk.

ACER [ſo called according to Voſſius, from *acris*, L. becauſe of the very great hardneſs of its wood.] The Maple-tree.

The Characters of this tree are,

The empalement of the flower is monopetalus, coloured, and cut into five ſharp ſegments at the brim, and is permanent. The corolla is compoſed of five oval petals which ſpread open, and are larger than the empalement. It hath eight ſhort awl-ſhaped ſtamina crowned by ſimple ſummits. The germen is compreſſed, and immerſed in the large perforated receptacle. The ſtyle is ſlender. It hath two acuminated ſtigma which are reflexed. The capſules are two, joined at their baſe; they are roundiſh, each being terminated by a large wing, incloſing one roundiſh ſeed in each.

This is ranged by Dr. Linnæus, in his twenty-third claſs of plants, entitled Polygamia Monœcia.

The Species are,

1. Acer (*Pſeudo Platanus*) foliis quinquelobis inæqualiter ſerratis floribus racemoſis. Lin. Sp. Plant. 1054. *The greater Maple, falſely called Platanus.* Acer majus multis falſo platanus. J. B. The Sycamore-tree.
2. Acer (*Campeſtre*) foliis lobatis obtuſis emarginatis. Lin. Sp. Plant. 1055. *The ſmall, or common Maple.* Acer campeſtre & minus. C. B. P. 431. By the French, *Petit erable des bois.*
3. Acer (*Negundo*) foliis compoſitis floribus racemoſis. Hort 144. *The Virginia Aſh-leaved Maple.* Acer maximum foliis trifidis vel quinquefidis Virginianum. Pluk. Phyt.
4. Acer (*Platanoides*) foliis quinquelobis acuminatis acutè dentatis glabris floribus corymboſis. Lin. Flor. Suec. 303. *The Norway Maple with Plane-tree leaves.* Acer platanoides. Munt. Phyt.
5. Acer (*Rubrum*) foliis quinquelobis ſubdentatis ſubtus glaucis pedunculis ſimpliciſſimis aggregatis. Lin. Sp. Plant. 1055. *The ſcarlet flowering Maple of Virginia.* Acer Virginianum folio majore ſubtus argenteo ſupra viridi ſplendente. Pluk. Alm. 7.
6. Acer (*Saccharinum*) foliis quinquepartito-palmatis acuminato dentatis. Lin. Sp. Plant 1055. *The American Sugar Maple.*
7. Acer (*Penſylvanicum*) foliis trilobis acuminatis ſerrulatis floribus racemoſis. Lin. Sp. Plant. 1055. *The Mountain Maple of America.*
8. Acer (*Opalus*) foliis lobatis, minimè inciſis fructu racemoſo. *The Italian Maple, commonly called Opalus.* Acer major folio rotundiore minùs laciniato & opalus Italorum. Raii Hiſt.
9. Acer (*Monſpeſulanum*) foliis trilobis integerrimis. Prod. Leyd. 459. *The Montpelier Maple.* Acer trifolium. C. B. P. 431.
10. Acer (*Cretica*) foliis trilobis integerrimis ſubtus pubeſcentibus. *Cretan Maple with three entire lobes to the leaves, which are ſomewhat hairy on their under-ſide.*

Theſe trees are eaſily propagated by ſowing their ſeeds, which ſhould be done ſoon after they are ripe, in a bed of common earth, covering them about half an inch thick with light mould. The ſpring following they will appear above ground, and, if kept clear from weeds, ſome of the ſorts will grow above a foot high the firſt ſummer. The autumn following (if they are cloſe in the ſeed-bed) it will be proper to tranſplant them into a nurſery, in rows at three feet diſtance, and two feet aſunder in the rows; in which place they may remain three or four years, by which time they will be large enough to plant out for good.

If the ſeeds of any of the ſorts of Maple are kept out of the ground till ſpring, they rarely come up the ſame year, and many times do not grow; ſo that the ſureſt method of raiſing them is, to ſow the ſeeds as ſoon as poſſible when they are ripe; and, if the ſeeds are to be tranſported to any diſtance, it will be proper to put them up in ſand, or earth, whereby their growing quality will be preſerved.

The firſt and fourth ſorts are very proper to make plantations near the ſea, or to ſhelter ſuch plantations of trees as are too nearly ſituated thereto. For both theſe ſorts thrive, and reſiſts the ſpray, which is uſually blown from the ſea, better than moſt other trees do. The variegated ſort is alſo raiſed from ſeeds of the ſame kind; and moſt of the plants ſo raiſed, will be as finely ſtriped as the old plant from whence the ſeeds were taken, which is not common to many other variegated plants.

The common Maple is too well known to need any particular account, it growing, very frequently, in hedge-rows in moſt parts of England. It is raiſed in the ſame manner with the former.

The Virginian flowering Maple was raiſed from ſeeds, which were brought from Virginia many years ſince by Mr. John Tradeſcant, in his garden at South Lambeth, near Vauxhall, and ſince, in the gardens of the Biſhop of London, at Fulham, where the trees have flowered for ſeveral years, and produced ripe ſeeds, from which ſeveral trees have been raiſed. It may be alſo propagated by laying down the young branches early in the ſpring, giving them a little ſlit at a joint, by which means they will have taken ſufficient root in two years, to be tranſplanted elſewhere. They require a ſituation a little defended from the north-eaſt winds, eſpecially while young; and delight in a moiſt light ſoil, in which they thrive much better than in a dry ground, and will produce more flowers, and better ſeeds. This tree commonly flowers in the beginning of April, and the ſeeds are ripe in five or ſix weeks after, at which time they ſhould be ſowed; for they are very apt to periſh, if kept long out of the ground.

There is another variety of the flowering Maple, which was ſent from America to Sir Charles Wager, and flouriſhed ſeveral years in his garden at Parſons-green, near Fulham. This is by the gardeners titled Sir Charles Wager's flowering Maple. The flowers of this kind come out in large cluſters, and ſurround the younger branches, ſo as to appear at a ſmall diſtance covered with them. It is now become pretty common in ſome of the nurſeries near London, ſo that the former ſort is not ſo much eſteemed, being leſs beautiful; but it is doubtful if they are diſtinct ſpecies.

The Aſh-leaved Maple is a very ſtrong ſhooting tree, and is, in Virginia, one of the largeſt trees of this kind. It muſt be planted in places not too much expoſed to violent winds, being ſubject to ſplit thereby. This tree ripens ſeeds very well in England, by which means it is eaſily propagated, or by cuttings planted in autumn.

The Norway Maple has a milky ſharp juice, ſo that few inſects care to prey thereon, by which means the leaves are ſeldom eaten or defaced; and being ſmooth, and of a ſhining green, they have a much better appearance than thoſe of the Sycamore; and in the ſpring, when the flowers are out, have great beauty. This tree is alſo raiſed by ſeeds, of which it affords great quantities, which riſe and grow from the ſcattered ſeeds as well as the common ſort; it will alſo grow from cuttings, if they are planted in the autumn.

The variegated kind may alſo be propagated by inoculating a bud of the ſtriped kind into one of the plain ſort, though I am not at preſent ſure whether it will take upon any other ſort of Maple, not having made the experiment; but I believe it can ſcarce fail. Moſt, if not all the other ſorts of Maples, take very well upon each other.

The American Sugar Maple has ſome reſemblance to the Norway, when the plants are young; but as they grow up the leaves are more deeply divided, and their ſurfaces leſs ſmooth, ſo that they are then eaſily diſtinguiſhed. From this tree the inhabitants of North America make a very good ſort of ſugar, in large quantities, by tapping the trees early in the ſpring, and boiling the juice, which drawn out till the fæces ſubſide, is the ſugar; but I am of opinion, that the people make ſugar from more than one ſort of Maple in America, for I have found that the Aſh-leaved Maple abounds with a ſaccharine juice, in full as great plenty as any other ſort. Mr. Ray and Dr. Liſter, prepared a tolerable good ſort of ſugar from our greater Maple, by tapping ſome of the trees in their bleeding ſeaſon; and I have obſerved, upon cutting off branches from the ſcarlet Maple in February, a great quantity of a very ſweet juice hath flowed out for ſeveral days together.

The eighth ſort of Maple is very common in moſt parts of Italy, but particularly about Rome, where it is one of the largeſt trees of that country, and is eſteemed for the ſize of the leaves, which are large, affording a great ſhade; ſo that theſe trees are frequently planted by the ſides of roads, and near habitations. In England this tree is very rarely to be met with, though it is hardy enough to bear the open air; but as the ſeeds have not been brought over to England till lately, there are no large plants in the Engliſh gardens at preſent.

The ninth ſort is common in the ſouth of France and Italy; the leaves of this reſemble thoſe of the common Maple, but are of a much thicker ſubſtance, and not ſo large, but are of a ſhining green colour. They continue in verdure very late in the autumn, which renders the trees more valuable. At preſent, this ſort is not common in England. I raiſed ſeveral plants from ſeeds, ſome of which have for ſeveral years produced good ſeeds in the Chelſea garden, where from the ſcattered ſeeds the plants come up annually in plenty.

The tenth ſort hath ſome reſemblance to the ninth. The leaves of this ſort are of a much thinner texture, and their foot-ſtalks are covered with a ſoft hairy down, whereas thoſe of the other are ſmooth and ſtiff. This ſort grows naturally in the Levant.

Moſt of the ſorts of Maple which come from America, are very impatient of heat while young; their ſeeds therefore ſhould be ſown in a ſheltered ſituation, for if the plants are expoſed to the full ſun but one day, when they firſt appear, few of them will ſurvive it; but eſpecially the Sugar Maple, of which ſort I conſtantly loſt moſt of the plants, till I had the precaution to place the pots, in which the ſeeds were ſown, entirely in the ſhade; for no ſooner are they expoſed to the ſun, but they are immediately attacked by inſects, which in one day will devour their ſeed leaves, after which the plants ſuddenly drop to the ground. This precaution therefore is neceſſary to be obſerved, in raiſing moſt of the ſorts of Maple from ſeeds.

The timber of the common Maple is far ſuperior to the Beech for all uſes of the turner, particularly diſhes, cups, trenchers, and bowls; and when it abounds with knots (as it very often doth), it is highly eſteemed by the joiners for inlayings, &c. and alſo for the lightneſs of the wood, is often employed by thoſe that make muſical inſtruments; and for the whiteneſs of its wood, it was formerly in great requeſt for tables, &c.

ACETOSA [of *acetoſus*, L. eager, ſour.] The Sorrels are by Dr. Linnæus joined to the genus of Dock, under the title of RUMEX; but as all the known ſpecies of Sorrel, have male flowers growing upon diſtinct roots from the female, therefore by his method ſhould be ranged in his twenty-ſecond claſs titled Diœceia; therefore I have taken the liberty to ſeparate theſe from the Docks, rather to preſerve their old title, as the plants have been long uſed both in the kitchen and ſhops.

The Characters are,

It hath male and female flowers in different plants; the male flowers have a three leaved empalement, in which are included ſix ſtamina, crowned with flat oblong ſummits, but have no corolla: the female flowers have alſo a three leaved empalement, in the center of which is ſituated a three cornered germen, ſupporting a trifid ſtylus. The germen afterward turns to a triangular ſeed.

The Species are,

1. Acetosa (*Pratenſis*) foliis ſagittatis inferioribus pediculatis caulinis ſeſſilibus. *Common or Meadow Sorrel.* Acetoſa pratenſis. C. B. P. 114.
2. Acetosa (*Acetoſella*) foliis lanceolato-haſtatis radice repente. *Common Sheep's Sorrel.* Acetoſa arvenſis lanceolata. C. B. P. 114.
3. Acetosa (*Scutatus*) foliis cordato haſtatis radice repente. *Round leaved or French Sorrel.* Acetoſa rotundifolia hortenſis. C. B. P. 114.
4. Acetosa (*Digynus*) humilis repens folio rotundo emarginato. *Low creeping Sorrel with a round indented leaf.* Acetoſa rotundifolia repens Eboraſcenſis folio in medio deliquium patiente. Mor. Hiſt.
5. Acetosa (*Alpina*) foliis cordatis acuminatis amplexicaulibus. *Alpine Sorrel, with heart-ſhaped pointed leaves embracing the ſtalks.* Acetoſa montana lato ari rotundo folio. Bocc. Muſ.
6. Acetosa (*Lunaria*) foliis ſubcordatis, caule arboreo. *Sorrel-tree with roundiſh heart-ſhaped leaves.* Acetoſa arboreſcens, ſubrotundo folio. Pluk. Alm. 8.
7. Acetosa (*Roſea*) foliis eroſis, valvulæ alterius ala maxima membranacea declinata. *Sorrel from Egypt with bitten leaves, and large membranaceous valves declining.* Acetoſa Ægyptia roſea ſeminis involucro. Shaw. Pl. Afr.
8. Acetosa (*Sterilis*) foliis oblongis pedunculis breviſſimus rarò florens. *Northern barren Sorrel.* This is the Acetoſa Muſcovitica ſterilis. Mor. Hiſt.

The firſt of theſe ſorts, though but ſmall in the fields, yet, when ſown in gardens, will produce fair large leaves; this is commonly cultivated in gardens. It muſt be ſown early in the ſpring, in a ſhady moiſt border; and if the plants are afterward removed into another ſhady border, at the diſtance of four or ſix inches ſquare, they will produce larger leaves, and continue longer. This is the common Sorrel uſed in medicine; but the Northern barren Sorrel is preferred to it in the kitchen-garden, becauſe it rarely runs to ſeed, but is increaſed by parting the roots either in ſpring or autumn, and is fit for uſe all the year.

The round leaved (or French) Sorrel, is a more grateful acid, ſo by many perſons is preferred to the other two ſorts for kitchen uſe; this is alſo a medicinal plant, and ſhould not be wanting in any good garden: it is a great runner at the root, by which means it is eaſily propagated, and the roots planted at the diſtance of two feet ſquare at leaſt: it will agree better with an open ſituation than the other two ſorts. And if the flower-ſtems and rambling branches are cut off in the beginning of July, the roots will ſoon put out new leaves, which will be tender and much better for kitchen uſes, than the older leaves; ſo that by cutting down the ſhoots of ſome plants at different times, there will always be a ſupply of young leaves, which is the only part of the plant uſed in the kitchen. And this ſort is much preferable to the common Sorrel for ſoups, ſo many perſons have of late years cultivated it in their gardens, ſince the uſe of Sorrel has been greatly increaſed in England, by the introduction of French cookery, it being an ingredient in many of their ſauces and ſoups. Inſomuch that about Paris, Sorrel is cultivated in as great quantity as almoſt any other eſculent plant.

The Sheep's Sorrel is a common weed in moſt parts of England, growing upon dry banks and in gravelly ſoils in great plenty; for as it propagates very faſt by its creeping roots, ſo wherever it once gets poſſeſſion in the ground, it ſoon multiplies. This is rarely admitted to have a place in gardens, but as it has long been continued in the Diſpenſaries as a medicinal plant, ſo it is here inſerted.

The low creeping Northern Sorrel, is preſerved in many gardens for the ſake of variety, but has not been uſed in the kitchen. This ſort grows wild in moſt of the northern counties, as alſo in Wales. I have ſeen it growing in great plenty in Yorkſhire and Weſtmoreland. The leaves of this ſort have very ſhort footſtalks, and are indented at both ends. Theſe grow near to the ground, and the flower-ſtems rarely riſe above ſix inches high. The roots creep in the ground, whereby it multiplies exceedingly in a proper ſituation. As this ſort grows naturally in ſhady moiſt places, ſo whoever is deſirous to have it thrive in a garden, muſt plant it in a north border and in a moiſt ſoil, where it may be propagated in plenty, and be uſed for the ſame purpoſes as the others.

The Alpine Sorrel is full as hardy as the common, and as the leaves are much larger, ſo they are better for the uſes of the kitchen, having as pleaſant an acid taſte, and being much more ſucculent. This may be propagated either by ſeeds, or parting of their roots, in the ſame manner as the common ſort; but the plants require more room, for which reaſon they ought not to be nearer than a foot from each other, eſpecially in good ground.

ACETOSELLA. See Oxalis.

ACHILLEA, Milfoil Yarrow, or Noſebleed.

The Characters are,

It hath a compound radiated flower, conſiſting of many tubulous florets, which are hermaphrodite, and compoſe the diſk of the flower; the female flowers are ranged round the border; theſe have their corolla ſtretched out on one ſide like a tongue, which compoſe the rays, all included in one common ſcaly empalement. The hermaphrodite flowers have each five ſhort ſlender ſtamina, accompanying a ſmall germen, which is ſituated in the bottom, and reſts upon a downy bed; the germen afterwards becomes a ſingle oval ſeed, having a down adhering to it.

The Species are,

1. Achillea (*Millefolium*) foliis bipinnatis nudis, laciniis linearibus dentatis. Hort. Cliff. 413. *Common Yarrow, called alſo Milfoil, Stratiotes, and Noſebleed.* Of this there is a variety with purple flowers, which is often found growing naturally in England.
2. Achillea (*Santolina*) foliis ſetaceis dentatis, denticulis ſubintegris ſubulatis reflexis. Hort. Cliff. 412. *Eaſtern Sneezwort with a Lavender-cotton leaf, and a large flower.*
3. Achillea (*Tomentoſa*) foliis pinnatis hirſutis pinnis linearibus dentatis. Lin. Sp. Plant. 897. *Woolly Yarrow with yellow flowers.*
4. Achillea (*Pubeſcens*) foliis pinnatis, foliolis lanceolatis inciſis ſerratis ſubtus lanigeris. Hort. Cliff. 413. *Eaſtern Sneezwort with hoary Tanſey leaves, and the rays of the flower of a pale yellow colour.*
5. Achillea (*Abrotanifolia*) foliis pinnatis ſupra decompoſitis, laciniis linearibus diſtantibus. Flor. Leyd. Prod. 175. *Talleſt Eaſtern Yarrow, with a Wormwood leaf and yellow flowers.*
6. Achillea (*Clavennæ*) foliis pinnatifidis planis obtuſis tomentoſis. Lin. Sp. Plant. 898. *Broad-leaved Alpine umbelliferous Wormwood.*
7. Achillea (*Tanacetifolia*) foliis pinnatis foliolis lineari lanceolatis baſi ſurſum auctis. Flor. Leyd. Prod. 176. *Eaſtern Sneezwort with hoary Tanſey leaves, and a golden flower.*
8. Achillea (*Ageratum*) foliis lanceolatis obtuſis acutè ſerratis. Hort. Cliff. 413. *Commonly called Sweet Maudlin.*
9. Achillea (*Ægyptiaca*) foliis pinnatis foliolis obtuſè lanceolatis ſerrato dentatis. Hort. Cliff. 413. *Hoary Sneezwort with creſted pinnulæ.*
10. Achillea (*Ptarmica*) foliis lanceolatis acuminatis argutè ſerratis. Lin. Sp. Plant. 898. *Common Ptarmica or Sneezwort.* Of this ſort there is a variety with double flowers which is preſerved in gardens.
11. Achillea (*Macrophylla*) foliis pinnatis planis inciſo ſerratis extimis majoribus coadunatis. Lin. Sp. Plant. 1265. *Alpine Sneezwort with Feverfew leaves.*

12. Achillea (*Nana*) foliis pinnatis dentatis hirſutiſſimis floribus glomerato umbellatis. Lin. Sp. Plant. 2671. *Hoary Alpine Milſoil, with a ſpecious flower.*

13. Achillea (*Nobilis*) foliis bipinnatis, inferioribus nudis planis, ſuperioribus obtuſis tomentoſis corymbis convexis conſertiſſimis. Lin. Sp. 1268. *Noble or Sweet Milſoil.*

14. Achillea (*Alpina*) foliis lanceolatis dentato-ſerratis denticulatis tenuiſſime ſerratis. Hort. Cliff. 413. *Alpine Sneezwort with leaves deeply ſerrated, commonly called White Maudlin.*

The firſt ſort here enumerated, is the common Yarrow or Milfoil, which grows naturally on banks and by the ſides of foot-paths in moſt parts of England, ſo is rarely allowed a place in gardens; but being an officinal plant, it is here mentioned to introduce the others. Of this there is a variety with purple flowers, which is frequently found wild in England; but the plants ſeldom continue to produce purple flowers long, when they are tranſplanted into gardens. The Yarrow creeps greatly by its roots, and alſo multiplies by ſeeds, ſo that it becomes a troubleſome weed, where it is permitted to grow.

The third ſort is often planted in gardens for the ſake of variety. This is of humble growth, ſeldom riſing more than eight or nine inches high. The leaves are finely cut, and are very hoary; the flowers are of a bright yellow colour, and continue long in beauty. It grows naturally in the ſouth of France, Spain, and Italy, but will live in the open air in England. It is increaſed by parting of the roots, the beſt time for which is in October.

The fourth, fifth, ſeventh, and ninth ſorts, are natives in the iſlands of the Archipelago. Theſe were introduced into France by Dr. Tournefort. The ninth ſort hath very hoary leaves, which remain all the year; and the plants growing cloſe and low, make a pretty appearance at all ſeaſons. The flowers are produced in umbels on the top of the ſtalks, which are yellow; theſe appear in June, July, Auguſt, and September, and are of long duration, ſo that frequently ſome of them continue the greater part of the winter. This ſort muſt have a dry ſoil and a warm ſituation, where it will endure the cold of our ordinary winters in the open air, but in very ſevere froſt they are often deſtroyed; a few plants therefore ought to be ſheltered under a frame in winter, to preſerve the kind. It is propagated by ſlips, which may be taken off and planted in a ſhady border, any time in ſummer, when they will take root in about ſix weeks, and then may be tranſplanted either into pots, or the borders where they are to remain. This ſort rarely perfects its ſeeds in England.

The fourth, fifth, and ſeventh ſorts, are of taller growth, propagating by their roots, and ripening ſeeds in England, ſo that they may be obtained in plenty; and as they require little care to cultivate them, being hardy enough to live in the open air, they may be allowed a place in gardens, where, by their hoary leaves, they will make a pretty diverſity; and their flowers continuing long, though not the moſt beautiful, yet make a pretty contraſt when intermixed with others.

The ſixth ſort is a very humble plant; the foot-ſtalks which ſupport the umbels of its flowers, rarely riſe above ſix inches high. As for the flowers themſelves, they are near as large as thoſe of the common Sneezwort, white, and growing in flat umbels; theſe appear in June and July. The leaves of the plant have ſome likeneſs to thoſe of the common Wormwood, and are very hoary, growing cloſe to the ground, decaying in autumn, ſo that in winter they make little appearance. This ſpecies of Yarrow is propagated by parting of the roots, either in ſpring or autumn, and ſhould have a dry ſoil, for much wet in winter will rot them. It never perfects its ſeeds here, and therefore can only be multiplied the other way. This ſort is a native of the Alps.

The eighth ſort is commonly known by the title of Sweet Maudlin in the markets; it was formerly more uſed in medicine than at preſent, ſo that there is ſcarce any of it cultivated in the gardens for ſale; and when it is aſked for, the people in the markets commonly give the fourteenth ſort for it, which being a very hardy plant, and eaſily propagated, is now generally ſold for the other. For though the true Maudlin is hardy in reſpect to cold, yet in wet winters the roots are often killed by moiſture, eſpecially thoſe which are in good ground; but when the plants grow out of the joints of walls, or in rubbiſh, they will live many years without care. There are two other varieties of this plant which are found growing naturally in Spain, one of them having longer and more compact umbels of flowers, and the other hath broader leaves and ſmaller flowers; but theſe approaching ſo near to the common ſort in every other particular, I thought it would be needleſs to enumerate them as diſtinct ſpecies. The common Maudlin is propagated by parting of the roots, either in ſpring or autumn; and as it ripens ſeeds very well, ſo it may be propagated by ſowing the ſeeds in April. It flowers in June and July, and the ſeeds are ripe in September.

The tenth ſort is the common Sneezwort; this grows wild in the woods and other ſhady places, in many parts of England, ſo is not admitted into gardens; this creeps greatly by its roots, ſo as to cover a large ſpot of ground ſoon. It is ſometimes uſed in medicine, and in the ſpring the young tender ſhoots are put into ſallads, to correct the coldneſs of other herbs; and the roots are uſed for the tooth-ach, whence ſome have given the title of Field Pellitory to this plant. There is a variety of this with double flowers, which is preſerved in gardens, and is commonly known by the title of double Maudlin. When this is planted in pots, ſo as to confine the roots from creeping, the ſtalks will grow cloſer together, and then they make a tolerable appearance when in flower; but where the roots have full liberty to run, the ſtalks grow farther diſtant from one another, in which caſe they make but an indifferent appearance. It flowers in July and Auguſt.

The fourteenth ſort has ſome reſemblance to the tenth, but the leaves are longer, deeper cut on their edges, and are of a darker green colour. This propagates faſt enough by its creeping root, and is very hardy.

The eleventh and twelfth ſorts are natives of the Alps, and conſequently very hardy; they multiply by ſeeds, and alſo by parting of their roots, and will thrive in almoſt any ſoil, but love an open expoſure. The eleventh produces many ſtalks which riſe near three feet high, having looſe branching umbels of white flowers on their top, reſembling thoſe of the common Sneezwort, but larger. The twelfth ſort hath hoary leaves, and the umbels of its flowers are more compact; the ſtalks of this do not riſe more than a foot high. Both theſe deſerve a place in gardens.

The thirteenth ſort approaches near the firſt, but the leaves are of a pale green, and not ſo long, or ſo much cut as thoſe of the firſt; theſe have a ſtrong ſweet ſcent when bruiſed. It is equally hardy with the firſt, and therefore requires little culture.

ACHRAS. See Sapota.

ACHYRANTHES.

The Characters are,

The empalement conſiſts of five pointed rigid leaves which are permanent; the flower hath no petals; but in the center of the empalement is ſituated the pointal, having a bifid ſtigma, attended by five ſtamina, ſupporting ſmall ſummits. The pointal afterward becomes a ſingle roundiſh ſeed, incloſed in the empalement.

The Species are,

1. Achyranthes (*Aſpera*) caule erecto, calycibus reflexis ſpicæ adpreſſis. Fl. Zeyl. 105. *Achyranthes with an upright ſtalk, and a reflexed flower-cup.* Amaranthus ſiculus ſpicatus radice perenni. Bocc. Rar. Plant. 16. tab. 9.

2. Achyranthes (*Indica*) caule erecto, foliis obverſe ovatis undulatis floribus reflexis. *Achyranthes with an erect ſtalk, obverſe oval waved leaves and reflexed flowers.*

3. **Achyranthes** (*Lappacea*) caule erecto, ſpicâ interruptâ, floribus externè lanatis. Lin. Sp. Plant. 204. *Achyranthes with an upright ſtalk, a looſe ſpike, and the outſide of the flower woolly.*

4. **Achyranthes** (*Lanata*) caule erecto, ſpicis ovatis lateralibus calycibus lanatis. Lin. Sp. Plant. 204. *Achyranthes with an erect ſtalk, and oval ſpikes of flowers produced from the wings of the leaves, which are covered with a ſoft down.*

The firſt ſort hath been long in the Engliſh gardens, where it hath been preſerved more for the ſake of variety, than for its beauty or uſe. It grows near three feet high, with oblong pointed leaves; the flowers come out in long ſpikes from the extremity of the branches, which are compoſed of an empalement, with a ſtyle and five ſtamina, but hath no petals, ſo may be ranged under the claſs of blink flowers. The plants of this ſort muſt be raiſed on a hot-bed, and when they have acquired ſtrength, they may be tranſplanted into the full ground, where they will flower in July, and their ſeeds ripen in September. If theſe are kept in pots, and put into a warm green-houſe in winter, they will live two or three years, where perſons are inclined to keep them ſo long. This ſort grows naturally in the iſlands of America, and alſo in India and Sicily.

The ſeeds of the ſecond ſort I received from Malabar, which have for ſome years flouriſhed at Chelſea, and annually produced ripe ſeeds, which have never varied from the parent plant.

The third and fourth ſorts grow naturally at the Cape of Good Hope, from whence I received their ſeeds. Theſe are all preſerved in botanic gardens for the ſake of variety, but have no great beauty to recommend them, to thoſe who do not cultivate plants for the improvement of that ſcience.

They may all be propagated in the ſame manner as the firſt, and will perfect their ſeeds the ſame year; but the plants of the three laſt ſorts may be preſerved through the winter if placed in a ſtove, for they are too tender to be kept in a green-houſe where there is not artificial heat.

ACINOS. See **Thymus**.

ACINUS, or ACINI, by good authors is not uſed for the grape ſtone, but the grape itſelf, as appears from the following paſſage in Columella, *Cum expreſſeris vinacea, quæ acinis celantur*. It is commonly uſed for thoſe ſmall grains growing in bunches, after the manner of grapes, as Liguſtrum, &c.

ACNIDA, Virginia Hemp.

This plant grows naturally in Virginia, and in ſome other parts of North America, but is rarely cultivated in Europe, except in ſome few botanic gardens, for the ſake of variety. It hath male and female flowers growing upon different roots, ſo is near of kin to the Hemp, under which title it has been ranged by ſome former botaniſts. But as it is a plant of little beauty, and at preſent no uſe has been made of it, it is to little purpoſe to ſay more of it here.

ACONITUM, Wolfsbane, or Monkſhood, [of ἄκων, or ἀκὴ, a dart, becauſe the Barbarians uſed to daub their darts therewith; others of ἰσχονέω, to accelerate, becauſe it haſtens death].

The Characters are,

The flower hath no empalement, but conſiſts of five unequal petals, which vary in different ſpecies; the galea (or hood) is tubulous, and covers the other parts of the flower like a friar's cowl; the two lateral petals, which incloſe the ſtamina and ſtyle are equal: theſe are concave and ſlightly indented in the middle. The two lower petals are narrow and oblong: in the bottom of the flower are placed two nectarii, upon which are ſituated the ſtyles; in ſome there are two, in others three, and ſome have five: theſe are forked, and ſtretch out far beyond the ſtamina, which are numerous and irregular: after the flower is paſt, the germen become oblong ſeed-veſſels terminated in a point, and coaleſcing at their baſe; theſe have but one cell, which is filled with angular rough ſeeds.

This genus of plants is by Dr. Linnæus ranged in the third ſection of his thirteenth claſs, entitled Polyandria trigynia, from the flowers having many ſtamina, and three ſtyles.

The Species are,

1. **Aconitum** (*Lycoctonum*) foliis palmatis multifidis villoſis. Lin. Sp. Plant. 532. *Yellow Wolfſbane or Monkſhood, with palmated hairy leaves finely divided.* Aconitum lycoctonum luteum. C. B. P. 183.
2. **Aconitum** (*Altiſſimum*) foliis palmatis, nervoſis glabris. *Greateſt yellow Wolfſbane, with nervous, ſmooth, palmated leaves.* Aconitum luteum majus ampliore caule amplioribuſque foliis. Dod. p. 441.
3. **Aconitum** (*Variegatum*) foliis multifidis laciniis ſemipartitis ſupernè latis. Hort. Cliff. 214. *Leſſer Wolfſbane with blue flowers, whoſe under leaves are cut into many parts, and whoſe upper have broader ſegments.* Aconitum cæruleum minus, ſive napellus minor. C. B. P. 183.
4. **Aconitum** (*Anthora*) floribus pentagynis foliorum laciniis linearibus. Lin. Sp. Plant. 532. *Wholeſome Wolfſbane with yellow flowers.* Aconitum ſalutiferum ſive anthora. C. B. P. 184.
5. **Aconitum** (*Napellus*) foliorum laciniis linearibus ſupernè latioribus linea exaratis. Hort. Cliff. 214. *Wolfſbane, or Monkſhood, with large blue flowers.* Aconitum cæruleum, ſive napellus. 1 C. B. Pin. 183.
6. **Aconitum** (*Pyramidale*) foliis multipartitis, ſpicis florum longiſſimis ſeſſilibus. *The common blue Monkſhood, with a long ſpike of flowers.* Aconitum pyramidale multiflorum. H. R. Par.
7. **Aconitum** (*Alpinum*) foliorum laciniis pinnatifidis flore maximo. *Large flowered Monkſhood, or Wolfſbane, of a blue purple colour.* Aconitum cæruleo purpureum flore maximo, ſive napellus. 4 C. B. P. 183.
8. **Aconitum** (*Pyrenaicum*) foliis multipartitis laciniis linearibus incumbentibus ſquamoſis. Hort. Upſal. 152. *Yellow Pyrenean Monkſhood, or Wolfſbane, with fine cut leaves.* Aconitum Pyrenaicum luteum foliorum ſegmentis ſibi invicem incumbentibus. Raii Syll. 367.
9. **Aconitum** (*Cammarum*) floribus ſubpentagynis, foliorum laciniis cuneiformibus inciſis acutis. Lin. Sp. Plant. 751. *Monkſhood with flowers, having commonly five ſtyles, and the ſegments of the leaves awl-ſhaped.*
10. **Aconitum** (*Orientale*) elatius, foliis palmatis flore magno albo. *Eaſtern Monkſhood, with a tall ſtalk and a large white flower.* Aconitum lycoctonum orientale flore magno albo. Tourn. Cor.

The ſixth ſort is the moſt common in the Engliſh gardens; this is cultivated for the beauty of its long ſpike of blue flowers, which are brought to the markets in London, towards the end of May, when it commonly flowers; ſo that theſe being intermixed with the Guelder Roſes and other flowers of the ſame ſeaſon, make an agreeable variety, when properly blended, to adorn halls and other apartments. But as moſt of the ſpecies of Monkſhood are a deadly poiſon, not only to men but to brutes alſo, they ought not therefore to be admitted into places where children or ignorant perſons frequent, leſt by ſmelling to theſe flowers, they ſhould draw ſome of the farina into their noſtrils, which may prove very hurtful to them, as I can from experience aſſert for fact. We have an account of a man who was poiſoned in the year 1732, by eating ſome of this plant, which by an unſkilful perſon was put into a ſallad inſtead of Celery. This is particularly mentioned in the Tranſactions of the Royal Society, N° 432. Dodonæus alſo relates a ſtory of the bad effects of one ſpecies of Monkſhood, which was recent in his time. Some unſkilful perſons had gathered the young ſhoots of the blue Monkſhood to eat in a ſallad, and all that eat of them were ſeized with terrible ſymptoms, and ſoon died. Dr. Turner alſo mentions, that ſome Frenchmen at Antwerp eat the ſhoots of this plant for thoſe of Maſterwort, and all of them died in two days, except two players who threw them up by vomit. I have known perſons who by ſmelling to the flowers, have been ſeized with ſwooning fits, and have loſt their ſight for two or three days.

The fourth ſort is that which is made uſe of in medicine, and is eſteemed an antidote to thoſe which are poiſonous. This is by ſome writers titled Anthora, and by others Antithora, as the poiſonous kinds have been called Thora. Whenever therefore any of the ſpecies of this genus is ordered in medicine, this is the ſort intended.

Moſt, if not all the other ſorts are eſteemed poiſonous; but thoſe with blue flowers are ſuppoſed to be of a much ſtronger quality, than the yellow or white flowered kinds. It is confidently affirmed, that the huntſmen on the Alps, who hunt the wolves and other wild animals, dip their arrows into the juice of theſe plants, which renders the wounds made by them deadly.

The ſixth ſort is the firſt which flowers; this grows near four feet high, and the ſpikes of flowers are upward of two feet long, ſo that when it is in flower, it makes a pretty appearance; and being very hardy, growing in any ſoil or ſituation, and multiplying greatly by the root, has induced many perſons to allow it a place in their gardens, for the ſake of its flowers, who being ignorant of its dangerous qualities, have permitted it to ſpread and propagate greatly. It flowers in May and June. The ſeeds are ripe in September; but as this ſort multiplies ſo greatly by the root, it is rarely propagated the other way.

The firſt and ſecond ſorts are the next which flower; theſe come about the middle of June, and if the ſeaſon is not warm, will continue in flower till Auguſt. The firſt grows upwards of three feet high, and the ſecond above four, the ſpikes of flowers too in this being much longer than the former.

The third ſort flowers a little later than either of thoſe, but ſeldom grows more than two feet high, and the ſpikes of flowers are much ſhorter than either of the two laſt.

The wholeſome Wolfsbane flowers in the middle of Auguſt, and often continues in beauty till the middle of September; the flowers are not ſo large as thoſe of ſome other ſorts, but being of a ſulphur colour, make a pretty appearance in the borders of the flower-garden. This ſort will not thrive ſo well under the ſhade of trees as many of the other ſorts, and therefore muſt have an open expoſure.

The ninth and tenth ſorts flower the beginning of July. The ninth uſually grows about four feet high, but the tenth I have ſeen upwards of ſix. This ſort is at preſent very rare in Europe. It was found by Dr. Tournefort in the Levant, who ſent the ſeeds to the royal garden at Paris, where it was firſt cultivated in Europe, and from that garden, others have been furniſhed with the ſeeds.

The eighth ſort flowers in July. This grows about four feet high, having a long ſpike of yellow flowers of a middling ſize, wherefore they may be allowed a place among ſhrubs, or in ſuch parts of the garden as are not frequented by children.

The fifth, ſixth, and ſeventh ſorts flower in Auguſt, when they make a pretty appearance; and were it not for their noxious quality, would deſerve a place in every garden. There are two or three varieties of the fifth ſort, one with white, another with Roſe coloured, and a third with variegated flowers; but theſe are only varieties which often change. The Napellus minor is alſo apt to change in the colour of its flower; of this ſort I have had ſome plants with variegated flowers, but they changed in two years and became plain, nor did their ſeeds produce any plants with variegated flowers. The ſeventh ſort will grow to the height of five feet in good ground; the flowers are very large, but not many upon each ſpike. Theſe are of a deep blue colour.

All the ſorts of Monkſhood may be propagated by ſeeds, which ſhould be ſown in the autumn, in a ſhady ſituation: the plants often come up the firſt year, if the ſeeds are ſown in autumn, otherwiſe it is the ſecond ſpring before they appear; therefore the ground ſhould be kept clean from weeds all the following ſummer, and when the plants come up, they ſhould be watered in dry weather until they are fit to tranſplant; when they are to be carefully taken up, and planted in ſhady borders, at the diſtance of four inches each way, obſerving to water them until they have taken good root in the ground; after which time they will require no other care but to keep them clean from weeds, till the following autumn, when they may be tranſplanted to the places where they are to remain.

The common Monkſhood will grow under the ſhade of trees, in wilderneſſes or woods, and will increaſe faſt enough by means of its creeping roots; but tho' moſt of the other ſorts delight in ſhade, yet few of them will thrive under trees, for which reaſon they ſhould be planted in ſhady borders which are not overhung by trees, where they will continue much longer in flower, and thrive better than in an open expoſure.

ACONITUM HYEMALE. See Helleborus.

ACORUS, the Sweet Ruſh.

The Characters are,

It hath a ſimple cylindrical ſtalk, which is cloſely covered with ſmall flowers, ſo as to form a ſort of katkin (or iulus). Theſe flowers have no empalement, but are compoſed of ſix concave obtuſe petals. In the center of the flower is ſituated a ſwelling germen, attended by ſix ſtamina, which are extended beyond the petals, and are crowned with thick double ſummits; the germen afterward turns to a ſhort triangular capſule, having three cells, in which are lodged oval oblong ſeeds.

Dr. Linnæus ranges this genus in his ſixth claſs of plants, entitled Hexandria monogynia, the flowers having ſix ſtamina and one ſtyle.

We have but one Species of this plant,

Acorus (*Calamus*) Roy. Leyd. 6. *The ſweet ſmelling Flag or Calamus.* Acorus verus, ſive calamus aromaticus. C. B. P. 34.

This plant grows naturally in ſtanding waters which are ſhallow, and is found wild in ſome parts of England; particularly in Norfolk, and alſo near Uxbridge in Middleſex, and in ſeveral parts of the north. In Holland this plant abounds in moſt of their ditches and ſtanding waters. The leaves of this plant, when broken, ſend forth a ſtrong aromatic ſcent; the roots are much ſtronger, and have been long uſed in medicine. This may be tranſplanted into a garden, where if the ground is moiſt, it will grow very well; but never produces its ſpike, unleſs it grows in the water. It loves an open ſituation, and will not thrive well under the ſhade of trees. The ſpikes of flowers (which are by many writers termed (Juli) appear toward the latter end of June, and continue till Auguſt. When this plant is fixed in a proper ſituation, it will multiply by its creeping roots faſt enough.

ACRIVIOLA. See Tropæolum.

ACTÆA, Herb Chriſtopher.

The Characters are,

The empalement of the flower is compoſed of four concave obtuſe leaves, which fall off; the flower hath four petals which are much larger than the empalement. In the center is placed the oval germen, crowned with an oblique depreſſed ſtigma, attended by numerous ſlender ſtamina, crowned with erect double roundiſh ſummits. After the flower is paſt, the germen becomes an oval or globular berry, having one cell, in which are lodged four ſeeds, which are roundiſh on their outſide, but angular where they are joined.

Dr. Linnæus ranges this genus under his thirteenth claſs of plants, entitled Polyandria monogynia, the flowers having many ſtamina and one germen.

The Species are,

1. Actæa (*Spicata*) racemo ovato fructibuſque baccatis. Lin. Sp. Plant. 504. *Common Herb Chriſtopher, or Bane Berries.* Chriſtophoriana vulgaris noſtras racemoſa & ramoſa. Mor. Hiſt. p. 2, 8.
2. Actæa (*Alba*) racemo ovato baccis niveis, radice tuberoſa. *American Herb Chriſtopher, with white berries.* Chriſtophoriana Americana baccis niveis. Mor. Hiſt. p. 28.
3. Actæa (*Racemoſa*) racemis longiſſimis fructibus unicapſularibus. Lin. Sp. Pl. 504. *American black or wild Snakeroot.* Chriſtophoriana Americana procerior & longius ſpicata. Hort. Elth. 79.

The firſt ſort grows naturally in ſeveral places in the northern counties of England: I found it in pretty great plenty in a wood near Kirby Lonſdale, as alſo near Ingleborough Hill in Yorkſhire. It grows two feet and a half high, the foot-ſtalks of the leaves ariſe from the root; theſe divide into three ſmaller foot-ſtalks, each of which divide again into three, and theſe have each three lobes, ſo that each leaf is compoſed of twenty-ſeven lobes (or ſmall leaves). The flower-ſtem which ariſes from the root, is garniſhed with leaves of the ſame form, but are ſmaller. On the top of the ſtalk appears the flowers, which grow in ramoſe ſpikes, and are of a pure white; theſe come out in May, and are ſucceeded by black ſhining berries about the ſize of Peaſe, which ripen in the autumn.

This is propagated by ſeeds, which ſhould be ſown ſoon after they are ripe; for if they are kept out of the ground till ſpring, the plants will not come up till the year after, ſo that a whole year will be loſt. They ſhould be ſown on a ſhady border, and kept clean from weeds. As the ſeeds ſeldom come up all at the ſame time, the border in which they are ſown ſhould not be diſturbed till the following autumn, to ſee what plants may appear; when the plants ſhould be tranſplanted into a ſhady border, where they may remain to flower. This plant hath a perennial root, which laſts many years, but the ſtalk is annual, and periſhes in autumn, ſoon after which is the beſt time to tranſplant them.

The ſecond ſort grows naturally in North America, from whence I have received the ſeeds; the leaves of this are ſomewhat like thoſe of the firſt ſort, but are not ſo deeply indented on their edges. The flowers grow in a more compact ſpike, and the berries are very white and tranſparent when ripe; the roots of this is compoſed of thick tubers, or knobs. This is an abiding plant, and delights in a light moiſt ſoil, and a ſhady ſituation; it may be propagated in the ſame manner as the former.

The third ſort is a native of North America, where it is called Black Snakeroot, to diſtinguiſh it from the common Snakeroot. This plant hath large compound leaves, which riſe immediately from the root, and are branched after the ſame manner as the firſt ſort, which grow more than two feet high. The flower-ſtems frequently riſe to the height of four or five feet, being terminated by a long ſpike of white flowers, which is reflexed at the top. This flowers in June, or beginning of July, but does not perfect ſeeds in England. During the time of its flowering, the plant makes a good appearance in a garden, and therefore deſerves a place in the ſhady borders, or among ſhrubs; where, if it be not over-hung by them, it thrives very well, and being hardy, will require no other care than the ſhrubs themſelves. It is generally propagated by ſeeds, which are annually ſent from North America; it loves a moiſt light ſoil, and a ſhady ſituation.

The root of this plant is greatly uſed by apothecaries and phyſicians in America, in many diſorders, and is ſuppoſed to be an antidote againſt poiſon, or the biting of the rattle-ſnake.

ADANSONIA, Ethiopian ſour Gourd, or Monkies Bread.

This plant is ſo named from one Mr. Adanſon, a French ſurgeon, who reſided ſome years at Senegal, in Africa, and during that time made ſeveral diſcoveries in natural hiſtory, and brought home a curious collection of ſeeds and plants.

The Characters are,

It hath a cup-ſhaped empalement, divided into five ſegments at the brim; which turn backward, and the empalement falls off: the flower has five roundiſh petals, whoſe brims are reflexed; at the tail of theſe are ſituated many ſtamina joined in a tube, which ſpread horizontally above, and are crowned by kidney-ſhaped ſummits. The germen is oval, the ſtyles are long, variouſly intorted, having many hairy ſtigma. It hath a large oval ligenous capſule of ten cells, filled with a farinaceous ſour pulp, incloſing many kidney ſhaped ſeeds.

This genus of plants is ranged in the fifth ſection of Linnæus's ſixteenth claſs, intitled Monodelphia polyandria, the flowers having many ſtyles which coaleſce with the ſtamina in one houſe.

There is known but one Species at preſent,

Adansonia. This is the Baobab. Alp. Egypt. c. 27. f. 28.

The young plants, and alſo moſt of the new branches, have ſingle ſpear-ſhaped leaves towards their lower part, but at their extremities the leaves have ſome three, and others five lobes, of the ſame ſize and form as the lower, which are diſpoſed like a hand; theſe are entire, ending in a point, and fall off in winter. The ſtems are large and woody, but of a ſoft texture, and have generally a large ſwelling near the root.

It is propagated by ſeeds, which muſt be procured from the country where it grows naturally (for it doth not produce any in Europe); theſe muſt be ſown in pots, and plunged into a hot-bed, where, in about ſix weeks, the plants will come up, and in a ſhort time after be fit to tranſplant; when they ſhould be each planted into a ſeparate pot, filled with light ſandy earth, and plunged into a freſh hot-bed, obſerving to ſhade them until they have taken new root; after which time they ſhould have free air admitted to them every day in warm weather, but muſt be ſparingly watered; for as their ſtems are ſoft (eſpecially when young) too much wet will cauſe them to rot. As the plants advance in their growth, they are to be ſhifted into larger pots, but muſt conſtantly be plunged into the bark-bed, being too tender to thrive in this country without this artificial heat, therefore they muſt conſtantly remain in the ſtove with other tender exotic plants: the plants when young make great progreſs in their growth, where they are properly treated; for in three years many of them have been more than ſix feet high, and have put out ſeveral lateral branches, their ſtems were alſo proportionable; but after four or five years growth, they are almoſt at a ſtand, their annual ſhoots rarely exceeding two or three inches.

The account which Monſieur Adanſon gives of the trees he ſaw at Senegal and other parts of Africa, in regard to the ſize of them is amazing, ſeveral of which he meaſured round their ſtems from ſixty-five to ſeventy feet in circumference, but their height was not extraordinary. The trunks of theſe trees were from eight to twelve feet high, dividing into many horizontal branches which touched the ground at their extremities; theſe were from forty-five to fifty-five feet long, and were ſo large in circumference, that each branch was equal to a monſtrous tree in Europe; and where the water of a neighbouring river had waſhed away the earth, ſo as to leave the roots of one of theſe trees bare and open to ſight, they meaſured one hundred and ten feet long, without including thoſe parts of the roots which remained covered with earth or ſand: for he deſcribes the plains where the trees grow to be a barren moveable ſand, ſo that from its being continually ſhifted by the winds, there are no tracts diſcoverable, whereby perſons can be guided in travelling over them.

Proſper Alpinus in his hiſtory of Egyptian plants, deſcribes this tree, to which he gives the title of Baobab, ſo that it alſo grows in that country; but he does not mention any of them to be near the ſize of thoſe deſcribed by Monſieur Adanſon.

There were ſome plants of this ſort in ſeveral gardens, which were raiſed from ſeeds obtained from Grand Cairo in the year 1724, by the late Dr. William Sherard, ſome of which were grown to the height of eighteen feet; but in the ſevere winter 1740, they were all loſt, and ſince that time there has not been any of the ſeeds brought to England, till the return of Mr. Adanſon to Paris in 1754, who ſent ſome of the ſeeds over here, which have ſucceeded, and many of the plants are now upwards of eight feet high.

ADELIA, we have no Engliſh title for this genus of plants.

The Characters are,

It hath male and female flowers upon different roots: the male flowers have an empalement of one leaf cut into five concave ſegments, but no corolla; it hath many ſlender ſtamina the length of the empalement, crowned by roundiſh ſummits. The female flowers have a five leaved concave empalement which is permanent; they have no corolla, but *a roundiſh germen with three ſhort divaricated ſtyles, and torn ſtigma. The capſule hath three cells, each containing one roundiſh ſeed.*

This genus of plants, is ranged by Dr. Linnæus, in the twelfth ſection of his twenty-ſecond claſs, which includes thoſe which have male flowers on diſtinct plants from the female, whoſe ſtamina join at their baſe.

The Species are,

1. Adelia (*Bernardia*) foliis oblongis tomentoſis ſerratis. Lin. Sp. Plant. 1473. *Adelia with oblong, woolly, ſawed leaves.*
2. Adelia (*Ricinella*) foliis obovatis integerrimis. Lin. Sp. Plant. 1473. *Adelia, with oval entire leaves.*
3. Adelia (*Acidoton*) ramis flexuoſis, ſpinis gemmaceis. Amœn. Acad. 5. 411. *Adelia with flexible branches and prickly gems.*

Theſe plants grow naturally in the iſland of Jamaica, and are near a-kin to the Ricinus, or Croton, but the male flowers growing upon different plants from the female, has occaſioned their being ranged in a different claſs. Dr. Houſtoun conſtituted a genus of them by the title of Bernardia, in honour to Dr. Bernard de Juſſieu, demonſtrator of plants in the royal garden at Paris; but Dr. Linnæus has fixed the title of Adelia to them. The plants are propagated by ſeeds, when theſe can be procured from the countries where they grow, for they do not produce good ſeeds in England. The ſeeds muſt be ſown upon a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each tranſplanted into a ſeparate ſmall pot, filled with light earth, and plunged into a hot-bed of tan, treating them in the ſame manner as is hereafter directed for Croton. In the autumn, the pots ſhould be plunged into the tan-bed in the ſtove, where, if they are kept in a temperate heat in winter, and not over-watered during that ſeaſon, the plants may be preſerved, and the ſummer following will produce flowers; but as theſe have little beauty, the plants are ſeldom propagated except in botanic gardens.

ADENANTHERA. Prod. Leyd. 462. Baſtard Flower-fence.

The Characters are,

The empalement of the flower is of one leaf, ſlightly cut into five at the top; the flower is of the bell-ſhaped kind, and is compoſed of five petals, which are reflexed and concave on their under ſide. In the center is ſituated an oblong germen, ſupporting a ſtyle crowned with a ſingle ſtigma; this is attended by ten erect ſtamina of the ſame length, which are crowned with roundiſh ſummits; after the flower is paſt, the germen becomes a long compreſſed pod, containing many convex ſmooth ſeeds, placed at a diſtance from each other.

Dr. Linnæus ranges this genus of plants in the firſt ſection of his tenth claſs, entitled Decandria monogynia, the flowers having ten ſtamina and one germen; but he ſeparates it from the Poinciana, becauſe the petals of the flower are equal, and the empalement is of one leaf, whereas the Poinciana hath a five leaved empalement, and the petals are unequal.

Adenanthera foliis decompoſitis. Prod. Leyd. 462. *Baſtard Flower-fence with decompounded leaves.*

There is another ſpecies, or at leaſt a variety of this kind, with ſcarlet ſeeds, which is at preſent rare in this country. I received the ſeeds of it from India, from which many plants have been raiſed, but they are of very ſlow growth in England.

The ſort here mentioned grows to a very large tree in its native country, but it is ſo tender as to require a ſtove to preſerve it through the winter in England, ſo that there are no large plants in the Engliſh gardens at preſent; the young plants which are not more than two feet high, have large branching leaves, compoſed of many equal diviſions, garniſhed with ſmall oval leaves, which are placed alternately on the midrib, and are of a bright green colour. The ſtems of the plants are woody, the bark of a brown colour, and the leaves continue all the year; but I have not ſeen any flowers produced in England as yet, but by ſome dried ſamples which were brought from India, they ſeem to be ſmall, and of little beauty; the fine branching leaves of the plant, however, make a very handſome appearance in the ſtove. The ſeeds are of a ſhining black colour, and are ſomewhat larger than thoſe of the great Lentil, and nearly of the ſame ſhape. This plant muſt be raiſed on a hot-bed, and afterwards placed in the bark-ſtove with other tender exotics.

ADHATODA. See Justicia.

ADIANTHUM, i. e. Maidenhair.

The Characters are,

This genus is diſtinguiſhed from the other capillary plants by the fructification, being confuſedly joined in oval ſpots, and the points of the leaves reflexed.

The Species are,

1. Adianthum (*Capillus Veneris*) frondibus decompoſitis foliis alternis pinnis cuneiformibus lobatis pedicellatis. Lin. Sp. Plant. 1096. *The true Maidenhair.* Adianthum foliis Coriandri. C. B. P. 356.
2. Adianthum (*Pedatum*) frondibus pedatâ foliolis pinnatis pinnis antice gibbis inciſis fructificantibus. Lin. Sp. Plant. 1095. *American Maidenhair.* Adianthum Americanum. Corn. Canad. 7. tab. 6.
3. Adianthum (*Trapeziforme*) frondibus ſupradecompoſitis foliolis alternis, pinnis rhombeis inciſis utrinque fructificationibus. Lin. Sp. Plant. 1097. *The largeſt black American Maidenhair with branching ſtalks, and leaves ſhaped like the figure of a rhombus.*

There are many ſpecies of this genus, which are natives of the Eaſt and Weſt-Indies, greatly differing in ſize and form from each other. I have upwards of thirty diſtinct ſpecies in my collection of dried plants, which to enumerate in this place, would be ſuperfluous, as they have not been introduced into the Engliſh gardens. The three ſorts here mentioned, are all that I have ſeen growing in England.

The firſt ſort is the true Maidenhair, which is directed to be uſed in medicine; but as it does not grow naturally in England, ſo the Trichomanes is uſually ſubſtituted for it, which grows in great plenty in ſeveral parts of England. The other is a native of the ſouth of France, Italy, and the Levant, from whence I have received the plants. It uſually grows out of the joints of walls, and the fiſſures of rocks, ſo that whoever is inclinable to keep this plant in their gardens, ſhould plant it in pots filled with gravel and lime rubbiſh, in which it will thrive much better than in good earth; but the pots muſt be ſheltered under a frame in winter, otherwiſe the plants are often killed by the froſt.

The ſecond ſort is often preſerved in gardens for the ſake of variety; this may be preſerved in pots, and treated in the ſame manner as the former; for altho' it will live through the winter in the open air in moderate ſeaſons, yet in ſevere froſt it is ſometimes deſtroyed. This grows naturally in Canada in ſuch quantities, that the French ſend it from thence in package for other goods, and the apothecaries at Paris uſe it for the Maidenhair, in all their compoſitions in which that is ordered.

The third ſort grows naturally in very warm countries; I received it from Jamaica in a tub of earth among other plants. This ſort will not thrive in England, unleſs it be preſerved in a ſtove, where its ſhining black ſtalks and odd ſhaped leaves will afford an agreeable variety among other exotic plants.

ADNATA, ADNESCENTIA, are thoſe off-ſets, or ſmall bulbs, which are produced from the roots of bulbous plants, and are cloſely connected to the parent root; of this ſort is the Narciſſus, Amaryllis, Pancratium, &c.

ADONIDIS HORTI, i. e. the gardens of Adonis, are plants, flowers, &c. in pots or caſes, ſet on the outſide of windows, in balconies, &c.

ADONIS, or FLOS ADONIS, Bird's-eye, or Pheaſant's-eye.

The Characters are,

The empalement of the flower is compoſed of five concave, obtuſe, coloured leaves which fall off; the flower is compoſed in ſome ſpecies of five petals, and in others of twelve *or Fourteen. In the center there are many germina collected in a head, which are attended by a great number of ſhort ſtamina, crowned by oblong inflexed ſummits; after the flower is paſt, the germina become ſo many naked ſeeds, cloſely adhering to the pedicle, and forming an obtuſe ſpike.*

This genus is by Dr. Linnæus ranged in the ſeventh ſection of his thirteenth claſs, entitled Polyandria Polyginia, the flowers having many ſtamina and many germina.

The Species are,

1. Adonis (*Annua*) floribus octopetalis fructibus ſubcylindricis. Hort. Upſal. 156. *The common Adonis, or Flos Adonis, with ſmall red flowers.*
2. Adonis (*Æſtivalis*) floribus pentapetalis fructibus ovatis. *Annual Adonis with pale yellow flowers.* Adonis Sylveſtris flore luteo foliis longioribus. C. B. P. 178.
3. Adonis (*Vernalis*) flore dodecapetalo, fructu ovato. Lin. Sp. Plant. 771. *Perennial Adonis with yellow flowers, by ſome titled fennel-leaved black Hellebore.* Adonis Hellebori radice Buphthalmi flore. H. L.

There is a variety of the firſt ſort, which hath been long cultivated in the gardens; the flowers of this are larger, and the leaves ſhorter, than thoſe of the wild ſort; but, from many repeated trials of ſowing their ſeeds ſeparately, they appear to be only accidental variations ariſing from culture, and therefore may be properly eſteemed as ſuch.

The ſecond ſort is undoubtedly a diſtinct ſpecies. I have cultivated both theſe ſorts above thirty years, and have never obſerved the ſecond to vary either in the ſhape of its leaves, colour, make of the flower, or growth of the plants, which are much taller than the firſt, the leaves thinner, ſparingly ſet on the ſtalks, and of a lighter colour.

Both theſe ſorts are annual, and if the ſeeds are ſown in autumn, the plants will come up the following ſpring; but when the ſeeds are not ſown till ſpring, they rarely come up the ſame year: ſo that when the ſeeds are permitted to fall on the ground, they generally ſucceed better than when ſown by art. The firſt ſort grows naturally in Kent, particularly by the ſide of the river Medway, between Rocheſter and Maidſtone, where it is found in great plenty in the fields which are ſown with wheat; but in the intermediate years when the fields are ſown with ſpring corn, there is rarely a plant of it to be found, which ſhews the neceſſity of ſowing the ſeeds in autumn, for thoſe fields of ſpring corn, if ſuffered to remain undiſturbed after the harveſt, will abound with this plant the following year. For ſome years paſt, great quantities of the flowers of this plant have been brought to London, and ſold in the ſtreets by the name of Red Morocco. Both theſe annual ſorts flower in the beginning of June, and the ſeeds ripen in Auguſt and September; this muſt be underſtood of thoſe plants which ariſe from ſeeds ſown in autumn, or ſuch as have fallen to the ground; for when any plants come up from the ſeeds ſown in the ſpring (which ſometimes happen) they do not flower till July or Auguſt, and their ſeeds ſeldom ripen before October.

Theſe plants will thrive beſt in a light ſoil, but may be ſown in any ſituation, ſo that by ſowing ſome in a warm ſituation, and others in the ſhade, they may be continued longer in flower. The ſeeds ought to be ſown where the plants are to remain to flower, for they do not bear tranſplanting, eſpecially if they are not removed while the plants are very young: therefore they ſhould be ſown in ſmall patches in the borders of the flower garden, and when the plants come up, they ſhould be thinned, leaving three or four in each patch, which will make a better appearance than where they grow ſingle.

The third ſort hath a perennial root, and an annual ſtalk. This grows naturally on the mountains of Bohemia, Pruſſia, and other parts of Germany, where the root is often uſed as the true Black Hellebore, though from the deſcriptions given by the antients of that plant, this by no means will agree with them: this has been long cultivated in gardens. It produces its flowers the latter end of March, or the beginning of April, according to the forwardneſs of the ſeaſon: the ſtalks riſe about a foot and a half high, and when the roots are large, and have ſtood unremoved for ſome years, they will put out a great number of ſtalks from each: theſe are garniſhed with fine ſlender leaves, which are placed in cluſters at intervals. At the top of each ſtalk, is produced one large yellow flower, compoſed of an unequal number of petals, the center of which is occupied by a great number of germen, ſurrounded by many ſtamina; after the flowers drop, the germen become naked ſeeds, cloſely adhering to the foot-ſtalk, forming an obtuſe ſpike. Theſe ripen in Auguſt, and ſhould be ſown ſoon after, otherwiſe they ſeldom ſucceed.

When the plants come up, they muſt be carefully kept clean from weeds, and, in very dry weather, if they are now and then refreſhed with water, it will promote their growth. They ſhould remain in the place where they are ſown until the ſecond year, for they make but ſlow progreſs while young. The beſt time to tranſplant them is in autumn, when they ought to be planted where they are to remain, for if often removed, they will not produce many flowers, nor thoſe flowers be ſo ſtrong as on the plants which are unremoved.

ADOXA. Lin. Gen. 450. Moſchatellina. Tourn. Inſt. Tuberous Moſchatel, or Hollow Root. This is ranged in Linnæus's eighth claſs, entitled Octandria Tetragynia, the flower having eight ſtamina and four ſtyles.

The Characters are,

The empalement of the flower is bifid and permanent, upon which reſts the germen; the flower is of one leaf, which is cut into four acute ſegments. The germen is ſituated in the center, ſupporting four erect ſtyles, theſe are attended by eight ſtamina, crowned by roundiſh ſummits; after the flower is paſt, the germen becomes a round berry, reſting on the empalement, which hath four cells, each containing a ſingle compreſſed ſeed.

There is but one Species of this genus.

Adoxa. Hort. Cliff. 152. *Bulbous Fumitory Hollow Root, or tuberous Moſchatel.* Radix cava minima viridi flore of Gerard.

This plant grows naturally in ſhady woods in divers parts of England: I have frequently gathered it on the top of Hampſtead among the buſhes, near the wood; it is a very low plant, ſeldom riſing more than four or five inches high, the leaves reſemble thoſe of the bulbous Fumitory, the flower-ſtalk ariſes immediately from the root, upon the top of which is placed four or five ſmall flowers of an herbaceous white colour; theſe appear the beginning of April, and the berries ripen in May, ſoon after which the leaves decay. There is little beauty in this plant, but as ſome perſons are fond of collecting the ſeveral kinds of plants in their gardens, which are not commonly found, it is mentioned here. The roots may be tranſplanted any time after the leaves are decayed, till winter; theſe are tuberous, and ſhaped ſomewhat like a tooth. They muſt be planted in the ſhade, under ſhrubs; for if they are expoſed to the open ſun, they will not thrive. The leaves and flowers ſmell like Muſk, from whence it has been by ſome called Muſk-Crowfoot.

ÆGILOPS, Wild Feſtuc, a ſort of graſs which grows naturally in many parts of Europe, ſo is rarely cultivated except in botanic gardens.

ÆGOPODIUM, Small Wild Angelica, or Goutwort; this plant grows naturally in ſeveral places near London, but the roots run ſo faſt in a garden, as to render it a troubleſome weed.

ÆSCHYNOMENE. Lin. Gen. Plant. 769. Baſtard Senſitive plant.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, entitled Diadelphia decandria; the flowers of this claſs have ten ſtamina, nine of which are united, and the other is ſeparate.

The Characters are,

The empalement of the flower conſiſts of one leaf, cut into two equal ſegments, the upper being bifid, and the *lower trifid; the flower is of the butterfly kind, the ſtandard being large and ſheart-ſhaped; the two wings are oval, and ſhorter than the ſtandard; the keel is moon-ſhaped, and as long as the ſtandard. In the bottom of the flower is ſituated an oblong hairy germen, ſupporting an arched ſtyle, attended by ten ſtamina, nine of which coaleſce, and the other is ſeparated from them; after the flower is paſt, the germen becomes a long, plain, jointed pod, which ſeparates at the joints, in each of which is lodged one kidney-ſhaped ſeed.*

The Species are,

1. Æschynomene (*Aſpera*) caule ſcabro leguminum articulis medio ſcabris. Lin. Sp. Plant. 713. *Baſtard Senſitive plant with a rough ſtalk, and a jointed pod.* Mimoſa non ſpinoſa major Zelanica. Breyn. Cent. 51.
2. Æschynomene (*Americana*) caule herbaceo hiſpido, foliolis acuminatis, leguminum articulis ſemicordatis, bracteis ciliatis. Lin. Sp. Plant. 1061. *Baſtard Senſitive plant with a ſtinging herbaceous ſtalk, pointed leaves, and the joints of the pods heart-ſhaped.* Hedyſarum caule hirſuto mimoſæ foliis alatis, pinnis acutis minimis gramineis. Sloan. Cat. Jam.
3. Æschynomene (*Arborea*) caule lævi arboreo leguminum articulis ſemicordatis glabris. Prod. Leyd. 384. *Baſtard Senſitive plant with a ſmooth tree-like ſtalk, and ſmooth jointed pods.* Seſban caule ſimplici glabro, foliis pinnatis glabris. Monier.
4. Æschynomene (*Seſban*) caule herbaceo lævi, foliolis obtuſis, leguminibus cylindricis æqualibus. Lin. Sp. Plant. 1061. *Baſtard Senſitive plant with a ſmooth ſtalk, obtuſe leaves, and equal cylindrical pods.* Galega Egyptiaca ſiliquis articulatis. C. B. P. 352.
5. Æschynomene (*Pumila*) caule herbaceo lævi, foliolis acuminatis, leguminibus hinc ſerratis medio ſcabris. Lin. Sp. Plant. 1061. *Baſtard Senſitive plant, with a ſmooth herbaceous ſtalk, pointed leaves, and ſerrated rough pods.* Hedyſarum annuum minus Zeylanicum mimoſæ foliis. Inſt. R. H. 402.
6. Æschynomene (*Grandiflora*) caule arboreo, floribus maximis, leguminibus filiformibus. Lin. Sp. Plant. 1060. *Baſtard Senſitive plant with a tree-like ſtalk, large flowers, and ſlender pods.* Galegæ affinis malabarica arboreſcens, ſiliquis majoribus umbellatis. Raii Hiſt. 1734.

The firſt ſort riſes to the height of four or five feet, having a ſingle herbaceous ſtalk, which is in ſome parts rough. The leaves come out on every ſide toward the top, forming a ſort of head; theſe are compoſed of a great number of ſmall leaves (or pinnæ) which are ſmooth, and of a glaucous colour. The flowers come out from between the leaves, two or three together upon long foot-ſtalks; they are yellow, and ſhaped like thoſe of Peaſe. After the flower is paſt, the germen becomes a flat jointed pod, about four inches long, which, when ripe, parts at the joints, and in each diviſion is lodged a ſingle kidney-ſhaped ſeed.

The ſecond ſort ſeldom riſes more than two feet high, but ſends out three or four lateral branches; theſe are clothed with narrow winged leaves, whoſe pinnæ are placed alternate on the midrib. The flowers come out from the leaves upon branching foot-ſtalks, five or ſix together; theſe are much leſs than thoſe of the firſt ſort, and of a paler yellow colour. After the flowers are paſt, the germen becomes a jointed pod, having three or four ſwelling diviſions, in each of which is lodged a ſingle kidney-ſhaped ſeed.

The third ſort grows to the height of ſix or ſeven feet, with a ſingle ſtem; the leaves are ſmooth, and come out towards the top of the ſtalk, as in the firſt ſort they are compoſed of many pinnæ, placed alternate on the midrib. The flowers come out from the wings of the leaves, two or three together, being of a copper colour, and as large as thoſe of the firſt ſort. After the flowers are paſt, the germen becomes a ſmooth jointed pod, each diviſion being half heart-ſhaped, and incloſing a ſingle kidney-ſhaped ſeed.

The fourth ſort grows naturally in Egypt, and alſo on the coaſt of Guinea, from whence I received the ſeeds. This hath woody ſtems and branches, which are garniſhed with ſmooth leaves, compoſed of many blunt pinnæ, ſet by oppoſite pairs; the flowers, which are ſmall, and of a deep yellow colour, come out from the wings of the leaves in long ſpikes, which hang downward. After the flower is paſt, the germen becomes a taper-pointed ſmooth pod, not jointed.

The fifth ſort riſes about three feet high, with a ſingle herbaceous ſtalk, ſeldom putting out any ſide branches. The flowers come out from the wings of the leaves, ſometimes ſingle, and other times two or three upon each foot-ſtalk; theſe are ſmall, and of a pale yellow colour. After the flower is paſt, the germen becomes a long falcated pod, divided into eleven, or thirteen partitions, each containing a ſingle kidney-ſhaped ſeed.

The ſixth ſort riſes ſix or eight feet high, with a woody ſtem, ſending out branches towards the top, garniſhed with obtuſe leaves; the flowers are large, yellow, and ſucceeded by large pods, including kidney-ſhaped ſeeds.

The firſt, third, and fourth ſorts, will live through the winter in England, if placed in a warm ſtove; but as their ſtalks are ſucculent, they muſt be kept dry in winter, otherwiſe they are very ſubject to rot. They ſhould be plunged into the tan-bed, for when put into a dry ſtove, the fibres of their roots ſoon grow dry, and their leaves hang and fade, which ſhews their want of moiſture; but when they have water given them, it cauſes the tender fibres of their roots to periſh, and the plants ſoon after decay.

The fifth ſort is annual, therefore the ſeeds ſhould be ſown early in March on a hot-bed, and the plants ſhould be brought forward in the ſpring, and afterwards placed in an airy glaſs-caſe, or a ſtove in ſummer, for if they are expoſed to the open air, the ſeeds rarely ripen in England.

The ſixth ſort grows to a large ſhrub in hot countries, but is with difficulty preſerved through the winter in this country. The plants are propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring, and the plants, when fit to remove, ſhould be planted in pots, and brought forward on a hot-bed, then ſhould be plunged into the bark-bed in the ſtove, where, if they are tenderly treated, they will live through the winter, and flower the ſummer following.

Theſe are all propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring, and when the plants have ſtrength enough to be removed, they ſhould be put each into a ſeparate ſmall pot, filled with light earth, and plunged into a freſh hot-bed, to bring them forward; and as they advance in their growth, they ſhould be ſhifted into large pots, but great care ſhould be taken not to over-pot them, for if the pots are too large, the plants will not thrive. The firſt, ſecond, and fifth ſorts are annual, therefore muſt be brought forward early in the year, otherwiſe they will not perfect their ſeeds; but the third, fourth, and ſixth ſorts may be preſerved through the winter, and will flower early the following ſummer, and their ſeeds will ripen in the autumn. The other ſorts uſually flower in July, and their ſeeds ripen in October.

ÆSCULUS. Lin. Gen. 420. The Horſe Cheſtnut.

The Characters are,

The empalement of the flower conſiſts of one leaf, ſlightly cut into five ſegments. The flower is compoſed of five roundiſh petals, folded at their border, and waved; theſe are narrow at their baſe, and are inſerted in the empalement. In the center is placed a roundiſh germen, having a ſingle ſtyle, crowned with a pointed ſtigma; attended by ſeven ſtamina, which extend to the length of the petals, and are declining, crowned with upright ſummits. When the flower is paſt, the empalement becomes a thick, roundiſh, echinated capſule, opening into three cells, in one or two of which are lodged globular ſeeds.

This genus of plants, is, by Dr. Linnæus, ranged in his ſeventh claſs, entitled Heptandria Monogynia, the flower having ſeven ſtamina and one ſtyle.

The Species are,

1. Æsculus (*Hippocaſtanum*) floribus heptandriis. Hort. Upſal. 92. *The common Horſe Cheſtnut.* Hippocaſta-

num vulgare. Tourn. Inſt. Caſtanea equini. Cluſ. Hiſt. 1. p. 7.

2. Æsculus (*Pavia*) floribus octandris. Lin. Sp. 488. *Scarlet Horſe Cheſtnut.* Pavia. Boerh. Ind. Alt. 2. p. 260.

The Horſe Cheſtnut was brought from the northern parts of Aſia about the year 1550, and was ſent to Vienna about the year 1588. It was called Caſtanea from the ſhape of its fruit, and the title of Equini was added to it from its being a good food for horſes when ground.

This tree was in much greater eſteem formerly than at preſent, for ſince it is become ſo very common, few perſons regard it. What has occaſioned its being ſo ſeldom planted, is the decay of the leaves early in ſummer; ſo that where they are growing in gardens, their leaves frequently begin to fall in July, and occaſion a litter from that time, until all the leaves are fallen; but notwithſtanding this inconvenience, the tree has great merit, for it affords a noble ſhade in ſummer; and during the time of its flowering, there is no tree has greater beauty, for the extremity of the branches are terminated by fine ſpikes of flowers, ſo that every part of the tree ſeems covered with them; which are finely ſpotted with a roſe colour, and theſe being intermixed with the green leaves make a noble appearance.

The former method of planting theſe trees in avenues and ſtrait lines, has alſo been in ſome meaſure the occaſion of their preſent diſrepute, becauſe in ſuch plantations great part of their beauty is loſt; for when their branches are ſo far extended as to nearly meet, moſt of the flowers which are produced are hid from ſight, and as the trees grow larger, their branches will interfere with each other, and produce few flowers; the leaves will alſo decay much ſooner in cloſe plantations, than on ſingle trees: therefore the great beauty of them is, to ſtand ſingly at a diſtance from all other trees, upon lawns of graſs in parks, where their fruit will be of great ſervice to deer, who are very fond of them. In ſuch ſituations, when the trees are grown to a good ſize, there is not a finer object than they will afford during their ſeaſon of flowering, which is in May, and when the weather is moderate, they will continue in beauty near a month.

As this tree is quick in its growth, ſo in a few years they will arrive to a ſize large enough to afford a good ſhade in ſummer, as alſo to produce plenty of flowers. I have known trees which were raiſed from nuts, in twelve or fourteen years, large enough to ſhade two or three chairs under the ſpread of their branches, and have been covered with flowers in the ſeaſon, ſo that few trees make greater progreſs than theſe. But as their wood is of little value, the trees ſhould not be propagated in too great plenty: a few therefore of them placed at proper diſtances in parks for ornament is as many as ſhould be preſerved, the wood not being fit even for burning, nor any other uſe that I know of.

Theſe trees are propagated by ſowing the nuts; the beſt time for doing this is early in the ſpring; but the nuts ſhould be preſerved in ſand during the winter, otherwiſe they are apt to grow mouldy and rot. They may indeed be planted in autumn, but then they will be in danger of rotting if the winter ſhould prove very wet, as alſo of being removed or eaten by vermin.

When the nuts ſucceed, and have a proper ſoil, the plants will ſhoot near a foot the firſt ſummer; ſo that where they grow pretty cloſe together, it will be proper to tranſplant them the following autumn, when they ought to be planted in rows at three feet diſtance, and one foot aſunder in the rows: in this nurſery they may remain two years, by which time they will be fit to plant where they are deſigned to be continued; for the younger theſe trees are planted out, the larger they will grow. But there are many who will object to their being planted out young in parks, becauſe they will require a fence to ſecure them againſt the cattle; which will alſo be neceſſary, whatever ſize they are when planted; and if large, they muſt be well ſtaked to prevent their being diſplaced by ſtrong winds: which is another expence; and when we conſider how much faſter a young tree will grow, than thoſe which are removed at a greater age, there can be no excuſe for planting large trees.

This tree is not very nice in its culture, for it requires little care in the management, and will thrive in moſt ſoils and ſituations, but in a ſandy loam they make the greateſt progreſs; and if the ſoil be inclining to moiſture, the leaves will continue in verdure much longer, than in very dry ground.

When theſe trees are tranſplanted, their roots ſhould be preſerved as entire as poſſible, for they do not ſucceed well, when torn or cut; nor ſhould any of the branches be ſhortened, for there is ſcarce any tree, which will not bear amputation better than this; ſo that when any branches are by accident broken, they ſhould be cut off cloſe to the ſtem, that the wound may heal over.

There is ſomething very ſingular in the growth of theſe trees, which is the whole ſhoot being performed in leſs than three weeks, after the buds are opened; in which time I have meaſured ſhoots a foot and a half long, with their leaves fully expanded: and no ſooner are the flowers fallen, than the buds for the ſucceeding year are formed, which continue ſwelling till autumn; at which time the folding covers are ſpread over with a thick tenacious juice, which ſerves as a pigment to defend the tender buds from the froſt and rain in winter; but upon the firſt return of warmth in the ſpring, this melts and runs off, whereby the bud is at full liberty to extend. And what is remarkable in this pigment, it is never ſo far hardened as to injure the tender buds, which are always formed at the extremity of the former year's ſhoot; a plain direction not to ſhorten them, for by ſo doing, the future ſhoots are entirely cut off.

In Turkey the nuts of this tree are ground, and mixed with the provender for their horſes, eſpecially thoſe which are troubled with coughs, or are broken winded; in both which diſorders, they are accounted very good. Deer are very fond of the fruit, and at the time of their ripening will keep much about the trees, but eſpecially in ſtrong winds, when the nuts are blown down, which they carefully watch, and greedily devour as they fall.

There are ſome old trees now ſtanding, which were planted ſingle, at a great diſtance from any other; theſe are grown to a very large ſize, and their heads form a natural parabola, and when their flowers are in full beauty, there is not any tree yet known in Europe, which makes ſo fine an appearance. I have meaſured ſome of theſe trees, whoſe branches have extended more than thirty feet in diameter, and their heads have been ſo cloſe, as to afford a perfect ſhade in the hotteſt ſeaſons. Theſe were planted in 1679, as appears by ſome writings which are in the poſſeſſion of the perſons, who have now the property of the land where they grow: ſo that although they are of quick growth, yet they are not of ſhort duration.

The Scarlet Horſe Cheſtnut grows naturally in North America, where it riſes to the height of twenty feet, but does not ſpread its branches to any great extent, the flowers are wholly red, which are much ſmaller than thoſe of the common ſort, they are tubulous, but want brims to expand, ſo make but an indifferent appearance, when compared to the other: however for variety this ſhould have a place in gardens.

It may be propagated by the nuts, if they are procured from the country where the trees naturally grow; for the ſeaſons are ſeldom favourable enough to ripen them in England. The nuts ſhould be ſown in pots early in the ſpring, and the pots plunged into a moderate hot-bed to forward their growth; toward the end of May, the pot ſhould be plunged into the ground in a ſouth-eaſt border, and in dry weather the plants ſhould be duly watered, whereby they will acquire ſtrength by the autumn; when it will be very proper to ſcreen the plants from early froſts which often pinch the top buds, and occaſion their decay in the winter, for while the plants are young they are impatient of froſts, but when they have obtained ſtrength it ſeldom hurts them: the ſpring following the plants ſhould be carefully ſeparated and planted a foot diſtance from each other in a ſheltered ſituation; and the following winter, if it proves cold, it will be proper to cover the plants with ſome light covering to protect them; after the ſecond winter they will require no farther ſheltering.

The common method now practiſed by the nurſerymen, who propagate theſe trees for ſale, is by grafting or budding them upon ſtocks of the Horſe Cheſtnut, but as the ſtocks greatly out-grow the buds or grafts, they have a bad appearance; nor do the trees laſt long.

ÆTHER [of *αἴθειν*, *Gr.* to burn or flame; ſome of the antients having ſuppoſed it to be of the nature of fire.] It is uſually underſtood to be a thin ſubtile matter or medium, much finer and rarer than air itſelf, which commences from the limits of the atmoſphere, and poſſeſſes the whole heavenly ſpace. See ATMOSPHERE and AIR.

AGAVE, Lin. Gen. 390. American Aloe.

The CHARACTERS are,

The flower has no empalement, is funnel-ſhaped, and of one leaf, which is cut at the brim into ſix equal ſegments; the oblong germen is ſituated below the flower, upon which reſts the ſlender ſtyle, which is extended a conſiderable length beyond the petals, and is crowned by a three cornered ſtigma. This is attended by ſix erect ſtamina, of the ſame length, crowned by narrow ſummits; after the flower is paſt, the germen becomes an oblong three cornered ſeed veſſel, having three cells, which are filled with flat ſeeds.

Dr. Linnæus has ſeparated the plants of this genus from the Aloe, to which they had been joined by former botaniſts, becauſe the ſtamina and ſtyle in theſe flowers are extended much longer than the corolla, and the corolla reſt upon the germen, which in the Aloe are not ſo. We may alſo mention another difference in the growth of the plants, by which they may be diſtinguiſhed before they flower; which is, all the plants of this genus have their center leaves cloſely folding over each other, and embracing the flower ſtem which is formed in the center; ſo that theſe never flower until all the leaves are expanded, to give the ſtem its liberty to advance, and when the flower is paſt, the plants die. Whereas the flower-ſtem of the Aloe, is produced on one ſide of the heart or center of the plant, ſo they flower annually, and the leaves are always more expanded, than thoſe of this genus.

The SPECIES are,

1. AGAVE (*Americana*) foliis dentato-ſpinoſis ſcapo ramoſo. Gen. Nov. 1102. *The Great American Aloe, with a branching ſtalk.* Aloe Americano muricata. J. B.
2. AGAVE (*Virginia*) foliis dentato-ſpinoſis ſcapo ſimpliciſſimo. Lin. Sp. Plant. 323. *American Aloe with a ſimple ſtalk.*
3. AGAVE (*Fœtida*) foliis integerrimis. Gen. Nov. Sp. Pl. 323. *American Aloe with ſtiff whole leaves.* Aloe Americana viridi rigidiſſimo & fœtido folio piet dicta indigenis. Hort. Amſt. 2. p. 35.
4. AGAVE (*Tuberoſa*) radice tuberoſâ foliis longiſſimis marginibus ſpinoſis. *American Aloe, with a tuberous root and very long leaves, with ſpines on their edges.* Aloe Americana radice tuberoſâ minor. Pluk. Alm. 19.
5. AGAVE (*Vivipara*) foliis reflexis, marginibus dentatis. *American Aloe with reflexed leaves, whoſe edges are indented.* This is by ſome called the Childing Aloe, from its producing young plants after the flowers. Aloe Americana ſobolifera. Herm. H. Ludg. 16.
6. AGAVE (*Karatto*) foliis erectis læte virentibus, marginibus fuſcis minimè ſerratis. *American Aloe with long deep green leaves, edged with brown, and very ſlightly ſawed.* This is called in America Karattò.
7. AGAVE (*Vera Cruz*) foliis oblongis marginibus ſpinoſiſſimis nigricantibus. *American Aloe with oblong leaves, whoſe edges are cloſely beſet with black ſpines, commonly called Broad-leaved Aloe from Vera Cruz.* Aloe Americana ex Verâ Cruce foliis latioribus & glaucis. H. L.
8. AGAVE (*Rigida*) foliis lineari-lanceolatis integerrimis rigidis aculeo terminatis. *Narrow-leaved Aloe from Vera Cruz.* Aloe Americana ex Verâ Cruce foliis anguſtioribus minùs glaucis. Hort. Beam.

The firſt ſort here mentioned, has been long preſerved in the Engliſh gardens, where of late years there have been ſeveral of the plants in flower. The ſtems of this when the plants are vigorous, generally riſe upward of twenty feet high, and branch out on every ſide, ſo as to form a kind of pyramid, the ſlender ſhoots being garniſhed with greeniſh yellow flowers, which ſtand erect, and come out in thick cluſters at every joint. Theſe have ſix long ſtamina, crowned with yellow ſummits, placed round the ſtyle, which is alſo extended to the ſame length as the ſtamina. After the flowers fall away, the germen, which is ſituated beneath the flower, becomes an oblong triangular veſſel, divided into three cells, filled with compreſſed ſeeds; but theſe do not come to maturity in England.

When theſe plants flower, they make a fine appearance, and continue a long time in beauty, if they are protected from the cold in autumn, as there will be a ſucceſſion of new flowers produced, for near three months, in favourable ſeaſons. It has been generally believed, that this plant doth not flower until it is a hundred years old; but this is a great miſtake, for the time of its flowering depends on the growth of the plants; ſo that in hot countries where they grow faſt, and expand many leaves every ſeaſon, they will flower in a few years, but in colder climates, where their growth is ſlow, it will be much longer before they ſhoot up their ſtem. There is a variety of this ſort with ſtriped leaves, which is now pretty common in the Engliſh gardens.

The plants of the ſecond ſort are ſo like thoſe of the firſt, as not to be diſtinguiſhed from them, but by good judges. The principal difference is, the leaves of this are narrower toward their extremity, and of a paler colour: the ſtems of this ſort do not riſe ſo high as the firſt, nor do they branch in the ſame manner, but the flowers are collected into a cloſe head at the top, they are however of the ſame ſhape and colour. There has been three or four plants of this ſort, which have lately flowered in England, one of which was in the Chelſea garden a few years paſt. This ſort ſeldom puts out ſo many offſets as the common Aloe.

The ſeventh ſort greatly reſembles theſe, ſo that many perſons have ſuppoſed it to be the ſame; but the leaves of this are much thinner, the indentures on their edges abundantly cloſer, and not ſo deep, as in either of the former; the ſpines too are blacker. How this differs from the others in flower I know not, having ſeen none of their flowers produced in England. Theſe three ſorts are hardy. I have known plants of the firſt ſort live in the open air for ſome years in mild ſeaſons, but in ſevere winters they are always killed, if not ſheltered. They are propagated by offſets, which the firſt ſort ſends out in plenty, but the third ſeldom puts out any; ſo theſe may be increaſed by taking off ſome of the larger roots, at the time when the plants are ſhifted, planting them in pots filled with light ſandy earth, which will ſhoot out and become good plants, as I have experienced. The ſecond ſort generally puts out ſuckers enough for propagation, though not in ſo great plenty as the firſt. All theſe ſhould be planted in pots filled with light ſandy earth, and houſed in winter with oranges, myrtles, &c. and during that ſeaſon, ſhould have but little wet. In the ſummer they muſt be placed abroad in the open air, where they may remain till toward the end of October, when they ſhould be houſed again. The ſeventh ſort being a little tenderer than the other two, ſhould be put into the green-houſe before them, and may ſtay there a little longer in the ſpring. The third ſort hath long narrow ſtiff leaves, of a pale green colour, not indented on their edges, but frequently a little waved: the ſide leaves ſpread open, but thoſe in the center fold cloſely over each other, and ſtrictly ſurround the bud. The plants of this ſort rarely grow more than three feet high, but the flower-ſtem riſes near twenty, and branches out much like that of the firſt, but more horizontally; the flowers are of the ſame ſhape, but ſmaller, and of a greener colour. After the flowers are paſt, inſtead of ſeed-veſſels, young plants ſucceed to every flower, ſo that all the branches are cloſely beſet with them. There was a plant of this kind which flowered in the Chelſea garden 1755, the ſtem of which begun to ſhoot the beginning of October, and by the end of that month was upwards of ten feet high, by the end of November it was near twenty, and the lower lateral branches were upward of four feet long, the others decreaſing gradually, ſo as to form a regular pyramid. In December the ſtalks were cloſely garniſhed with flowers, and in the ſpring, when the flowers dropped off, they were ſucceeded by young plants, which as they fell off and dropped into the pots which ſtood near, put out roots and become good plants. This ſort never produces offſets from the root, ſo that it cannot be increaſed but when it flowers, at which time there will be plenty enough. The old plant preſently after dies.

The fourth ſort hath leaves ſomewhat like the third in ſhape and colour, but they are indented on their edges, and each indenture terminates in a ſpine; the root of this ſort is thick, and ſwells juſt above the ſurface of the ground, in other reſpects it agrees with the former. This ſort hath not flowered in England, therefore I cannot tell how it differs in its flowers from the other. I have raiſed this from ſeeds which were ſent me from America, but the plants never put out ſuckers from the roots, ſo that it can only be propagated by ſeeds. Dr. Linnæus ſuppoſes it to be the ſame with the third ſpecies, but whoever ſees the plants will not doubt of their being different.

The fifth ſort never grows to a large ſize; the leaves of it are ſeldom more than a foot and a half long, and about two inches and a half broad at their baſe; theſe end in a ſlender ſpine, being ſlightly indented on their edges; they are alſo reflexed backward toward their extremity, and are of a dark green colour. The flower-ſtem riſes about twelve feet high, and branches out toward the top in the ſame manner as the third ſort; the flowers are nearly of the ſame ſize and colour as thoſe of the third, and after they fall off, are ſucceeded by young plants in the ſame manner. A plant of this kind flowered in the garden at Chelſea, in December 1754. This never produces any ſuckers from the root, ſo cannot be increaſed until it flowers.

The leaves of the ſixth ſort are from two feet and a half to three feet long, and about three inches broad, being of a dark green colour, ending in a black ſpine; the borders of the leaves are of a browniſh red colour, and ſlightly ſerrated. Theſe ſtand more erect than in the other ſpecies; but as this ſort hath not flowered in England, ſo I cannot ſay how it differs from the other. The plants of it were ſent me from St. Chriſtopher's, by the title of Koratto, which I ſuppoſe is given indifferently to other ſpecies of this genus; for I have frequently heard the inhabitants of America call the common great Aloe by the ſame name.

The eighth ſort hath long, narrow, ſtiff leaves, which are entire, and are terminated by a ſtiff black ſpine. Theſe leaves are ſeldom more than two feet long, and little more than an inch broad, being of a glaucous colour. The ſide leaves ſtand almoſt horizontally, but the center leaves are folded over each other, and incloſe the flower-bud. This ſort never puts out ſuckers from the root, nor have I ſeen any plants of this kind in flower, although there are many of them in the Engliſh gardens, ſome of which are of a conſiderable age.

The third, fourth, fifth, ſixth, and eighth ſorts, are much tenderer than the others, ſo cannot be preſerved through the winter in England, unleſs they are placed in a warm ſtove; nor will they thrive if ſet abroad in ſummer, therefore they ſhould conſtantly remain in the ſtove, obſerving to let them enjoy a great ſhare of free air in warm weather. They require a light ſandy earth, and ſhould have little wet in winter; but in warm weather, may be gently watered twice a week, which is as often as is neceſſary; for if they have much water given them, it rots their roots, and then their leaves will decay and inſects infeſt them. They ſhould be ſhifted every ſummer into freſh earth, but muſt not be put into large pots, for unleſs their roots are confined, the plants will not thrive.

AGERATUM. Lin. Gen. Plant. 842. Baſtard Hemp Agrimony.

The Characters are,

The flowers are included in one common oblong empalement, which is compoſed of many ſcales. Theſe are uniform, tubulous, and hermaphrodite, and little longer than the empalement, each being cut at their margin into five ſegments, which ſpread open. Theſe have five ſlender ſtamina, crowned with cylindrical ſummits: in the center of the flower is ſituated an oblong germen, ſupporting a ſlender ſtyle, crowned by two fine ſtigmas. The germen afterward becomes an oblong angular ſeed, crowned with its proper little cup, cut into five narrow ſegments, which ſpread open. The receptacle of the ſeed is ſmall, naked, and convex.

This genus of plants is by Dr. Linnæus ranged in his ſeventeenth claſs, entitled Syngeneſia polygamia æqualis, the flowers having their ſtamina joined together in a cylinder, and there being male, female, and hermaphrodite florets included in the ſame common empalement.

The Species are,

1. Ageratum (*Conyzoides*) foliis ovatis caule piloſo. Lin. Sp. Plant. 839. *Baſtard Hemp Agrimony, with oval leaves and a hairy ſtalk.* Eupatorium humile Africanum ſenecionis facie folio lamii. Herm. Pars 161.
2. Ageratum. (*Houſtonianum*) foliis oppoſitis petiolatis crenatis, caule hirſuto. *Baſtard Hemp Agrimony, with leaves having long foot-ſtalks placed oppoſite, whoſe edges are bluntly indented, and a hairy ſtalk.* Eupatorium herbaceum meliſſæ folio villoſum flore cœruleo. Houſt. MSS.
3. Ageratum (*Altiſſimum*) foliis ovato cordatis rugoſis floralibus alternis, caule glabro. Lin. Sp. Plant. 839. *Baſtard Hemp Agrimony, with rough, oval, heart-ſhaped leaves, flower branches growing alternate, and a ſmooth ſtalk.* Eupatorium urticæ foliis Canadenſe flore albo. H. L.

The two firſt are annual plants. The ſeeds of theſe muſt be ſown on a hot-bed in the ſpring, and when the plants are come up and are ſtrong enough to remove, they ſhould be tranſplanted into another moderate hot-bed, obſerving to water and ſhade them until they have taken root, after which time they muſt have a good ſhare of air in warm weather. In June they ſhould be inured to bear the open air, toward the middle of which month, they may be tranſplanted into the full ground, where they will begin to flower in July, and continue flowering till the froſts in autumn deſtroy them. The ſeeds ripen in September and October, and when any of them ſcatter upon the ground, and the ſame earth happens to be put on a hot-bed the following ſpring, the plants will come up in great plenty, as they frequently do in the open air; but theſe plants will be too late to produce good ſeeds, unleſs the ſummer proves warm. The firſt ſort grows naturally in Africa, and alſo in the iſlands of America; for in tubs of earth which I received with plants from Jamaica, Barbadoes, and Antigua, I have had plenty of the plants ariſe, from ſeeds which were ſcattered on the ground. The ſecond ſort was found growing naturally at La Vera Cruz, by the late Dr. William Houſtoun, who ſent the ſeeds to Europe, which have ſo well ſucceeded in many gardens, as to become a weed in the hot-beds. There is a variety of this with white flowers, which ariſes from the ſame ſeeds.

The third ſort grows naturally in North America, but has been many years an inhabitant of the Engliſh gardens. This hath a perennial root and an annual ſtalk; the ſtalks will grow five or ſix feet high, and toward their tops put out ſide branches: the leaves are ſhaped like a heart. At the ends of the ſhoots the flowers are produced in large tufts, which are of a pure white; and theſe appearing in October, at a ſeaſon when there is a ſcarcity of other flowers, renders it more valuable.

This ſort is propagated by ſeeds, as alſo by parting of the roots; the latter method is commonly practiſed in England, becauſe there are few autumns ſo favourable as to ripen the ſeeds: but the ſeeds are frequently brought from North America, where this plant is very common; for being light, they are eaſily wafted about to a great diſtance, where they come to maturity; ſo that where there are any plants growing, all the adjoining land is filled with the ſeeds of them.

The beſt time for planting and tranſplanting the roots of this plant, is in autumn, ſoon after their ſtalks decay, that they may have good root before the drying winds come on, otherwiſe they will not flower ſtrong, or make a good increaſe. The roots ſhould be allowed three feet room every way, for as they ſpread and increaſe very much, ſo when they are cramped for room, the plants ſtarve, and in dry ſeaſons their leaves will hang. They delight in a rich moiſt ſoil and open ſituation, where they will produce many ſtalks from each root, which will grow ſo large as to form a conſiderable bruſh. This plant will bear the ſevereſt cold in winter.

AGERATUM, or MAUDLIN. See ACHILLEA.

AGERATUM PURPUREUM. See ERINUS.

AGNUS CASTUS. See VITEX.

AGRIFOLIUM. See ILEX.

AGRIMONIA. Lin. Gen. Plant. 534. Agrimony.

The CHARACTERS are,

The empalement of the flower is of one leaf, which is cut into five acute ſegments, and reſts on the germen. The flower has five petals, which are plain and indented at their extremity, but are narrow at their baſe, where they are inſerted in the empalement. In the center ariſes a double ſtyle, reſting on the germen, which is attended by twelve ſlender ſtamina, which are crowned with double compreſſed ſummits. After the flower is paſt, the germen becomes two roundiſh ſeeds faſtened to the empalement.

This genus of plants is ranged by Dr. Linnæus in the ſecond ſection of his eleventh claſs, entitled Dodecandria digynia, the flowers having twelve ſtamina and two ſtyles.

The SPECIES are,

1. AGRIMONIA (*Eupatoria*) foliis caulinis pinnatis impari petiolato, fructibus hiſpidis. Hort. Cliff. *The common Agrimony.* Agrimonia officinarum. Tourn.
2. AGRIMONIA (*Minor*) foliis caulinis pinnatis, foliolis obtuſis dentatis. *The white Agrimony.* Agrimonia minor flore albo. Hort. Cath.
3. AGRIMONIA (*Odorata*) altiſſima, foliis caulinis pinnatis foliolis oblongis acutis ſerratis. *The ſweet-ſcented Agrimony.* Agrimonia odorata. Camer.
4. AGRIMONIA (*Repens*) foliis caulinis pinnatis, impari ſeſſili, fructibus hiſpidis. Lin. Sp. 643. *Eaſtern Agrimony with pinnated leaves and a thick creeping root.* Agrimonia orientalis humilis radice craſſiſſimâ repente fructu in ſpicam brevem & denſam congeſto. Tourn. Cor.
5. AGRIMONIA (*Agrimonoides*) foliis caulinis ternatis fructibus glabris. Hort. Cliff. 179. *Three leaved Agrimony with ſmooth fruit.* Agrimonoïdes Col. Echpr.

The firſt ſort grows naturally in ſeveral parts of England, by the ſides of hedges, and in woods. This is the ſort which is commonly uſed in medicine, and is brought to the markets by thoſe who gather herbs in the fields.

The ſecond ſort is the ſmalleſt of all the ſpecies; the leaves of this have not ſo many pinnæ as the common ſort, and the pinnæ are rounder, and the indentures on their edges blunter. The ſpike of flowers is ſlender, and the flowers ſmaller, and of a dirty white colour. This ſort grows naturally in Italy, from whence I received the ſeeds, and have conſtantly found that the ſeeds of this when ſown never vary.

The third ſort grows near four feet high; the leaves of this have more pinnæ than either of the former, which are longer and narrower, ending in acute points; the ſerratures of the leaves are ſharper than any of the other, and when handled emit an agreeable odour. The leaves of this ſort make an agreeable cooling tea, which is a very good beverage for perſons in a fever, in which diſorder I have known it often preſcribed by good phyſicians.

The fourth ſort is of humble growth, ſeldom riſing above two feet high; the pinnæ of its leaves are longer and narrower than either of the former, and the ſpikes of flowers very ſhort and thick. The roots of this are very thick, and ſpread widely under ground, by which it multiplies faſter than either of the other; the ſeeds are alſo much larger and rougher than thoſe of the common ſort. This was ſent by Dr. Tournefort to the royal garden at Paris, and from thence the other botanic gardens have been ſupplied with them.

The fifth ſort greatly reſembles the other in the ſhape of its pinnæ (or ſmaller leaves) but there are but three upon each foot-ſtalk; the flower of this hath a double empalement, the outer one being fringed. There are but ſeven or eight ſtamina in each flower, and the ſeeds are ſmooth, for which reaſon Fabius Columna, and other writers on botany, have ſeparated it from the Agrimony, making it a diſtinct genus.

All theſe ſorts are hardy perennial plants, which will thrive in almoſt any ſoil or ſituation, and require no other care but to keep them clear from weeds. They may be propagated by parting of their roots, which ſhould be done in autumn, when their leaves begin to decay, that the plants may be well eſtabliſhed before the ſpring. They ſhould not be planted nearer than two feet, that their roots may have room to ſpread. They may alſo be propagated by ſeeds, which ſhould be ſown in autumn, for if they are kept out of the ground till ſpring, they ſeldom come up the ſame ſeaſon.

AGROSTEMMA. Lin. Gen. Plant. 516. Wild Lychnis or Campion.

The CHARACTERS are,

The empalement of the flower is permanent, of one leaf, which is tubulous, thick, and cut into five narrow ſegments at the edge; the flower is compoſed of five petals, which are the length of the tube, but ſpread open at the top. In the center is ſituated an oval germen ſupporting five ſtyles, which are ſlender, erect, and crowned with ſimple ſtigma. Theſe are attended by ten ſtamina, five of which are inſerted in the baſe of the petals, and the others ſtand alternately between: after the flower is paſt, the germen becomes an oval oblong capſule, having one cell opening into five diviſions, which is filled with angular ſeeds.

This genus of plants is by Dr. Linnæus ranged in the fifth ſection of his tenth claſs, entitled Decandria pentagynia, the flowers of this diviſion having ten ſtamina and five ſtyles.

The SPECIES are,

1. AGROSTEMMA (*Githago*) hirſuta calycibus corollam æquantibus petalis integris nudis. Lin. Sp. Plant. 435. *Hairy wild Lychnis, whoſe empalement is equal with the corolla, and the petals entire and naked, commonly called Corn Campion.* Lychnis ſegetum major. C. B. P.
2. AGROSTEMMA (*Celiroſa*) glabra foliis lineari-lanceolatis petalis emarginatis coronatis. Hort. Upſal. 115. *Smooth wild Campion with narrow ſpear-ſhaped leaves, and the petals of the flowers indented at their brim.* Lychnis foliis glabris calyce duriore. Bocc. Sic. 27.
3. AGROSTEMMA (*Coronaria*) tomentoſa foliis ovato-lanceolatis, petalis integris coronatis. Hort. Upſal. 115. *The ſingle Roſe Campion.* Lychnis coronaria Dioſcoridis ſativa. C. B. P. 203.
4. AGROSTEMMA (*Flos Jovis*) tomentoſa petalis emarginatis. Lin. Sp. Plant. 436. *Umbelliferous Mountain Campion.* Lychnis umbellifera montana Helvetica. Zan. Hiſt. 128.

The firſt ſort grows naturally in the corn fields in moſt parts of England, ſo is ſeldom admitted into gardens.

The ſecond ſort grows naturally in Sicily, and being a plant of little beauty, is only preſerved in botanic gardens for the ſake of variety.

The ſingle Roſe Campion has been long an inhabitant of the Engliſh gardens, where, by its ſeed having ſcattered, it is become a kind of weed. There are three varieties of this plant, one with deep red, another with fleſh-coloured, and a third with white flowers, but theſe are of ſmall eſteem; for the double Roſe Campion being a fine flower, has turned the others out of moſt fine gardens. The ſingle ſorts propagate faſt enough by the ſeeds, where they are permitted to ſcatter, for the plants come up better from ſelf-ſown ſeeds, than when they are ſown by hand, eſpecially if they are not ſown in autumn.

The ſort with double flowers, which is a variety of the former, never produces any ſeeds, ſo is only propagated by parting of the roots; the beſt time for this is in autumn, after their flowers are paſt; in doing of this, every head which can be ſlipped off with roots ſhould be parted. Theſe ſhould be planted in a border of freſh undunged earth, at the diſtance of ſix inches one from the other, obſerving to water them gently until they have taken root; after which they will require no more, for much wet is very injurious to them, as is alſo dung. In this border they may remain till ſpring, when they ſhould to be planted into the borders of the flower-garden, where they will be very ornamental during the time of their flowering, which is July and Auguſt.

The fifth ſort grows naturally upon the Helvetian mountains; this is a low plant, with woolly leaves; the flower-ſtem riſes near a foot high; the flowers grow in umbels on the top of the ſtalk, which are of a bright red colour. It flowers in July, and the ſeeds ripen in September. It muſt have a ſhady ſituation, and will thrive beſt in a moiſt ſoil.

AIR [*Aër, Lat.* Ἀῆρ, of τῦ ἀεὶ ῥεῖν, becauſe it always flows; or as others, of ἄημι, to breathe.] By air is meant all that fluid expanded maſs of matter which ſurrounds our earth, in which we live and walk, and which we are continually receiving and caſting out again by reſpiration.

The ſubſtance whereof air conſiſts, may be reduced to two kinds, viz.

1. The matter of light or fire, which is continually flowing into it from the heavenly bodies.

2. Thoſe numberleſs particles, which is in form either of vapours, or dry exhalations, are raiſed from the earth, water, minerals, vegetables, animals, &c. either by the ſolar, ſubterraneous, or culinary fire.

Elementary air, or air properly ſo called, is a certain ſubtile, homogeneous, elaſtic matter, the baſis or fundamental ingredient of the atmoſpherical air, and that which gives it the denomination.

Air therefore may be conſidered in two reſpects; either as it is an univerſal aſſemblage, or chaos, of all kinds of bodies; or as it is a body endued with its own proper qualities.

1. That there is fire contained in all air is demonſtrable, in that it is evident, that there is fire exiſting in all bodies, and to this fire it is that air ſeems to owe all its fluidity; and were the air totally diveſted of that fire, it is more than probable that it would coaleſce into a ſolid body; for it is found by many experiments, that the air condenſes and contracts itſelf ſo much the more, the leſs degree of warmth it has; and, on the contrary, expands itſelf the more, according as the heat is greater.

2. In reſpect of exhalations, air may be ſaid to be a general collection of all kinds of bodies; for there are no bodies but what fire will render volatile, and diſperſe into air; even ſalts, ſulphurs, and ſtones, nay and gold itſelf, though the heavieſt and moſt fixed of all bodies, are convertible into vapours by a large burning-glaſs, and are carried on high.

Thoſe floating particles, thus raiſed from terreſtrial bodies, are moved and agitated by the fiery particles divers ways, and are diffuſed through the whole atmoſphere.

Of the matters thus raiſed in the atmoſphere, thoſe which come from fluid bodies, are properly called vapours, and thoſe from ſolid or dry ones, exhalations.

The cauſe of this volatility and aſcent is the fire, without which all things would fall immediately down towards the center of the earth, and remain in eternal reſt.

Thus, if the air be full of vapours, and the cold ſucceeds, theſe vapours before diſperſed are congregated and condenſed into clouds, and thus fall back again into the form of water, rain, ſnow, or hail.

From the time of the entrance of the ſpring till autumn, the evaporation is conſtant; but then it begins to fail, and in the winter ceaſes, to lay up freſh matter for the coming ſeaſon.

And thus it is that froſty winters, by congealing the waters, and by covering the earth with a cruſt, and thus impriſoning the exhalations, make a fruitful ſummer.

And this ſeems to be the reaſon why in ſome countries, where the winter is ſeverer than ordinary, the ſpring is more than ordinary fruitful; for in ſuch places the exhalations being pent up a long time, are diſcharged in the greater quantity, when the ſun makes them a paſſage; whereas, under a feebler cold, the flux would have been continual, and conſequently no great ſtock reſerved for the next occaſion.

This vaporous matter then being at length received into the atmoſphere, is returned again in the form of rain, a forerunner of a chearful crop.

As the ſun retires, the cold ſucceeds, and thus the diverſity of the ſeaſons of the year depends on a change in the face of the cruſt of the earth, the preſence of the air, and the courſe of the ſun.

And hence we conceive the nature of meteors, which are all either collections of ſuch vapours and exhalations, or diſperſions thereof.

The ſubtiler oils are always riſing into the air. Now two clouds, partly formed of ſuch oils, happening to meet and mix, by the attrition, the oil frequently takes fire, and hence proceed thunder, lightnings, and other phænomena, which may be farther promoted by the diſpoſition of the clouds to favour the excitation.

And hence ariſe great and ſudden alterations in the air, inſomuch that it ſhall be now intenſely hot, and raiſe the ſpirits perhaps to eighty-eight degrees in a thermometer; and yet, after a clap of thunder with a ſhower, it ſhall fall again in a few minutes no leſs than twenty or thirty degrees.

It is therefore impoſſible to pronounce what the degree of heat will be in any given place at any time, even though we know ever ſo well the places and poſition of the ſun and planets with reſpect to us, ſince it depends ſo much upon other variable things, no ways capable of being aſcertained.

The lower the place, the cloſer, denſer, and heavier is the air, till at length you arrive at a depth where the fire goes out; ſo that miners, who go deep, to remedy this inconvenience, are forced to have recourſe to an artificial wind, raiſed by the fall of waters, to do the office of the other air.

Now, conſidering the air as ſuch a chaos, or aſſemblage of all kinds of bodies, and a chaos ſo extremely liable to change, it muſt needs have a great influence on vegetable bodies.

3. Air conſidered in itſelf, or that properly called air.

Beſides the fire and exhalations contained in the circumambient atmoſphere, there is a third matter, which is what we properly mean by air.

To define the nature of it would be extremely difficult, inaſmuch as its intimate affections are unknown to us; all we know is,

1. That air is naturally an homogeneous ſimilar body.
2. That it is fluid.
3. That it is heavy.
4. That it is elaſtic.
5. That it rarefies by fire, and contracts by cold.
6. That it is compreſſible by a weight laid thereon, and riſes, and reſtores itſelf upon a removal of the ſame: all which circumſtances ſhould incline it to coaleſce into a ſolid, if fire were wanting.

1. Air is divided into real and permanent, and apparent or tranſient.

Real air is not reducible by any compreſſion or condenſation, or the like, into any ſubſtance beſides air.

Tranſient air is the contrary of the former, and by cold, &c. may be condenſed into original water; the difference between permanent and tranſient air, amounts to the ſame as that between vapour and exhalation; the one, e. g. being dry, and the other moiſt.

Hence, as Sir Iſaac Newton ſays, it is, that as the particles of permanent air are groſſer, and ariſe from denſer bodies, than thoſe of tranſient air or vapour, true air is more ponderous than vapour, and a moiſt atmoſphere lighter than a dry one.

But this real air no where conſiſts in its purity, but that air which concerns us, and the properties and effects of which are chiefly to be conſidered, is that which has been before treated on and deſcribed, which Mr. Boyle acknowledges to be the moſt heterogeneous body in the univerſe; and Dr. Boerhaave ſhews it to be an univerſal chaos and colluvies of all the kinds of created bodies in the univerſe, and in which may be found whatever fire can volatize.

2. That the air is fluid, appears from the eaſy paſſage it affords to bodies through it; as in the propagation of ſounds, ſmells, and other effluvia; for theſe things ſhew it a body that gives way to any force impreſſed, and in yielding are eaſily moved among themſelves, which are the properties of a fluid; ſo that ſcarce any body will call in queſtion, whether air be a fluid, and thence being always in motion, and always moving other bodies, for no ſurface of any liquor that is contiguous to the air, can be at reſt.

3. As to the gravity or heavineſs of the air, that is likewiſe eaſily proved; for that the air is heavy, follows from its being a body, weight being an eſſential property of matter.

Senſe and experiment ſufficiently prove this: for, if a perſon lay his hand upon an open veſſel placed on an air-pump, and the air be exhauſted, he will ſenſibly feel the load of the incumbent atmoſphere to increaſe, and preſs upon the upper part of his hand, as the air is exhauſting.

In like manner, a hollow ſphere of five or ſix inches diameter, divided into two ſegments exactly fitting each other, after the air is exhauſted out of them, are preſſed together with a force equal to a hundred pounds weight, and require the ſtrength of two ſtrong perſons to pull them aſunder; which, as ſoon as ever the air is let into them again, will fall aſunder by the mere weight of the under hemiſphere.

Mr. Boyle found that a lamb's bladder, containing about two thirds of a pint, and blown up, and well dried, loſt about a grain and one eighth, when it was pricked, and the air let out.

Mr. Graveſande found, that the air in a glaſs ball of about two hundred and eighty-three inches capacity, weighed a hundred grains; and according to Burcher de Volder, a cubic foot of air is in weight one ounce, and twenty-ſeven grains.

Mr. Boyle has computed, that the weight of any quantity of air, near the ſurface of the earth, is to water as 1 to 1000; and Dr. Halley, as 1 to 800; and Mr. Hawkſbee, as 1 to 885; and the gravity of the ſame quantity of air to the ſame quantity of mercury, as 1 to 10800.

Air therefore may be conſidered as an univerſal operculum, or cover, which by its weight keeps all terreſtrial bodies down, and hinders them from flying off.

4. The air is elaſtic. Elaſticity is a quality whereby a body yields to any external impreſſions by contracting itſelf into leſs compaſs; and upon removing or diminiſhing the impreſſive power, returns to its former ſpace or figure. And by this quality, the air is diſtinguiſhed from all other bodies in the atmoſphere; neither fire nor exhalations appearing to be elaſtic, at leaſt in any notable degree.

That there is ſuch a quality in the air, is evident from innumerable experiments; and this property is inſeparable from it. A bladder full blown being ſqueezed in the hand, the included air may be ſenſibly perceived to reſiſt the touch; ſo that upon ceaſing to compreſs it, the cavities or impreſſions, which were made in its ſurface, are immediately expanded again, and filled up.

Alſo thin glaſs bubbles, or bladders full of air, and exactly cloſed, and put into the receiver of an air-pump, the air being exhauſted out of the receiver, the glaſs bubbles fly in pieces by the force of the air included in them.

From theſe experiments, and many others, it appears, that the air we breathe near the ſurface of the earth is compreſſed by its own weight into at leaſt 1679 parts of the ſpace it would poſſeſs in vacuo; and if the ſame air be condenſed by art, the ſpace it will occupy, when moſt dilated, will be as 505000 to 1, to that which it poſſeſſes when condenſed; and Dr. Wallis ſuggeſts, that we are far from knowing the utmoſt it is capable of.

Nor does this power appear capable by any means to be deſtroyed or diminiſhed; for Mr. Boyle made ſeveral experiments to diſcover how long air, brought to the greateſt degree of expanſion he could reduce it to in his air-pump, would retain its ſpring, and could never obſerve any ſenſible diminution; although the air was clogged ſome months with a weight that one would admire how it ſhould ſupport one moment.

It is, indeed, a wonderful property in air, that it ſhould be capable of being contracted and extended infinitely; but, as hath been ſaid, it does not appear, by all the experiments yet tried, that there are any limits of its compreſſion or expanſion; but ſtill by the addition of a new weight, it will contract farther; and by taking the weight away, will expand farther.

5. Air rarefies by fire, and contracts by cold.

The colder the air is, the leſs ſpace it takes up; and, on the contrary, the warmer the air is, it poſſeſſes the larger ſpace; and ſo cooling and compreſſion have the ſame effects upon air; and ſo cold and compreſſion keep pace with one another.

The ſame holds of warming and diminiſhing of weight, or heat and expanſion, which go hand in hand.

And to the ſame elaſtic power before-mentioned, and its being expanded by heat, it is owing, that air incloſed in glaſs veſſels, at a time when it is much condenſed, when it afterwards comes to expand by a farther degree of heat, frequently burſts the bottles.

6. Air is compreſſible by a weight laid thereon, and riſes and reſtores itſelf upon a removal of the ſame. This property has been ſufficiently ſhewn by what has been ſaid before, and eſpecially under the head of elaſticity; wherefore, having conſidered the properties of air, I ſhall take notice of ſome of its operations and effects as to the buſineſs of vegetation.

Air, by being heavy and fluid, inveſts the whole earth, and preſſes all the bodies thereon with a great force, equal to what they would ſuſtain from the preſſure of a column of 29 inches depth of mercury, or 32 feet of water; and conſtringes and binds them down with a force amounting, according to the computation of Mr. Paſchal, to 2232 pounds weight upon every ſquare foot, or upwards of 15 pounds upon every ſquare inch. Hence it prevents, e. g. the arterial veſſels of plants and animals from being too much diſtended by the impetus of the circulating juices, or by the elaſtic force of the air ſo plentifully lodged in the blood of one, and the ſap of the other. For,

The air preſſes equally every way, as is confirmed in what we obſerve of ſoft bodies ſuſtaining this preſſure without any change of figure, and brittle bodies without their breaking.

Air is a principal cauſe of the vegetation of plants, an inſtance of which we have from Mr. Ray, in the Philoſophical Tranſactions of Lettuce-ſeed, that was ſown in the glaſs-receiver of the air-pump, which was exhauſted and cleared from all air, which grew not at all in eight days time; whereas ſome of the ſame ſeed that was ſown at the ſame time in the open air, was riſen to the height of an inch and a half in that time; but the air being let into the empty receiver, the ſeed grew up to the height of two or three inches in the ſpace of one week.

That a certain portion of air is neceſſary to preſerve the growing quality of ſeeds is manifeſt, from many repeated experiments; by putting up ſeeds into glaſs bottles, and ſealing the bottles hermetically, and in ſix months thoſe ſeeds have loſt their growing quality; whereas part of the ſame ſeeds which were kept in bags, grew at the age of two years; therefore it ſhould caution perſons not to exclude the air from their ſeeds, if they intend they ſhould grow.

Another inſtance of the uſefulneſs of the air in vegetation, is the Sedum, which will puſh out roots without earth and water, and live for ſeveral months: and ſome ſorts of Aloes, if hung up in a room entirely ſecured from froſts, will remain freſh for ſome years, though they will ſenſibly loſe in their weight.

Air is capable of penetrating the porous and ſpongy parts of plants, and being there contracted, and dilating itſelf again.

The air operates alſo within the bowels of the earth, and by its ſubtilty perſpiring through the pores, aſſiſts in the rarefaction of the crudities of the earth, and in the diſpelling all ſuperfluous moiſture, entering into the very pores and veins of the trees, plants, herbs, &c. carrying along with it thoſe ſalts contained either in itſelf, or lodged in the earth; which ſalts or juices, are altered according to the ſeveral figures or dimenſions of the different ſtrainers or veſſels of thoſe ſeveral plants, which grow upon the ſame ſpot of earth, which is ſo impregnated with theſe ſalts: and thence thoſe varieties in taſte and ſmell proceed, notwithſtanding they all receive their nouriſhment from the ſame ſtock that is lodged in the earth.

The air alſo affects the branches, leaves, and flowers of trees, plants, and herbs, entering and perſpiring through them, and even through the bark and body of the tree; and by the ſame kind of ſubtilty it does, by its refreſhing breezes, moderate the intenſeneſs of the ſun-beams, cooling, chearing, blowing, opening and extending all the offspring of nature.

The air fixes and inſinuates its aërial ſubſtance into the liquid ſap of vegetables: and as all the agitations in nature proceed from the contrariety of parts inhabiting together, in this, aërial and liquid ſubſtances being mixed, cauſe this agitation and motion in vegetables, or, more properly, ſet it all into a ferment (whether it be in the roots, or in the ſtem); and it riſes by co-operation of the ſun (which is the third agent in vegetation) up to the top of a tree, &c. as liquids riſe by fire to the top of the containing veſſel.

This air, we find, produces a vibratory motion in ſeveral bodies; and particularly in plants, the air veſſels thereof do the office of lungs: for the air contained in them, ſometimes contracting, and ſometimes expanding, according as the heat is increaſed or diminiſhed, preſſes the veſſels, and eaſe them again by turns; and thus promotes a circulation of their juices, which could ſcarce be otherwiſe effected.

Air, ſays the learned Dr. Hales, is a fine elaſtic fluid, with particles of very different natures floating in it, whereby it is admirably fitted by the great Author of nature to be the breath or life of vegetables as well as animals, without which they can no more live nor thrive than animals can.

As a proof of the great quantities of air in vegetables, he refers to the third chapter of his excellent treatiſe of Vegetable Statics, where he ſays, in the experiments on Vines, the great quantity of air was viſible, which was continually aſcending through the ſap in the tubes; which manifeſtly ſhews what plenty of it is taken in by vegetables, and is perſpired off with the ſap through the leaves.

He adds ſeveral experiments, as to an Apple branch, Apricot branch, Birch, and other plants, to prove the ſame thing.

And Dr. Grew has obſerved, that the pores are ſo large in the trunks of ſome plants, as in the better ſort of thick walking-canes, that they are viſible to a good eye without a glaſs; but with a glaſs, the cane ſeems as if ſtuck at top full of holes with great pins, ſo large as very well to reſemble the pores of the ſkin in the ends of the fingers and ball of the hand.

In the leaves of Pines, they are likewiſe through a glaſs a very elegant ſhew, ſtanding almoſt exactly in rank and file through the length of the leaves.

Whence it may be thought probable, that the air freely enters plants, not only with the principal fund of nouriſhment by the roots, but alſo through the ſurface of their trunks and leaves, eſpecially at night, when they are changed from a perſpiring, to a ſtrongly imbibing ſtate.

Dr. Hales likewiſe tells us, that in all thoſe experiments that he tried to this purpoſe, he found that the air entered very ſlowly at the bark of young ſhoots and branches, but much more freely through old bark; and that in different kinds of trees it had different degrees of more or leſs free entrance.

And likewiſe, that there is ſome air both in an elaſtic and unelaſtic ſtate, mixed with the earth (which may well enter the roots with the nouriſhment), he found by ſeveral experiments, which he gives in the beforementioned treatiſe.

The excellent Mr. Boyle, in making many experiments on the air, among other diſcoveries found, that a good quantity of air was producible from vegetables, by putting Grapes, Plums, Gooſberries, Peaſe, and ſeveral other ſorts of fruits and grains into exhauſted and unexhauſted receivers, where they continued for ſeveral days emitting great quantities of air.

This put the curious Dr. Hales upon farther reſearches to find out what proportion of air he could obtain out of the different vegetables, in which it was lodged and incorporated, which he performed by divers chymio-ſtatical experiments, which he gives in many inſtances in his treatiſe of the analyſis of the air, plainly ſhewing in what manner he performed them, and the events of them.

That from half a cubic inch, or 135 grains of heart of Oak, freſh cut from a growing tree, there were 108 cubic inches of air generated, which is a quantity equal to 216 times the bulk of the piece of Oak; that the weight of it was above 30 grains, one quarter part of the weight of 135 grains.

And he adds, that he took the like quantity of thin ſhavings from the ſame piece of Oak, and dried them at ſome diſtance from a gentle fire for 24 hours; in which time they evaporated 44 grains of moiſture; which 44 grains deducted from 135 grains, there remains 91 grains for the ſolid part of the Oak: then 30 grains will be one third of the weight of the ſolid part of the Oak.

He gives another experiment of Indian Wheat, which grew in his own garden, that he took 388 grains of it when it was not come to its full maturity, and that there were generated from it 270 cubic inches of air; the weight of which air was 77 grains, viz. one fourth of the weight of the Wheat.

And again, that a cubic inch, or 318 grains of Peaſe generated 396 cubic inches of air, or 113 grains, i. e. ſomething more than one third of the weight of the Peaſe.

And again, that from one ounce, or 437 grains of Muſtard ſeed, 270 cubic inches of air were generated, or 77 grains, which is more than one ſixth part of the ounce weight.

He likewiſe adds, that there is a great plenty of air incorporated into the ſubſtance of vegetables, which, by the action of fermentation, is rouſed into an elaſtic ſtate, as is evident from theſe experiments following.

On the 2d day of March, he poured 42 cubic inches of ale from the tun, which had been there ſet to ferment 34 hours before into a bolt head; and from that time to the 9th of June, it generated 639 cubic inches of air, with a very unequal progreſſion, more or leſs, as the weather was warm, cool, or cold; and ſometimes, upon a change from warm to cool, it reſorbed air, in all 32 cubic inches.

From the 2d of March to the 16th of April, 12 cubic inches of Malaga Raiſins, with 18 cubic inches of water, generated 411 cubic inches of air; and then again, it reſorbed 35 cubic inches in two or three cold days. From the 21ſt of April to the 16th of May, it generated 78 cubic inches; after which, the 9th of

June, it continued in a reſorbing ſtate, ſo as to reſorb 13 cubic inches: that there were at that ſeaſon many hot days, with much thunder and lightning, which deſtroys the elaſticity of the air: there were generated in all 489 cubic inches, of which 48 were abſorbed. The liquor was at laſt vapid.

On the 10th of Auguſt, 26 cubic inches of Apples being maſhed, they generated 986 cubic inches of air in 13 days time, which is a quantity equal to 48 times their bulk; after which they reſorbed a quantity equal to their bulk, in three or four days, notwithſtanding the weather was then very hot; after which time they were ſtationary for many days, neither generating nor abſorbing.

From which before-mentioned experiments on Raiſins and ale, the ingenious author concludes, that wine and ale do not turn vapid in warm weather by imbibing the air, but by fermenting and generating too much; by which means they are deprived of their enlivening principle the air: for which reaſon, theſe liquors are beſt preſerved in cool cellars, whereby this active invigorating principle is kept within due bounds; which when they exceed, wines are upon the fret, and are in danger of being ſpoiled.

Upon theſe, and many other experiments, which the learned author has given in his aforeſaid treatiſe, he obſerves, that this air which ariſes in ſo great quantities from fermenting and diſſolving vegetables, is true permanent air; which is certain, by its continuing in the ſame expanded and elaſtic ſtate for many weeks and months; which expanded watery vapours will not do, but ſoon condenſe when cold.

Upon the whole, he concludes, that air abounds in vegetable ſubſtances, and bears a conſiderable part in them: and if all the parts of matter were only endowed with a ſtrongly attracting power, all nature would then immediately become one unactive cohering lump.

Wherefore it was abſolutely neceſſary, in order to the actuating this vaſt maſs of attracting matter, that there ſhould be every where mixed with it a due proportion of ſtrongly-repelling elaſtic particles, which might enliven the whole maſs by the inceſſant action between them and the attracting particles.

And ſince theſe elaſtic particles are continually in great abundance reduced by the power of the ſtrong attracters, from an elaſtic to a fixed ſtate, it was therefore neceſſary that theſe particles ſhould be endued with a property of reſuming their elaſtic ſtate, whenever they were diſengaged from that maſs in which they were fixed, that thereby this beautiful frame of things might be maintained in a continual round of the production and diſſolution of vegetables as well as animal bodies.

The air is very inſtrumental in the production and growth of vegetables, both by invigorating their ſeveral juices, while in an elaſtic active ſtate, and alſo by greatly contributing in a fixed ſtate, to the union and firm connexion of the ſeveral conſtituent parts of thoſe bodies, viz. their water, fire, ſalt, and earth.

To conclude, by reaſon of thoſe properties of the air before-mentioned, it is very ſerviceable to vegetables, in that it blows up and breaks open the clouds, thoſe treaſures of rain, which fertilize the vegetable kind.

The air alſo helps to waft or diſperſe thoſe foggy humid vapours which ariſe from the earth, and would otherwiſe ſtagnate, and poiſon the whole face of the earth.

The air, by the aſſiſtance of the ſun, aſſumes and ſublimates thoſe vapours into the upper regions; and theſe foggy humid vapours are, by this ſublimation, and the coercive power of the air and ſun, rarefied and made of ſecond uſe in vegetation.

And on the contrary, to the benign quality of the air, which is ſo many ways ſubſervient to vegetables, it is alſo ſometimes, and upon ſome accounts, injurious and pernicious to them; not only to the ligneous, herbaceous, and flowery parts above, but alſo to the roots and fibres below: for in that the air penetrates into the earth, it is eaſy to be concluded, that a dry, huſky, ſcorching air, may be very prejudicial to the tender fibres of new planted trees.

It may be likewiſe ſuppoſed, that all bodies of earth are more or leſs capable of imbibing the fluid air, and of attracting ſuch ſalts as either the air can give, or the earth is capable of receiving.

AIZOON. Sempervive.

This name Dr. Linnæus has given to a plant near of kin to the Ficoides, which has been called Ficoidea, by ſome modern botaniſts.

The CHARACTERS are,

It hath a permanent empalement of one leaf, which is cut into five acute ſegments at the top: there are no petals in the flower, but the five-cornered germen reſts on the empalement, ſupporting five ſtyles, which are crowned with ſimple ſtigma; theſe are attended by many hairy ſtamina, which are inſerted into the empalement, and are crowned with ſimple ſummits. The germen afterward becomes a ſwelling five-cornered capſule, having five cells, in which are lodged many roundiſh ſeeds.

This genus of plants is by Dr. Linnæus ranged in the fifth diviſion of his twelfth claſs, entitled Icoſandria Pentagynia, the flowers of this claſs having more than nineteen ſtamina, and in this diviſion they have five ſtyles.

The SPECIES are,

1. AIZOON (*Canarienſe*) foliis cuneiformi-ovatis floribus ſeſſilibus. Hort. Upſal. 127. *Sempervive with oval wedge-ſhaped leaves, and flowers without foot-ſtalks.* Ficoidea procumbens portulacæ folio. Niſſol. Act. Par. 1711.
2. AIZOON (*Hiſpanicum*) foliis lanceolatis floribus ſeſſilibus. Lin. Sp. Plant. 488. *Sempervive with ſpear-ſhaped leaves and flowers, having no foot-ſtalks.* Ficoidea Hiſpanica annua folio longiore. Hort. Elth. 143.
3. AIZOON (*Paniculatum*) foliis lanceolatis floribus paniculatis. Lin. Sp. Pl. 448. *Sempervive with ſpear-ſhaped leaves and flowers growing in panicles.* Aizoon foliis lanceolatis ſubtus hirſutis. Prod. Leyd. 221.

As we have no Engliſh names for theſe plants, ſo I have adopted this of Sempervive, which hath been applied to the Aloe and Sedum, both which have been alſo titled Aizoon and Sempervivum.

The firſt ſort is a native of the Canary Iſlands: this is an annual plant, which muſt be raiſed on a moderate hot-bed in the ſpring; and when the plants are fit to tranſplant, they ſhould be carefully taken up, and planted each into a ſmall pot filled with freſh light earth, and plunged into another moderate hot-bed, obſerving to ſhade them from the ſun until they have taken freſh root; after which they muſt be hardened by degrees to bear the open air, into which they ſhould be removed in June, placing them in a ſheltered ſituation, where they will flower, and ripen their ſeeds in September, ſoon after which the plants will periſh.

The ſecond ſort grows naturally in Spain; this is alſo an annual plant, whoſe branches trail on the ground; the flowers have no beauty, ſo theſe plants are only preſerved by thoſe who are curious in collecting rare plants for the ſake of variety.

The third ſort grows naturally at the Cape of Good Hope, from whence the ſeeds were brought to Europe. This is alſo of humble growth, and periſhes ſoon after the ſeeds are ripe.

Theſe may be propagated in the ſame manner as the firſt, and when the plants have acquired ſtrength, they may be planted in the full ground; but they require a poor ſandy ſoil, for in rich ground they will grow very luxuriant in branches, but will not flower till late in the ſeaſon, ſo rarely perfect their ſeeds; but when they are planted in dry ſand, or lime rubbiſh, they will be more productive of flowers, and leſs vigorous in their branches.

ALA is the hollow of a ſtalk, which either the leaf, or the pedicle of the leaf, makes with the ſtalk or branches; or it is that hollow ſinus placed between the ſtalk or branch and leaf, from whence a new offſpring is wont to put forth, which the French call, *Aiſſelles des Plantes.* Sometimes it is uſed for leaves which conſiſt of many lobes or wings.

Alæ is alſo uſed to ſignify thoſe petala of papilionaceous flowers placed between the Vexillum and the Carina, which the French call, *Les Ailes des Fleurs legumineuſes.*

Alæ is alſo uſed for thoſe extreme ſlender membranaceous parts of certain ſeeds; as is the Bignonia Plumeria, the fruit of the Maple, &c. which the French call *Semences aîlées.* Again,

Alæ is uſed for thoſe foliaceous membranes which run the whole length of the ſtem; whence it is called, *Caulis alatus*, a winged ſtalk; in French, *Tige ailée*: but modern writers have ſtyled theſe *foliis decurrentibus*, or running leaves, becauſe theſe alæ or wings are connected with the leaves.

ALABASTRA, are thoſe green herbaceous leaves that encompaſs flowers. Jungius explains Alabaſtrum to be the globe, or roundiſh bud, that is but juſt peeping out.

ALATERNOIDES. See PHYLICA, CLUTIA, and CEANOTHUS.

ALATERNUS [called Ἐλαιόπρινος, as though of ἐλαία, an Olive, and πρῖνος, an Ilex], or evergreen Privet.

The CHARACTERS are,

It hath male and female flowers in different plants in ſome ſpecies, and in others both ſorts of flowers on the ſame. The male flowers are compoſed of an empalement of one leaf, which is funnel-ſhaped, and cut into five ſegments at their brim; to the ſides of the empalement are fixed five ſmall petals; at the baſe of theſe petals are faſtened ſo many ſtamina, which are crowned with round ſummits. The female flowers have a great reſemblance to the male, but have no ſtamina. In the center is placed the germen, ſupporting a trifid ſtyle crowned by a round ſtigma, the germen afterward becomes a ſoft round berry, containing three ſeeds.

Dr. Linnæus has joined this genus to the Rhamnus, to which he has alſo added the Frangula, Paliurus, and Zizyphus, and ranges them in his fifth claſs of plants, entitled Pentandria Monogynia.

The SPECIES are,

1. ALATERNUS (*Phylica*) foliis ovatis marginibus crenatis glabris. *Common Alaternus, with ſmooth leaves indented on their edges.* Alaternus, 1 Cluſ. Hiſp. 56.
2. ALATERNUS (*Glabra*) foliis ſubcordatis ſerratis glabris. *Alaternus with heart-ſhaped ſmooth leaves, which are ſawed on their edges.* Alaternus minore folio. Tourn. Inſt. 595.
3. ALATERNUS (*Anguſtifolia*) foliis lanceolatis profundè ſerratis glabris. *Alaternus with ſmooth ſpear-ſhaped leaves, which are deeply ſawed.* Alaternus monſpeliaca foliis profundiùs inciſis. H. R. Par.
4. ALATERNUS (*Latifolia*) foliis ovato-lanceolatis integerrimis glabris. *Alaternus with ſmooth oval ſpear-ſhaped leaves, which are entire.* Alaternus Hiſpanica latifolia. Tourn. Inſt. 596.

The varieties of theſe plants are, the firſt ſort with variegated leaves, which is commonly called Bloatched Phillyrea by the nurſery gardeners. And the third ſort with leaves ſtriped with white, and another with yellow; theſe are known by the Silver and Gold ſtriped Alaternus: but as theſe are accidental varieties, I have omitted placing them among the number of ſpecies.

The common diſtinction of this genus from the Phillyrea, is in the poſition of their leaves, which in the plants of this are placed alternately on the branches, whereas thoſe of Phillyrea are placed by pairs oppoſite; this is obvious at all ſeaſons, but there are more eſſential differences in their characters, as will be explained under the article Phillyrea.

The firſt ſort has been long cultivated in the Engliſh gardens, but the plain ſort is now uncommon here; for the bloatched-leaved ſort has been generally cultivated in the nurſeries, and the other has been almoſt totally neglected.

Theſe plants were much more in requeſt formerly than they are at preſent, when they were planted againſt walls in court-yards to cover them, as alſo to form evergreen hedges in gardens, for which purpoſe theſe were improper; for their branches ſhoot very vigorouſly, and being very pliant, they are frequently diſplaced by the wind; and in winter, when much ſnow falls in ſtill weather, the weight of that which lodges on the hedges, frequently breaks them down: add to this the trouble of keeping them in order, which cannot be effected with leſs than three times clipping in a ſeaſon, which is not only expenſive, but alſo occaſions a great litter in a garden: theſe inconveniencies have juſtly brought theſe hedges into diſeſteem.

The third ſort with ſilver-ſtriped leaves, was alſo in great requeſt ſome years ago, for planting againſt out-houſes, and other buildings, to hide the brick-work; but as theſe required to be often clipped, and their branches frequently wanting to be faſtened up to the wall, which was troubleſome and expenſive, and this ſort of wall hedges being great harbour for vermin, there has been of late but little demand for theſe plants. The ſort with gold-ſtriped leaves is pretty rare in the Engliſh gardens, and is not ſo hardy as that with ſilver ſtripes, ſo that in ſevere winters they are often killed. But the taſte for theſe variegated plants is almoſt loſt in England, there being few perſons now, who do not prefer the plain green leaves to thoſe which are ſtriped.

The ſecond ſort was formerly in the Engliſh gardens, in much greater plenty than at preſent. This was generally called Celaſtrus, or Staff-tree. The leaves of this ſort are placed at greater diſtances than thoſe of the firſt, ſo that their branches appear thinly covered with them, which may have occaſioned their being diſeſteemed. The leaves of this are ſhorter than thoſe of the firſt ſort, and are rounded at their foot-ſtalks ſomewhat like a heart-ſhaped leaf, the edges are alſo ſawed.

The thrid ſort has been an old inhabitant in ſome gardens, but was not much propagated till of late years; the leaves of this are much longer and narrower than thoſe of either of the other ſorts, and the ſerratures on their edges are much deeper; this ſhoots its branches more erect, and forms an handſomer buſh than any of the other, and is equally hardy, ſo may be allowed to have a place in all plantations of Evergreens. This grows naturally in the ſouth of France, where the berries are gathered, and ſold by the name of Avignon berries, for the uſe of painters, &c. for making a yellow pigment.

Theſe ſorts are by ſome ſuppoſed to be only varieties and not diſtinct ſpecies; but from many repeated trials, in raiſing them from ſeeds, I can affirm they do not vary, the ſeeds conſtantly producing the ſame ſpecies as they were taken from.

The ſecond ſort grows naturally about Turin, from whence I have been ſupplied with the ſeeds.

All theſe ſorts are eaſily propagated by laying their branches down, as is practiſed for many other trees. The beſt time for this is in the autumn, and if properly performed, the layers will have made good roots by the autumn following, when they may be cut off from the old ſtock, and planted either into the nurſery, or in the places where they are deſigned to remain. When they are planted in a nurſery, they ſhould not remain there longer than a year or two; for as they ſhoot their roots to a great diſtance on every ſide, ſo they cannot be removed after two or three years growth, without cutting off great part of them, which is very hurtful to the plants, and will greatly retard their growth, if they ſurvive their removal; but they are frequently killed by tranſplanting, when they have ſtood long in a place. They may be tranſplanted either in the autumn or the ſpring, but in dry land the autumn planting is beſt, whereas in moiſt ground the ſpring is to be preferred.

The plain ſorts may alſo be propagated by ſowing their berries, which they produce in great plenty, but the birds are greedy devourers of them; ſo that unleſs the berries are guarded from them, they will ſoon

June, it continued in a reſorbing ſtate, ſo as to reſorb 13 cubic inches: that there were at that ſeaſon many hot days, with much thunder and lightning, which deſtroys the elaſticity of the air: there were generated in all 489 cubic inches, of which 48 were abſorbed. The liquor was at laſt vapid.

On the 10th of Auguſt, 26 cubic inches of Apples being maſhed, they generated 986 cubic inches of air in 13 days time, which is a quantity equal to 48 times their bulk; after which they reſorbed a quantity equal to their bulk, in three or four days, notwithſtanding the weather was then very hot; after which time they were ſtationary for many days, neither generating nor abſorbing.

From which before-mentioned experiments on Raiſins and ale, the ingenious author concludes, that wine and ale do not turn vapid in warm weather by imbibing the air, but by fermenting and generating too much; by which means they are deprived of their enlivening principle the air: for which reaſon, theſe liquors are beſt preſerved in cool cellars, whereby this active invigorating principle is kept within due bounds; which when they exceed, wines are upon the fret, and are in danger of being ſpoiled.

Upon theſe, and many other experiments, which the learned author has given in his aforeſaid treatiſe, he obſerves, that this air which ariſes in ſo great quantities from fermenting and diſſolving vegetables, is true permanent air; which is certain, by its continuing in the ſame expanded and elaſtic ſtate for many weeks and months; which expanded watery vapours will not do, but ſoon condenſe when cold.

Upon the whole, he concludes, that air abounds in vegetable ſubſtances, and bears a conſiderable part in them: and if all the parts of matter were only endowed with a ſtrongly attracting power, all nature would then immediately become one unactive cohering lump.

Wherefore it was abſolutely neceſſary, in order to the actuating this vaſt maſs of attracting matter, that there ſhould be every where mixed with it a due proportion of ſtrongly-repelling elaſtic particles, which might enliven the whole maſs by the inceſſant action between them and the attracting particles.

And ſince theſe elaſtic particles are continually in great abundance reduced by the power of the ſtrong attracters, from an elaſtic to a fixed ſtate, it was therefore neceſſary that theſe particles ſhould be endued with a property of reſuming their elaſtic ſtate, whenever they were diſengaged from that maſs in which they were fixed, that thereby this beautiful frame of things might be maintained in a continual round of the production and diſſolution of vegetables as well as animal bodies.

The air is very inſtrumental in the production and growth of vegetables, both by invigorating their ſeveral juices, while in an elaſtic active ſtate, and alſo by greatly contributing in a fixed ſtate, to the union and firm connexion of the ſeveral conſtituent parts of thoſe bodies, viz. their water, fire, ſalt, and earth.

To conclude, by reaſon of thoſe properties of the air before-mentioned, it is very ſerviceable to vegetables, in that it blows up and breaks open the clouds, thoſe treaſures of rain, which fertilize the vegetable kind.

The air alſo helps to waft or diſperſe thoſe foggy humid vapours which ariſe from the earth, and would otherwiſe ſtagnate, and poiſon the whole face of the earth.

The air, by the aſſiſtance of the ſun, aſſumes and ſublimates thoſe vapours into the upper regions; and theſe foggy humid vapours are, by this ſublimation, and the coercive power of the air and ſun, rarefied and made of ſecond uſe in vegetation.

And on the contrary, to the benign quality of the air, which is ſo many ways ſubſervient to vegetables, it is alſo ſometimes, and upon ſome accounts, injurious and pernicious to them; not only to the ligneous, herbaceous, and flowery parts above, but alſo to the roots and fibres below: for in that the air penetrates into the earth, it is eaſy to be concluded, that a dry, huſky, ſcorching air, may be very prejudicial to the tender fibres of new planted trees.

It may be likewiſe ſuppoſed, that all bodies of earth are more or leſs capable of imbibing the fluid air, and of attracting ſuch ſalts as either the air can give, or the earth is capable of receiving.

AIZOON. Sempervive.

This name Dr. Linnæus has given to a plant near of kin to the Ficoides, which has been called Ficoidea, by ſome modern botaniſts.

The Characters are,

It hath a permanent empalement of one leaf, which is cut into five acute ſegments at the top: there are no petals in the flower, but the five-cornered germen reſts on the empalement, ſupporting five ſtyles, which are crowned with ſimple ſtigma; theſe are attended by many hairy ſtamina, which are inſerted into the empalement, and are crowned with ſimple ſummits. The germen afterward becomes a ſwelling five-cornered capſule, having five cells, in which are lodged many roundiſh ſeeds.

This genus of plants is by Dr. Linnæus ranged in the fifth diviſion of his twelfth claſs, entitled Icoſandria Pentagynia, the flowers of this claſs having more than nineteen ſtamina, and in this diviſion they have five ſtyles.

The Species are,

1. Aizoon (*Canarienſe*) foliis cuneiformi-ovatis floribus ſeſſilibus. Hort. Upſal. 127. *Sempervive with oval wedge-ſhaped leaves, and flowers without foot-ſtalks.* Ficoidea procumbens portulacæ folio. Niſſol. Act. Par. 1711.
2. Aizoon (*Hiſpanicum*) foliis lanceolatis floribus ſeſſilibus. Lin. Sp. Plant. 488. *Sempervive with ſpear-ſhaped leaves and flowers, having no foot-ſtalks.* Ficoidea Hiſpanica annua folio longiore. Hort. Elth. 143.
3. Aizoon (*Paniculatum*) foliis lanceolatis floribus paniculatis. Lin. Sp. Pl. 448. *Sempervive with ſpear-ſhaped leaves and flowers growing in panicles.* Aizoon foliis lanceolatis ſubtus hirſutis. Prod. Leyd. 221.

As we have no Engliſh names for theſe plants, ſo I have adopted this of Sempervive, which hath been applied to the Aloe and Sedum, both which have been alſo titled Aizoon and Sempervivum.

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The ſecond ſort grows naturally about Turin, from whence I have been ſupplied with the ſeeds.

All theſe ſorts are eaſily propagated by laying their branches down, as is practiſed for many other trees. The beſt time for this is in the autumn, and if properly performed, the layers will have made good roots by the autumn following, when they may be cut off from the old ſtock, and planted either into the nurſery, or in the places where they are deſigned to remain. When they are planted in a nurſery, they ſhould not remain there longer than a year or two; for as they ſhoot their roots to a great diſtance on every ſide, ſo they cannot be removed after two or three years growth, without cutting off great part of them, which is very hurtful to the plants, and will greatly retard their growth, if they ſurvive their removal; but they are frequently killed by tranſplanting, when they have ſtood long in a place. They may be tranſplanted either in the autumn or the ſpring, but in dry land the autumn planting is beſt, whereas in moiſt ground the ſpring is to be preferred.

The plain ſorts may alſo be propagated by ſowing their berries, which they produce in great plenty, but the birds are greedy devourers of them; ſo that unleſs the berries are guarded from them, they will ſoon be devoured when they begin to ripen. The plants which ariſe from ſeeds, always grow more erect than thoſe which are propagated by layers, ſo are fitter for large plantations, as they may be trained up to ſtems, and formed more like trees; whereas the layers are apt to extend their lower branches, which retards their upright growth, and renders them more like ſhrubs. They will grow to the height of eighteen or twenty feet, if their upright ſhoots are encouraged; but to keep their heads from being broken by wind or ſnow, thoſe branches which ſhoot irregular ſhould be ſhortened, which will cauſe their heads to be cloſer, and not in ſo much danger.

All the ſorts thrive beſt in a dry, gravelly, or ſandy ſoil, for in rich ground they are often injured by froſt, when the winters are ſevere, but in rocky dry land they are ſeldom injured: and if in very hard froſt their leaves are killed, yet the branches will remain unhurt, and will put out new leaves in the ſpring.

ALBUCA, Baſtard Star of Bethlehem.

The Characters are,

The flower has no empalement; it has ſix oblong oval petals, which are permanent; the three outer ſpread open, and the three inner are connected: it hath ſix three-cornered ſtamina the length of the corolla, three of which are fertile, crowned with moveable ſummits, the other three, which are barren, have no ſummits. The nectarium is ſituated near the baſe of the three fertile ſtamina; it has an oblong three-cornered germen, with a broad triangular ſtyle, crowned by a pyramidal three-cornered ſtigma; the capſule is three-cornered, having three cells filled with ſmall plain ſeeds.

This genus is ranged in the firſt ſection of Linnæus's ſixth claſs of plants, the flower having ſix ſtamina and one ſtyle.

The Species are,

1. Albuca (*Major*) foliis lanceolatis. Lin. Sp. 438. *Star flower with ſpear-ſhaped leaves.* Ornithogalum luteo-virens. Indicum. Corn. Canad.
2. Albuca (*Minor*) foliis ſubulatis. Lin. Sp. 438. *Star-flower with awl-ſhaped leaves.* Ornithogalum Africanum, flore viridi altero alteri innato. Herm. Parad. 209. *African Star-flower with a greeniſh yellow flower.*

Theſe plants have been generally ranged under the genus of Ornithogalum, but as their flowers differ in their form from the other ſpecies of that genus, Dr. Linnæus has conſtituted this genus for them.

The firſt ſort grows naturally in Canada, and in ſome other parts of North America; the root is bulbous, from which ſhoot up eight or ten long narrow ſpear-ſhaped leaves. In the center of theſe ariſe a flower-ſtem a foot or more in height, garniſhed with a looſe ſpike (or thyrſe) of greeniſh yellow flowers, each have a long pedunculus, which turns downward, having pretty large ſtipulæ at their baſe, which are erect, and end in ſharp points. After the flower is paſt, the germen ſwells to a three-cornered capſule, having three cells filled with flat ſeeds.

The ſecond ſort grows naturally at the Cape of Good Hope; this hath alſo a pretty large bulbous root, from which ariſe four or five narrow awl-ſhaped leaves, of a deep green colour: the flower-ſtem which comes from the center of the root, is naked, and rarely riſes more than eight or nine inches high, having five or ſix greeniſh yellow flowers growing almoſt in form of an umbel at the top: theſe are rarely ſucceeded by ſeeds in England.

The Canada Albuca is hardy, ſo the roots may be planted about four inches deep in a border of light earth, where they will thrive, and produce their flowers late in the ſummer; but as the ſeeds rarely ripen in England, and the bulbs do not put out many offſets, the plants are not common in this country.

The African ſort I raiſed from ſeeds a few years paſt; this generally flowers twice a year, the firſt time in March or April, and again in July or Auguſt, but has not produced any ſeeds. If the roots of this ſort are kept in pots, filled with light earth, and are ſheltered under a hot-bed frame in winter, they will thrive and produce flowers; but the beſt method is to have a border in the front of a green-houſe, or ſtove, where the roots of moſt of the bulbous flowers may be planted in the full ground, and ſcreened in winter from froſt; in ſuch ſituations they thrive much better, and flower ſtronger, than when kept in pots.

ALCEA. Lin. Gen. 750. The Hollyhock.

The Characters are,

The flower hath a double empalement, of which one is permanent. The outer one is ſpread open, and cut at the top into ſix ſegments; the inner is larger, and ſlightly cut into five. The flower is compoſed of five petals, which coaleſce at their baſe, and ſpread open at the top in form of a roſe. In the center is placed the round germen, ſupporting a ſhort cylindrical ſtyle, crowned with numerous ſtigma, which is attended by many ſtamina joined below to the pentagonal column, and ſpread open at top; theſe are crowned with kidney-ſhaped ſummits: after the flower is paſt, the germen becomes a round, depreſſed, articulated capſule, having many cells, in each of which is lodged one compreſſed kidney-ſhaped ſeed.

This genus is ranged by Dr. Linnæus in his ſixteenth claſs of plants, entitled Monadelphia Polyandria: in this claſs the ſtamina and ſtyle coaleſce and form a ſort of column in the center of the flower, from whence Dr. Van Royen has given to this claſs the title of Columnifera, and in this diviſion there are a great number of ſtamina.

The Species are,

1. Alcea (*Roſea*) foliis ſinuatis anguloſis. Hort. Cliff. 348. *Hollyhock with angular ſinuated leaves.* Malva roſea folio ſubrotundo. C. B. P. 315.
2. Alcea (*Ficifolia*) foliis palmatis. Hort. Cliff. 348. *Hollyhock with handed leaves.* Malva roſea folio ficus. C. B. P. 315.

Theſe are diſtinct ſpecies, whoſe difference in the form of their leaves always continues. The leaves of the firſt ſort are roundiſh, and cut at their extremity into angles; whereas thoſe of the ſecond are deeply cut into ſix or ſeven ſegments, ſo as to reſemble a hand.

The various colours of their flowers being accidental, as alſo the double flowers being only varieties which have riſen from culture, are not by botaniſts deemed diſtinct ſpecies. I have not enumerated them here, therefore ſhall only mention the various colours which are commonly obſerved in their flowers; which are white, pale, red, deep red, blackiſh red, purple, yellow, and fleſh colour. Beſides theſe, I many years ago ſaw ſome plants with variegated flowers, in the garden of the late Lord Burlington, in London, raiſed from ſeeds which came from China.

Although theſe varieties of double Hollyhocks are not conſtant, yet where the ſeeds are carefully ſaved from the moſt double flowers, the greateſt number of the plants will ariſe nearly the ſame, as the plants from which they were taken, both as to their colour and the fulneſs of their flowers, provided no plants with ſingle or bad coloured flowers are permitted to grow near them. Therefore ſo ſoon as any ſuch appear, they ſhould be removed from the good ones, that their farina may not ſpread into the other flowers, which would cauſe them to degenerate.

The firſt ſpecies grows naturally in China, from whence I have often received the ſeeds. The ſecond ſort I have received from Iſtria, where it was gathered in the fields, but theſe ſeeds produced ſingle red flowers only; whereas from ſome ſeeds of this ſort, which were given me by the late Charles Du Bois, Eſq; of Mitcham, in 1726, which he procured from Madras, I raiſed many double flowers of ſeveral colours.

Theſe plants, although natives of warm countries, yet are hardy enough to thrive in the open air in England, and have for many years been ſome of the greateſt ornaments in the garden, toward the latter part of ſummer; but ſince they have become very common, have not been ſo much regarded as they deſerve, partly from their growing too large for ſmall gardens, and their requiring tall ſtakes to ſecure them from being broken by ſtrong winds. But in large gardens, where they are properly diſpoſed, they make a fine appearance; for as their ſpikes of flowers grow very tall, there will be a ſucceſſion of them on the ſame ſtems, more than two months; the flowers on the lower part of the ſpike appearing in July, and as their ſtalks advance, new flowers are produced till near the end of September. When the plants are planted in good ground, their ſtalks often riſe to the height of eight or nine feet, ſo that near ſix feet of each will be garniſhed with flowers; which when double, and of good colours, will make a fine appearance, eſpecially if the various colours are properly intermixed.

They are propagated by ſeeds, which, as hath been already obſerved, ſhould be carefully ſaved from thoſe plants whoſe flowers are the moſt double, and of the beſt colours. If theſe are preſerved in their capſules until ſpring, the ſeeds will be better, provided they are gathered very dry, and care be taken that no damp comes to them in winter, which will cauſe their covers to be mouldy, and thereby ſpoil the ſeeds.

The ſeeds ſhould be ſown on a bed of light earth, about the middle of April, which muſt be covered about half an inch deep, with the ſame light earth; ſome perſons ſow them in ſhallow drills, and others ſcatter the ſeeds thinly over the whole bed. When they are ſown in the former method, the plants generally come up thick, ſo will require to be tranſplanted ſooner than thoſe which are ſown in the latter. By the firſt, the ſeeds may be more equally covered, and kept clean with leſs trouble, becauſe the ground between the drills may be hoed. When the plants have put out ſix or eight leaves, they ſhould be tranſplanted into nurſery-beds, at a foot diſtance from each other, obſerving to water them until they have taken good root; after which they will require no farther care, but to keep them clean from weeds till October, when they ſhould be tranſplanted where they are to remain.

Some perſons let their plants remain a year longer in the nurſery-beds to ſee their flowers, before they remove them to the flower-garden; but when this is intended, the plants ſhould be planted at a greater diſtance in the nurſery-beds, otherwiſe they will not have room to grow. However, I have always choſen to remove my plants the firſt autumn, for young plants more ſurely grow, than thoſe which are older; and if the ſeeds are carefully ſaved, there will not be one in ten of the plants come ſingle or of bad colours.

ALCHEMILLA, Ladies Mantle.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, which is ſpread open at the brim, and cut into eight ſegments. There are no petals to the flower, but the center of the empalement is occupied by the oval germen, into which is inſerted a long ſtyle, crowned with a globular ſtigma: this is attended by four erect ſtamina reſting on the brim of the empalement, and crowned with roundiſh ſummits; the germen afterwards turns to a ſingle compreſſed ſeed.

Dr. Linnæus ranges this genus in the firſt ſection of his fourth claſs of plants, entitled Tetrandria monogynia, the flowers having four ſtamina and one ſtyle.

The SPECIES are,

1. ALCHEMILLA (*Vulgaris*) foliis lobatis ſerratis, ſegmentis involucro acuto. *The common Ladies Mantle.* C. B. P. 319.

2. ALCHEMILLA foliis lobatis ſericeis acutè ſerratis, ſegmentis involucro ſubrotundis. *Small ſilvery Ladies Mantle with lobated leaves ſharply ſerrated, and the ſegments of the involucrum cut into roundiſh ſegments.* Alchemilla Alpina pubeſcens minor. Tourn. Inſt. R. H. 508.

3. ALCHEMILLA (*Alpina*) foliis digitatis ſerratis. Flor. Lapp. 61. *Silvery Alpine Ladies Mantle with handed leaves.* Alchemilla perennis incana argentea ſive ſericea ſatinum provocans. Mor. Hiſt. 2. p. 195.

4. ALCHEMILLA (*Pentaphylla*) foliis quinatis multifidis, glabris. Lin. Sp. Plant. 123. *Smooth five-leaved Ladies Mantle, cut into many ſegments.* Alchemilla Alpina pentaphyllea minima lobis fimbriatis. Bocc. Muſc. 1. p. 18.

The firſt ſort grows naturally in moiſt meadows in ſeveral parts of England, but is not very common near London: the roots are compoſed of many thick fibres, which ſpread greatly when they are in a proper ſoil; the leaves riſe immediately from the root, ſuſtained by long foot-ſtalks; they are roundiſh, and ſcalloped round the borders into ſeven or eight lobes, ſhaped ſomewhat like the Ladies ſcalloped Mantles, from whence it had its name. The flower-ſtems ariſe between the leaves about a foot high, which divide into many branches, and are at each joint garniſhed with one ſmall leaf, ſhaped like thoſe below; the flowers are compoſed of an herbaceous empalement, in the center of which is the ſtyle attended by four ſtamina, crowned with yellow ſummits; ſo that the only beauty of this plant is in the leaves, which are uſed in medicine, and are eſteemed to be vulnerary, drying and binding, and of great force to ſtop inward bleeding.

The ſecond ſort is much ſmaller than the firſt, the leaves are much whiter and appear ſilky; the flower-ſtems do not branch out ſo much, nor are the flowers produced in ſo large cluſters: their empalement is broader, and the ſegments more obtuſe than thoſe of the firſt ſort.

The third ſort grows naturally on the mountains in Yorkſhire, Weſtmoreland, and Cumberland, generally upon moiſt boggy places. It is alſo a native of Sweden and Denmark, the Alps, and other cold parts of Europe, and is admitted into gardens for the ſake of variety. The leaves of this ſort are very white, and deeply cut into five parts like a hand; the flower-ſtems ſeldom riſe more than ſix inches high, nor do the flowers make a better appearance than the other ſorts.

The fourth ſort grows naturally in Sweden, Lapland, and other cold countries, ſo is only to be found in ſome few curious botanic gardens in this country. Theſe are all abiding plants, which have perennial roots and annual ſtalks, which periſh in autumn. They may be propagated by parting their roots; the beſt time for doing this is in the autumn, that their roots may be eſtabliſhed before the drying winds of the ſpring come on. They ſhould have a moiſt ſoil and a ſhady ſituation, otherwiſe they will not thrive in the ſouthern parts of England. When they are propagated by ſeeds, they ſhould be ſown in the autumn; for when they are ſown in the ſpring, they ſeldom grow the firſt year. They ſhould be ſown on a ſhady moiſt border, and when the plants come up, they will require no other care but to be kept clean from weeds.

ALDER-TREE. See ALNUS.

ALETRIS.

The CHARACTERS are,

The flower has no empalement, but hath one oblong oval petal, cut into ſix ſegments at the brim, and are permanent; it hath ſix awl-ſhaped ſtamina the length of the corolla, whoſe baſe are inſerted in the ſegments; theſe are crowned by oblong erect ſummits, and an oval germen ſupporting an awl-ſhaped ſtyle the length of the ſtamina, crowned by a trifid ſtigma. The germen afterward becomes an oval three-cornered capſule with three cells, filled with angular ſeeds.

This genus of plants is ranged in Linnæus's firſt ſection of his ſixth claſs, the flowers having ſix ſtamina and one ſtyle.

The SPECIES are,

1. ALETRIS (*Farinoſa*) acaulis, foliis lanceolatis membranaceis, floribus alternis. Lin. Sp. 456. *Aletris without ſtalks, ſpear-ſhaped membranaceous leaves, and flowers placed alternate.* Hyacinthus caule nodo, foliis linguiformibus acuminatis dentatis. Flor. Virg. 38.

2. ALETRIS (*Capenſis*) acaulis, foliis lanceolatis undulatis, ſpica ovata, floribus nutantibus. Lin. Sp. 456. *Aletris without ſtalks, waved ſpear-ſhaped leaves, and an oval ſpike of alternate flowers.*

3. Aletris (*Hyacinthoides*) acaulis, foliis lanceolatis carnoſis, floribus geminatis. Lin. Sp. 456. *Aletris without ſtalks, fleſhy ſpear-ſhaped leaves, and flowers ſet by pairs.*
4. Aletris (*Zeylanica*) acaulis, foliis lanceolatis planis erectis radicalibus. *Aletris without ſtalks, and plain, ſpear-ſhaped, erect leaves riſing from the root.*
5. Aletris (*Fragrans*) cauleſcens, foliis lanceolatis amplexicaulibus. *Stalky Aletris, with ſpear-ſhaped leaves embracing it.* Aloe Africana arboreſcens, floribus albis fragrantiſſimis. Hort. Amſt. 2. tab. 4.

The firſt ſort grows naturally in North America; it hath a tuberoſe root, from which ariſe ſeveral ſpear-ſhaped leaves, and a naked ſtalk ſupporting a ſpike of flowers placed alternate, of a greeniſh white colour; theſe appear in June, but are rarely ſucceeded by ſeeds in England.

This plant is tolerably hardy, ſo may be preſerved thro' the winter, if ſheltered under a hot-bed frame; but as the ſeeds do not ripen here, and the roots increaſe but ſlowly, the plants are at preſent rare in England.

The ſecond ſort grows naturally at the Cape of Good Hope. This is a low plant, ſeldom riſing more than a foot high; the leaves are ſpear-ſhaped and undulated; the foot-ſtalks of the flower ariſe from the root, which ſuſtain ſeveral white nodding flowers, in ſhape ſomewhat like thoſe of the Hyacinth.

The roots of this ſort muſt be planted in pots filled with light earth, that they may be ſheltered in a dry airy glaſs-caſe in winter, being too tender to thrive in the open air in England; therefore the pots ſhould be removed into ſhelter in October, and during the winter ſeaſon, they ſhould be ſparingly watered. In May they ſhould be placed abroad in a ſheltered ſituation, and in warm weather muſt be frequently refreſhed with water; with this management the plants will flower; but as they do not perfect their ſeeds here, nor do they increaſe faſt by roots, the plants are ſcarce in England.

The third ſort has been long preſerved in the Engliſh gardens, and has been known by the title of Guinea Aloe; this hath thick fleſhy roots like thoſe of the Flag Iris, which creep far where they have room. The leaves ariſe ſingly from the root, and are near one foot and a half long, ſtiff, waved, and have no foot-ſtalks, ariſing immediately from the root, as do alſo the foot-ſtalks of the flowers, which when the roots are ſtrong, are often a foot and a half high, garniſhed great part of their height with clear white flowers, ſhaped like thoſe of the Hyacinth, whoſe brims are cut into ſix ſegments, which are reflexed; theſe ſeldom continue in beauty more than two or three days, and are never ſucceeded by ſeeds here.

The fourth ſort is alſo pretty common, in gardens where there are conveniencies for preſerving exotic plants. This hath fleſhy creeping roots, which multiply greatly. The whole plant ſeldom riſes more than ſix inches high: the leaves are plain and upright, ariſing without foot-ſtalks; but as I have never ſeen any flowers produced on the plants, I can give no deſcription of them, but have followed Dr. Linnæus in ranging it, though I have great reaſon to believe he has not ſeen the flower; for he ſuppoſes this to be a variety of the third ſort, which no perſon who is acquainted with the two plants can ever admit. This has been always known by the title of Ceylon Aloe.

The fifth ſort riſes with an herbaceous ſtalk to the height of eight or ten feet high, having many joints, and is adorned toward the top with a head of ſpear-ſhaped thin leaves, which are of a deep green colour and reflexed at their ends, embracing the ſtalks with their baſe. The foot-ſtalks of the flower ariſe from the center of the heads, which are generally two feet high, branching out on each ſide, and fully garniſhed with white flowers, in ſhape ſomewhat like thoſe of the third ſort; but theſe open only in the evening, when they emit a moſt fragrant odour, but cloſe again in the morning, and are not of long duration; but theſe are ſometimes ſucceeded by ſeeds, which, although fair to appearance, yet I could never raiſe any plants from them; but they are eaſily propagated from the ſide heads, which they put out after flowering.

The laſt three ſorts are too tender to live through the winter in England, unleſs they are placed in a warm ſtove; nor will the third and fifth ſorts produce their flowers, if the plants are not plunged into a tan-bed; for although the plants may be preſerved in a dry ſtove, yet thoſe make but little progreſs there; whereas when they are in a tan-bed, they will advance as much in one year as the other will in three or four; the leaves will alſo be much larger, and the whole plant much ſtronger. The third ſort will ſometimes flower in a dry ſtove, but the flower-ſtems will be weak, and do not produce half ſo many flowers as when in tan; but the fifth has not yet flowered here when kept in the dry ſtove.

The third and fourth ſorts propagate very faſt by their creeping roots, which ſend up many heads; theſe may be cut off in June, and laid in the ſtove for a fortnight, that the part wounded may be healed over; then they ſhould be planted in ſmall pots, filled with light ſandy earth, and plunged into a moderate hot-bed of tanners bark, giving them but little water till they have put out good roots; then they muſt be treated like other tender ſucculent plants, never ſetting them abroad in ſummer.

The heads of the fifth ſort when taken from the ſtems ſhould be laid in the ſtove a week, for their wounds to heal, then ſhould be planted in pots and treated as the other.

ALESANDER, or ALEXANDER. See Smyrnium.

ALKEKENGI. See Physalis.

ALLELUJAH. See Oxalis.

ALLIARIA. See Hesperis.

ALLIUM [of Ἀλέω, *Gr.* to avoid or ſhun, becauſe many ſhun the ſmell of it], Garlick.

The Characters are,

The flowers are included in one common ſpatha, which becomes dry; the flower is compoſed of ſix oblong, erect, concave petals, and ſix awl-ſhaped ſtamina, which extend the length of the petals, and are crowned with oblong ſummits. In the center is ſituated a ſhort three-cornered germen, ſupporting a ſingle ſtyle, crowned by an acute ſtigma. The germen afterward becomes an obtuſe three-cornered capſule, opening into three parts, having three cells, filled with roundiſh ſeeds.

The Species are,

1. Allium (*Sativum*) caule planifolio bulbifero, bulbo compoſito, ſtaminibus tricuſpidatis. Hort. Upſal. 76. *Common manured Garlick.* Allium ſativum. C. B. P.
2. Allium (*Scorodopraſum*) caule planifolio bulbifero, foliis crenulatis vaginis ancipitibus ſtaminibus tricuſpidatis. Hort. Upſal. 77. *The Rocambole.* Allium ſativum alterum ſive allioopraſum caulis ſummo circumlocuto. C. B. P. 73.
3. Allium (*Urſinum*) ſcapo nudo ſemicylindrico foliis lanceolatis petiolatis umbellâ faſtigiatâ. Lin. Sp. Plant. 300. *Broad-leaved wild Garlick, or Ramſons.* Allium ſylveſtre latifolium. C. B. P.
4. Allium (*Lineare*) caule planifolio umbellifero umbellâ globoſâ ſtaminibus tricuſpidatis corolla duplo longioribus. Lin. Sp. Plant. 294. *Great round-headed Garlick of the Holm Iſlands.* Allium Holmenſe ſphærico capite. Raii Syn. 370.
5. Allium (*Moly*) ſcapo nudo ſubcylindrico foliis lanceolatis ſeſſilibus umbellâ faſtigiatâ. Hort. Upſal. 76. *The yellow Moly.* Allium latifolium luteum. Tourn. Inſt. 384.
6. Allium (*Magicum*) caule planifolio umbellifero ramulo bulbifero ſtaminibus ſimplicibus. Lin. Sp. Plant. 296. *Great broad-leaved Moly with Lily flowers.* Allium latifolium liliflorum. Tourn. Inſt. 384.
7. Allium (*Obliquum*) caule planifolio umbellifero ſtaminibus filiformibus flore triplo longioribus foliis obliquis. Lin. Sp. Plant. 296. *Umbelliferous Garlick with plain leaves, ſlender ſtamina, which are three times the*

length of the flower, and oblique leaves. Allium radice tunicatâ foliis planis linearibus caulinis capitulo umbellato. Flor. Siber. 1. p. 49.

8. **Allium** (*Ramoſum*) caule ſubplanifolio umbellifero ſtaminibus ſubulatis longioribus umbellâ globoſâ foliis linearibus ſubconvexis. Lin. Sp. Pl. 296. *Umbelliferous Garlick with half plain leaves, long awl-ſhaped ſtamina, globular umbels, and narrow convex leaves.*

9. **Allium** (*Roſeum*) ſcapo nudo umbellifero, pedicellis brevibus, petalis ovalibus, ſtaminibus breviſſimis, foliis linearibus. Lin. Sp. 432. *Garlick with a naked umbelliferous ſtalk, ſhort foot-ſtalks, oval petals to the flower, very ſhort ſtamina, and linear leaves.* Allium ſylveſtre ſive moly minus, roſeo amplo flore. Magnol. 11.

10. **Allium** (*Arenarium*) caule planifolio bulbifero vaginis teretibus ſpathâ muticâ ſtaminibus tricuſpidatis. H. Scan. 227. *Bulb-bearing Garlick, with plain leaves, a taper vagina, and three pointed ſtamina.*

11. **Allium** (*Carinatum*) caule planifolio bulbifero ſtaminibus ſubulatis. Lin. Sp. Plant. 297. *Bulb-bearing garlick with plain leaves, and awl-ſhaped ſtamina.* Allium montanum bicorne anguſtifolium flore dilutè purpuraſcente. C. B. P. 74.

12. **Allium** (*Sphærocephalon*) caule terteifolio umbellifero, foliis ſemiteretibus, ſtaminibus tricuſpidatis corolla longioribus. Lin. Sp. 426. *Umbelliferous Garlick, with taper leaves which are longer than the petals.* Allium ſive moly montanum purpureo flore. Cluſ. Hiſt. 1. p. 195.

13. **Allium** (*Flavum*) caule teretifolio umbellifero, floribus pendulis, petalis ovatis, ſtaminibus corolla longioribus. Lin. Sp. 428. *Umbelliferous Garlick, with taper leaves and pendulous flowers, having oval petals, and ſtamina longer than the corolla.* Allium montanum bicorne flore pallido odore. C. B. P. 75.

14. **Allium** (*Seneſcens*) ſcapo nudo ancipiti foliis linearibus ſubtus convexis lævibus umbellâ ſubrotundâ ſtaminibus ſubulatis. Hort. Upſal. 79. *Greater Mountain Garlick with leaves like Narciſſus.* Allium montanum foliis Narciſſi majus. C. B. P. 75.

15. **Allium** (*Anguloſum*) ſcapo nudo ancipiti foliis linearibus canaliculatis ſubtus ſubangulatis umbellâ faſtigiatâ. Hort. Upſal. 79. *Garlick with a naked ſtalk, narrow hollow leaves, which are angular on their lower ſide, and a compact umbel.* Allium montanum foliis Narciſſi minus. C. B. P. 75.

16. **Allium** (*Subhirſutum*) caule planifolio umbellifero foliis inferioribus hirſutis ſtaminibus ſubulatis. Lin. Sp. Plant. 295. *Umbelliferous Garlick with hairy under leaves, and awl-ſhaped ſtamina, commonly called Dioſcoridis Moly.* Moly anguſtifolium umbellatum. C. B. P. 75.

17. **Allium** (*Victioralis*) umbella rotundata, ſtaminibus lanceolatis corolla longioribus, foliis ellipticis. Lin. Mat. Med. 163. *Umbelliferous Garlick with round umbels, ſpear-ſhaped ſtamina longer than the corolla, and elliptical leaves.* Allium montanum latifolium maculatum. C. B. P. 74.

18. **Allium** (*Deſcendens*) caule ſubteretifolio umbellifero, pedunculis exterioribus brevioribus, ſtaminibus tricuſpidatis. Lin. Sp. 427. *Umbelliferous Garlick with a half taper leaf, and three pointed ſtamina.* Allium moly latifolium, capite ſphærico, flore purpureo. Rudb.

19. **Allium** (*Canadenſe*) ſcapo nudo tereti, foliis linearibus capitulo bulbifero. Kalm. It. *Canada Garlick with a naked taper ſtalk, linear leaves, and heads bearing bulbs.* Allium bulbiferum Virginianum. Boerh. Ind. Alt. 2. 146.

20. **Allium** (*Triquetrum*) ſcapo nudo foliis triquetris, ſtaminibus ſimplicibus. Lin. Sp. 431. *Garlick with a naked ſtalk, triangular leaves, and ſimple ſtamina.* Moly parvum caule triangulo. C. B. P. 75.

We ſhall not bring under this genus the Cepa and Porrum, as is done by Dr. Linnæus, leſt by too cloſely adopting his ſyſtem, we may render this work leſs intelligible to the practical gardener, and ſuch other perſons who may delight themſelves in the culture of a kitchen-garden; but not having ſtudied the ſcience of botany, may not ſo readily turn to thoſe articles, therefore we ſhall inſert their culture under their former titles.

The two firſt ſpecies are eaſily propagated by planting the cloves, or ſmall bulbs, in the ſpring, in beds about four or five inches diſtance from each other, keeping them clean from weeds. About the beginning of June, the leaves of the firſt ſort ſhould be tied in knots, to prevent their ſpindling, or running to ſeed, which will greatly enlarge the bulb. In the middle of July, the leaves will begin to wither and decay, at which time they ſhould be taken out of the ground, and hanged up in a dry room, to prevent their rotting, and may be thus preſerved for winter uſe.

The roots of the ſecond ſort may remain in the ground till the leaves are decayed, when their bulbs may be taken up and dried, to be preſerved for uſe during the winter ſeaſon; but ſome of the roots may be at the ſame time planted again for the ſucceeding year; for this ſort requires to be planted in autumn, eſpecially on dry ground, otherwiſe their bulbs will not be large.

The third ſort was formerly in greater eſteem than at preſent, it being rarely cultivated in gardens, but is found wild in moiſt ſhady places in many parts of England; and may be cultivated by planting the roots in a moiſt ſhady border, at almoſt any time of the year; but the beſt ſeaſon is in July, juſt as the green leaves are decaying.

The fourth ſort grows naturally in the Holm Iſlands, from whence it has been tranſplanted into ſeveral gardens, where it is preſerved more for the ſake of variety than uſe.

The eleventh and thirteenth ſorts grow wild in the northern parts of England, but are by the curious in botany preſerved in their gardens. Theſe are very hardy, and may be removed in July or Auguſt, when their leaves begin to decay, and will thrive in almoſt any ſoil or ſituation.

The fifth ſort was formerly preſerved in gardens for the ſake of its yellow flowers, but having a very ſtrong Garlick ſcent, moſt people have rooted it out of their gardens.

The ſixth ſort is alſo preſerved by many perſons in their gardens for the ſake of variety, but as this hath a very ſtrong ſcent, ſo it is not often admitted to the flower-garden.

The ninth and twelfth ſorts are ſometimes permitted to have a place in gardens for the ſake of variety.

The ſeventh, eighth, and tenth ſorts grow naturally in Tartary and Siberia, from whence their ſeeds were ſent to Peterſburgh, and from thence ſome of the botanic gardens have been ſupplied with ſeeds; theſe are only preſerved for the ſake of variety.

The fourteenth, fifteenth, and ſixteenth ſorts, have been planted in gardens for the variety of their flowers, but of late years moſt people have turned them out, to make room for better ſorts. But the ſixteenth multiplies ſo faſt by offſets, as to render it difficult to extirpate them, when they have remained any time in a garden.

This produces large umbels of white flowers, growing on ſtalks about ten inches high; the time of flowering is in April and May.

The nineteenth ſort was brought from Virginia, and is preſerved in botanic gardens for variety's ſake, but has no great beauty; it is very hardy, and will thrive in the open air very well; and is propagated by its bulbs, which are produced in plenty on the top of the ſtalks.

They are all of them very hardy, and will thrive in almoſt any ſoil or ſituation, and are eaſily propagated either by their roots, or from ſeeds: if from the roots, the beſt time is in autumn, that they may take good root in the ground before the ſpring, which is neceſſary, in order to have them flower ſtrong the following ſummer. If they are propagated by ſeeds, they may be ſown on a border of common earth, either in autumn, ſoon after the ſeeds are ripe, or in the ſpring following, and will require no farther care, but to keep them clear from weeds; in the following autumn, the plants may be tranſplanted into the borders where they are to remain for good.

The greateſt part of theſe plants produce their flowers in May, June, and July.

The yellow Moly will grow about a foot high; and having ſome beauty in the flowers, is worthy of a place in ſuch borders of the flower-garden, where few better things will thrive. Theſe increaſe plentifully both by roots and ſeeds.

The ſixth and ſeventeenth ſorts grow upwards of two feet high, and when they are in flower, make a pretty appearance; and as they are not troubleſome to keep, may be allowed a place in the borders of the flower-garden.

All the other ſorts are equally hardy, and will grow in any ſoil or ſituation; but as they have little beauty, they are rarely preſerved, except in botanic gardens for the ſake of variety.

ALMOND-TREE. See Amygdalus.

ALMOND-DWARF. See Persica.

ALNUS. See Betula.

ALNUS NIGRA BACCIFERA. See Frangula.

ALOE [*Gr.* Ἀλόη].

The Characters are,

The flower is naked, having no empalement; it is of one leaf, having a long ſmooth tube, which is divided at the top into ſix parts, ſpreading open; it hath ſix awl-ſhaped ſtamina, which are inſerted at their baſe to the germen, and are extended the length of the tube; theſe are crowned with oblong ſummits; in the center is ſituated the oval germen, ſupporting a ſingle ſtyle, which is of the ſame length with the ſtamina, crowned with a trifid ſtigma. The germen afterward becomes an oblong capſule, having three furrows, which is divided into three cells opening in three parts, and filled with angular ſeeds.

This genus of plants is by Dr. Linnæus ranged in the firſt ſection of his ſixth caſs, titled Hexandria monogynia, from the flowers having ſix ſtamina and one ſtyle.

The Species are,

1. Aloe (*Mitriformis*) floribus pedunculatis cernuis corymboſis ſub-cylindricis. Lin. Sp. Plant. 319. i. e. *Aloe with dependent flowers, having foot-ſtalks which are ranged in a cylindrical corymbus.* Aloe Africana mitriformis ſpinoſa. Hort. Elth. 1. p. 21. Mitre-ſhaped Aloe.
2. Aloe (*Barbadenſis*) foliis dentatis erectis ſucculentibus ſubulatis, floribus luteis in thyrſo dependentibus. *Aloe with erect, ſucculent, awl-ſhaped leaves, and yellow flowers growing in a looſe ſpike, hanging downward.* Aloe vulgaris. C. B. P. 386.
3. Aloe (*Arboreſcens*) foliis amplexicaulibus reflexis, margine dentatis, floribus cylindricis caule fruticoſa. *Aloe with leaves embracing the ſtalks, which are reflexed and indented on their edges, flowers growing cylindrical, and a ſhrubby ſtalk.* Aloe Africana cauleſcens foliis glaucis caulem amplectantibus. H. Amſt. Commonly called Sword Aloe.
4. Aloe (*Africana*) foliis latioribus amplexicaulibus, margine & dorſo ſpinoſis, floribus ſpicatis, caule fruticoſo. *Aloe with broader leaves embracing the ſtalks, whoſe edges and back are ſet with ſpines, flowers growing in ſpikes, and a ſhrubby ſtalk.* Aloe Africana cauleſcens foliis minùs glaucis dorſi parte ſupremâ ſpinoſa. Com. Præl. 68.
5. Aloe (*Diſticha*) foliis latiſſimis amplexicaulibus maculatis, margine ſpinoſis floribus umbellatis. *Aloe with very broad ſpotted leaves embracing the ſtalk, whoſe edges are ſet with ſpines and flowers, growing in an umbel.* Aloe Africana cauleſcens foliis ſpinoſis maculis ab utrâque parte albicantibus notatis. Hort. Amſtel. 2. p. 9. by ſome called the Sope Aloe, and by others Carolina Aloe.
6. Aloe (*Obſcura*) foliis latioribus amplexicaulibus maculatis margine ſpinoſis floribus ſpicatis. *Aloe with broad ſpotted leaves embracing the ſtalks, whoſe edges have ſpines, and flowers growing in a ſpike.* Aloe Africana cauleſcens foliis ſpinoſis maculis ab utrâque parte albicantibus obſcurioribus magis glaucis quam præcedens. Boerh. Ind.
7. Aloe (*Plicatilis*) foliis enſiformibus inermis ancipitibus floribus laxè ſpicatis caule fruticoſo. *Aloe with ſword-ſhaped ſmooth leaves, ſtanding two ways, the flowers growing in looſe ſpikes, and a ſhrubly ſtalk.* Aloe Africana arboreſcens montana non ſpinoſa folio longiſſimo plicatili flore rubro. Com. Hort. Amſt. 2. p. 5.
8. Aloe (*Brevioribus*) foliis amplexicaulibus utrâque ſpinoſis, floribus ſpicatis. *Aloe with leaves embracing the ſtalks, which are prickly on every ſide, and flowers growing in ſpikes.* Aloe Africana cauleſcens foliis glaucis breviſſimis foliorum parte internâ & externâ nonnihil ſpinoſa. Com. Præl. 71.
9. Aloe (*Variegata*) floribus pedunculatis cernuis racemoſis priſmaticis ore patulo æquali. Lin. Sp. Plant. 321. *Aloe with hanging flowers, having foot-ſtalks, and ſpreading equally at the brim.* Aloe Africana humilis foliis ex albo & viridi variegatis. Com. Præl. 79. *commonly called Partridge-breaſt Aloe.*
10. Aloe foliis erectis ſubulatis radicatis undique inerme ſpinoſis. Hort. Cliff. 131. *Aloe with erect awl-ſhaped leaves, ſet with ſoft ſpines on every part.* Aloe Africana humilis ſpinis inermibus & verrucoſis obſita. Com. Præl. 77. *commonly called Hedge-hog Aloe.*
11. Aloe (*Viſcoſa*) floribus ſeſſilibus infundibuli formibus bilabiatis laciniis quinque revolutis ſumma erecta. Lin. Sp. Plant. 322. *Aloe with funnel-ſhaped flowers, without foot-ſtalks, opening in two lips, and cut into five ſegments, which turn backward, and are erect at the top.* Aloe Africana erecta triangularis & triangulari folio viſcoſo. Com. Præl. 82.
12. Aloe (*Spiralis*) floribus ſeſſilibus ovatis crenatis ſegmentis interioribus conniventibus. Lin. Sp. Plant. 322. *Aloe with oval crenated flowers, without foot-ſtalks, and the interior ſegments cloſing together.* Aloe Africana erecta rotunda folio parvo & in acumen acutiſſimum exeunte. Com. Præl. 83.
13. Aloe (*Linguiforme*) ſeſſilis foliis lingui formibus maculatis floribus pedunculatis cernuis. *Aloe with dwarf, tongue-ſhaped, ſpotted leaves, and hanging flowers, which have foot-ſtalks.* Aloe Africana flore rubro folio maculis albicantibus ab utrâque parte notato. H. Amſt. 2. p. 15. *commonly called Tongue Aloe.*
14. Aloe (*Margaritifera*) floribus ſeſſilibus bilabiatis labio ſuperiore erecto inferiore patente. Lin. Sp. Plant. 322. *Aloe with ſeſſile flowers, gaping with two lips, the upper being erect, and the under ſpreading.* Aloe Africana folio in ſummitate triangulari margaritiferâ flore ſubviridi. Com. Hort. Amſt. 2. p. 19. *commonly called large Pearl Aloe.*
15. Aloe (*Vera*) foliis longiſſimis & anguſtiſſimis marginibus ſpinoſis, floribus ſpicatis. *Aloe with very long narrow leaves, having ſpines on their hedges, and flowers growing in ſpikes.* Aloe Indiæ Orientalis, ſerrata ſuccotrina vera flore Phœnicio. Hort. Beaumont. *The Succotrine Aloe.*
16. Aloe (*Glauca*) caule brevi, foliis amplexicaulibus bifariam verſis ſpinis marginibus erectis floribus capitatis. *Alce with a ſhort ſtalk, leaves ſtanding two ways, which embrace the ſtalk; the ſpines on the edges erect, and flowers growing in a head.* Aloe Africana cauleſcens foliis glaucis brevioribus foliorum parte internâ & externâ nonnihil ſpinoſa. Com. Præl. 71.
17. Aloe (*Arachnoidea*) ſeſſilis foliis brevioribus planis carnoſis apice triquetris marginibus inerme ſpinoſis. *Low Aloe with ſhort, plain, fleſhy leaves, triangular at their ends, and borders ſet with ſoft ſpines.* Aloe Africana humilis arachnoidea. Com. Præl. 72. *commonly called Cobweb Aloe.*
18. Aloe (*Herbacea*) foliis ovato-lanceolatis carnoſis apice triquetris angulis inerme dentatis. Hort. Cliff. 131. *Aloe with oval, ſpear-ſhaped, fleſhly leaves, having three angles at their extremities, which are indented and ſet with ſoft ſpines.* Aloe Africana minima atro-viridis ſpinis herbaceis numeroſis ornata. Boerh. Ind. Alt. 2. p. 131.
19. Aloe (*Retuſa*) floribus ſeſſilibus triquetris bilabiatis labio inferiore revoluto. Lin. Sp. Plant. 322. *Aloe with flowers divided into three parts, the under lip being*

turned back. Aloe Africana breviſſimo craſſiſſimoque folio flore ſubviridi. Hort. Amſt. 2. p. 11. commonly called Cuſhion Aloe.

20. Aloe (*Verrucoſa*) ſeſſilis foliis carinatis utrâque verrucoſis bifariam verſis. *Low Aloe with keel-ſhaped leaves, warted on every part, and ſtanding two ways.* Aloe Africana foliis longis conjugatis ſupra cavis margaritiferis flore rubro elegantiſſimo. Boerh. Ind. Alt. p. 2, 131. commonly called Pearl-tongue Aloe.

21. Aloe (*Carinata*) ſeſſilis foliis carinatis verrucoſis apice triquetris carnoſis. *Low Aloe with fleſhy, keel-ſhaped, ſpotted leaves, which are triangular at their extremities.* This is the Aloe Africana flore rubro folio triangulari verrucis & ab utrâque parte albicantibus notato. Hort. Amſt. 2. p. 17.

22. Aloe (*Ferox*) foliis amplexicaulibus nigricantibus undique ſpinoſis. *Aloe with dark green leaves embracing the ſtalks, which are beſet with ſpines on every ſide.* Aloe vera coſta ſpinoſa. Munt. Phyt. commonly called Aloe ferox.

23. Aloe (*Uvaria*) floribus ſeſſilibus reflexis imbricatis priſmaticis. Lin. Sp. Plant. 323. *Aloe with reflexed flowers growing cloſe to the ſtalk, in form of a priſm, lying over each other like tiles on a houſe.* Aloe Africana folio triangulari longiſſimo & anguſtiſſimo floribus luteis fœtidis. Hort. Amſt. 2. p. 29. commonly called Iris Uvaria.

The firſt ſort of Aloe grows with an upright ſtalk, to the height of five or ſix feet, the leaves cloſely embrace the ſtalks; they are thick, ſucculent, broad at their baſe, growing narrower, and ending in a point, of a dark green colour, and have ſpines on the edges, as alſo a few on their upper ſurface; the leaves ſtand erect, and draw together towards the top, where they form the reſemblance of a mitre, from whence it is called the Mitre Aloe. The flower-ſtem riſes about three feet high, on the top of which the flowers come out in a ſort of globular ſpike, but afterwards is formed into a cylindrical ſpike: theſe have long footſtalks, which come out horizontally, and the flowers hang downward; they are tubulous, and cut into ſix unequal ſegments to the bottom, three being alternately broader than the others. There are ſix ſtamina, three of which are as long as the tube of the flower, the other three are ſhorter. Theſe are crowned with flat oblong ſummits of a gold colour. The three-cornered germen is ſituated in the bottom of the flower, ſupporting a ſingle ſtyle, which is ſhorter than the ſtamina, having no ſtigma on the top. The tube of the flower is of a fine red colour, and the brim is of a pale green, ſo that it makes a pretty appearance when the ſpikes of flowers are large.

This ſort will live in a warm dry green-houſe in winter, and may be placed in the open air in ſummer, in a ſheltered ſituation; but the plants ſhould not have much wet, leſt it ſhould rot their ſtems. With this management the plants will not grow ſo faſt, as when they are placed in a ſtove, but they will be ſtronger, and their ſtems will ſupport their heads much better.

The ſecond ſort is very common in the iſlands of America, where the plants are propagated upon the pooreſt land, to obtain the Hepatic Aloes, which are brought to England, and uſed chiefly for horſes, being too coarſe for medicine.

The leaves of this ſort are about four inches broad at their baſe, where they are near two inches thick, and diminiſh gradually to a point, having a few indentures on their edges; the leaves are of a ſea-green colour, and when young are ſpotted with white. The flower-ſtem riſes near three feet high, and the flowers ſtand in a ſlender looſe ſpike, with very ſhort footſtalks, hanging downwards. They are tubulous, and cut into ſix parts, of a bright yellow colour, and the ſtamina ſtand out beyond the tube. This never produces ſeed in England, and is too tender to live through the winter in our climate, in a common green-houſe, therefore it ſhould be placed in a moderate degree of warmth in that ſeaſon. I have known plants of this kind, which have had an oiled cloth tied about their roots, and hung up in a warm room more than two years, and afterwards planted in pots, which have grown very well, from whence the plant has been called Sempervivum by the inhabitants of America.

The third ſort will grow to the height of ten or twelve feet, with a ſtrong naked ſtem, the leaves growing at the top, which cloſely embrace the ſtalk; they are about two inches broad at their baſe, growing narrower to a point, and are reflexed, and indented on their edges, each being armed with a ſtrong crooked ſpine. The leaves are of a ſea-green colour, and very ſucculent. The flowers grow in a pyramidal ſpike, are tubulous, and of a bright red colour. Theſe are in beauty in November and December.

This ſort will live through the winter in a good green-houſe, but they will not flower unleſs they have a moderate ſhare of warmth, therefore the pots ſhould be removed into a ſtove in October, which ſhould not be kept above temperate heat, in which ſituation they ſeldom fail to flower.

The fourth ſort is ſomewhat like the third, but the leaves are broader, and have ſeveral ſpines on their backſide toward their extremities. The flowers of this grow in a looſer ſpike, and the plants never put out any ſuckers, ſo that it is very difficult to increaſe.

The fifth ſort ſeldom riſes much above two feet high, the leaves are very broad at their baſe, where they cloſely embrace the ſtalk, and gradually decreaſe to a point. The edges are ſet with ſharp ſpines, and the under leaves ſpread open horizontally every way; theſe are of a dark green colour ſpotted with white, ſomewhat reſembling the colour of ſoft ſope, from whence ſome have given it the title of Sope Aloe. The flowers grow in umbels on the tops of the ſtalks, which are of a beautiful red colour, and appear in Auguſt and September. This ſort is hardy, ſo may be kept in a common green-houſe in winter, and in the ſummer placed in the open air.

The ſixth ſort is ſomewhat like the fifth in its manner of growth, but the leaves are broader, of a lighter green colour; the edges and alſo the ſpines are of a copper colour, and the flowers grow in looſe ſpikes. This is as hardy as the former, ſo may be treated in the ſame manner. It flowers in September.

The ſeventh ſort grows to the height of ſix or ſeven feet, with a ſtrong ſtem, toward the upper part of which are produced two, three, or four heads, compoſed of long, compreſſed, pliable leaves, of a ſea-green colour, entire, and ending in obtuſe points; theſe are placed two ways, lying over each other with their edges the ſame way. The flowers are produced in ſhort looſe ſpikes, which are of a red colour, and appear at different times of the year.

The eighth ſort is an humble plant, ſeldom riſing more than a foot high; the leaves grow near the ground, which are broad at their baſe, where they embrace the ſtalk, and gradually diminiſh to a point; they are of a ſea-green colour, with ſome white ſpots; their edges, and alſo their upper parts below and above, are beſet with pretty ſharp ſpines; the flowers grow in looſe ſpikes, the tubulous part being red, and the brim of a light green colour.

The ninth ſort is a low plant, ſeldom riſing above eight inches high. The leaves of this are triangular, and turn back at their extremity; they are fleſhy and entire, their edges being very ſlightly ſawed. Theſe are curiouſly veined and ſpotted, ſomewhat like the feathers on a partridge's breaſt, from whence it had the name. The flowers grow in very looſe ſpikes, upon ſtalks about one foot high; they are of a fine red colour tipped with green. This will live in a good green-houſe through the winter.

I have raiſed a variety of this from ſeeds which I received from the Cape of Good Hope, with broader triangular leaves, which ſpread much more than thoſe of the former, and are not ſo beautifully ſpotted; the flower-ſtalks alſo grow much taller.

The tenth ſort is alſo a very low plant, never riſing to have ſtalks; the leaves are broad at their baſe, but are tapering to a point where they are triangular;

they are beſet on their edges, and both ſurfaces, with ſoft ſpines, very cloſely, from whence this plant had the name of Hedgehog Aloe. The flowers grow in a looſe head, on the top of the ſtalk, which is very thick, but ſeldom a foot high: they are of a fine red colour below, but of a pale green above. This ſort may be preſerved through the winter in a good green-houſe, and placed in the open air in ſummer.

The eleventh ſort grows near a foot high, and is furniſhed with triangular leaves, from the ground upward; theſe are of a dark green colour, and are placed in form of a triangle; the flowers grow thinly upon very ſlender foot-ſtalks, and are of an herbaceous colour, and their upper part turns backward. This ſort requires a moderate warmth in winter, ſo ſhould be placed in a cool part of the ſtove.

The twelfth ſort grows ſomewhat like the former, being beſet with leaves from the bottom, but theſe are rounder, and end in ſharp points; the flowers grow upon taller ſtalks, which branch out and grow in long cloſe ſpikes. There is a variety of this ſort which has been raiſed from ſeeds, which is much larger, the leaves thicker, and the flowers grow upon taller ſtalks, but this is only a ſeminal variety.

This ſort may be preſerved through the winter in a good green-houſe, but muſt have very little water given it during the cold weather.

The thirteenth ſort grows with its leaves near the ground, which are about ſix inches in length, and ſhaped like a tongue, from whence it had the title of Tongue Aloe. The flowers grow in ſlender looſe ſpikes, each hanging downward, of a red colour below, and green at the top. This is pretty hardy, ſo may be kept in a common green-houſe in winter, and ſet abroad in ſummer. There is a variety of this ſort, with leaves much more ſpotted.

The fourteenth ſort is of humble growth; the leaves come out on every ſide without order near the ground, they are thick, triangular at their ends, and cloſely ſtudded with white protuberances, from whence it was called Pearl Aloe. There is a ſmaller ſort of this which hath been long preſerved in the Engliſh gardens, but the manner of its flowering being the ſame, I ſuſpect it to be only a variety. This may be preſerved through the winter in a common green-houſe. It flowers at different ſeaſons of the year.

The fifteenth ſort is the true Succotrine Aloe, from whence the beſt ſort of Aloe for uſe in medicine is produced. This hath long, narrow, ſucculent leaves, which come out without any order, and form large heads. The ſtalks grow three or four feet high, and have two, three, and ſometimes four of theſe heads, branching out from it: the lower leaves ſpread out on every ſide, but the upper leaves turn inward toward the center; the flowers grow in long ſpikes, upon ſtalks about two feet high, each ſtanding on a pretty long foot-ſtalk; they are of a bright red colour tipped with green: theſe generally appear in the winter ſeaſon. This ſort may be preſerved through the winter in a warm green-houſe, but the plants ſo managed will not flower ſo frequently, as thoſe which have a moderate degree of warmth in winter.

The ſixteenth ſort reſembles the eighth in ſome particulars, but the leaves are much broader, and ſpread wide on every ſide; whereas thoſe of the eighth are ranged only two ways, and are narrow. This flowers but ſeldom, whereas the ſixteenth flowers annually in the ſpring, and may be kept through the winter in a common green-houſe.

The ſeventeenth ſort never riſes from the ground, but the leaves ſpread flat on the ſurface; theſe are plain, ſucculent, and triangular toward their end. The borders of the leaves, and alſo the ridge of the angle on their under ſide, are cloſely beſet with ſoft white ſpines. The flower-ſtalk riſes about a foot high, is very ſlender, and hath three or four ſmall herbaceous flowers ſtanding at a diſtance from each other. Theſe are tubulous, and cut into ſix parts at the brim, which turn backward. This ſort is tender, ſo ſhould be placed in winter in a moderate degree of heat, and muſt have little water. It ſeldom puts out offſets, ſo is generally increaſed by planting the leaves.

The eighteenth ſort is alſo a ſmall plant growing near the ground; the leaves of this ſort are almoſt cylindrical toward their baſe, but angular near their ends, and are ſet with ſhort ſoft ſpines at the angles: theſe leaves are ſhorter and of a darker green colour than thoſe of the former ſort, and the plants produce many ſuckers on every ſide. I have raiſed a variety of this from ſeeds, which hath ſhorter, whiter, and ſmoother leaves, but this hath not yet flowered. This will live in a common green-houſe in winter.

The nineteenth ſort hath very ſhort, thick, ſucculent leaves, which are compreſſed on their upper ſide like a cuſhion, from whence it had the name. This grows very cloſe to the ground, and puts out ſuckers on every ſide: the flowers grow on ſlender ſtalks, and are of an herbaceous colour. This may be preſerved through the winter in a good green-houſe, but ſhould have very little water during that ſeaſon, eſpecially when it hath no artificial heat.

The twentieth ſort hath long narrow tongue-ſhaped leaves, which are hollowed on their upper ſide, but keel-ſhaped below: theſe are cloſely ſtudded on every ſide, with ſmall white protuberances, from whence the plant hath had the title of Pearl Tongue Aloe. The flowers of this kind grow on pretty tall ſtalks, and form looſe ſpikes, each hanging downward: they are of a beautiful red colour, tipped with green. This ſort produces offſets in plenty, and is ſo hardy as to live in a common green-houſe through the winter. It flowers at different ſeaſons of the year.

The twenty-firſt ſort hath ſome reſemblance to the laſt, but the leaves are much broader and thicker; theſe ſpread out every way, and are not ſo concave on their upper ſurface, nor are the protuberances ſo large as thoſe of the former; the flowers are of a paler colour, and the ſpikes are ſhorter. I have raiſed plants from the ſeeds of this ſort, which have varied from the original, but none of them approached near the twentieth ſort. This is as hardy as the former ſort.

The twenty-ſecond ſort riſes to the height of eight or ten feet, with a ſtrong ſtem; the leaves grow on the top, which cloſely embrace the ſtalk; theſe come out irregularly, and ſpread every way; they are near four inches broad at their baſe, and diminiſh gradually to the top, where they end in a ſpine. They are of a dark green colour, and cloſely beſet with ſhort thick ſpines on every ſide. This ſort hath not as yet flowered in England, nor does it put out ſuckers, ſo that it is difficult to increaſe. It muſt have a warm green-houſe in winter, and very little water.

The twenty-third ſort hath very long, narrow, triangular leaves, ſhaped like thoſe of the Bull-ruſh; the flowers are produced in cloſe thick ſpikes, upon ſtalks near three feet high. They are of an Orange colour, having ſix yellow ſtamina, which come out beyond the tube of the flower; ſo that when the plants are ſtrong, and produce large ſpikes, they make a fine appearance. It flowers in Auguſt and September. There is a variety of this with narrower leaves, and longer ſpikes of flowers.

The ſoil in which theſe plants thrive beſt, is one half freſh light earth from a common (and if the turf is taken with it and rotted, it is much better); the reſt ſhould be white ſea ſand and ſifted lime rubbiſh, of each of theſe two, a fourth part; mix theſe together ſix or eight months at leaſt before it is uſed, obſerving to turn it over often in the time.

The middle of July is a very proper ſeaſon to ſhift theſe plants; at which time you may take them out of the pots, and with your fingers open the roots, and ſhake out as much of the earth as poſſible, taking off all dead or mouldy roots, but do not wound or break the young freſh ones: then fill the pot about three parts full of the above-mentioned earth, putting a few ſtones in the bottom of the pot, to drain off the moiſture; and after placing the roots of the plant in ſuch a manner as to prevent their interfering too much with each other, put in as much of the ſame earth, as to fill the pot almoſt to the rim, and obſerve to ſhake the plant, ſo as to let the earth in between the roots; and then with your hand ſettle it cloſe to the roots of the plant, to keep it ſteady in the pot; then water them gently, and ſet them abroad in a ſhady place, where they may remain for three weeks, giving them gentle waterings, if the weather ſhould prove hot and dry.

Toward the latter end of September, in a dry day, remove them into the houſe again, obſerving to give them as much free open air as poſſible, while the weather is warm; but, if the nights are cool, you muſt ſhut up the glaſſes, and give them air only in the day; and, as the cold increaſes, you muſt not open the glaſſes, but obſerve to give them gentle waterings often, till the middle of October, when you muſt abate watering according to the heat of the houſe in which they are kept. For thoſe plants which are placed in a ſtove, will require to be watered at leaſt once a week, moſt part of the winter; whereas thoſe which are kept in a green-houſe without artificial heat, ſhould not be watered oftener in winter than once a month.

When theſe hardier ſorts of Aloes are placed abroad in ſummer, they ſhould have but little water given them; and if much rain ſhould fall during the time they are abroad, they ſhould be ſcreened from it: for when they imbibe much wet in ſummer, they frequently rot the following winter, eſpecially if they are not kept in a moderate warm air. Therefore, thoſe who chooſe to treat theſe plants hardily, ſhould be cautious of their receiving too much moiſture.

The tender ſorts ſhould conſtantly remain in the ſtove, or be removed in ſummer to an airy glaſs-caſe, where they may have free air in warm weather, but be protected from rain and cold. With this management the plants will thrive and increaſe, and ſuch of them as uſually flower, may be expected to produce them in beauty at their ſeaſons.

The hardier ſorts thrive much better when they are expoſed in ſummer, and ſecured from the cold and rain in winter, than if they are treated more tenderly. For when they are placed in a ſtove, they are kept growing all the winter, whereby they are drawn up weak; and although they will flower oftener when they have a moderate ſhare of heat, yet in two or three years, the plants will not appear ſo ſightly as thoſe which are more hardily treated.

The twenty-third ſort is hardy enough to live abroad in mild winters, if they are planted in a warm border and a dry ſoil; but as they are often deſtroyed in ſevere winters, it is proper to keep ſome plants in pots, which may be ſheltered in winter under a frame, to preſerve the ſort. This is propagated by ſeeds, which the plants generally produce in plenty: the ſeeds muſt be ſown in pots ſoon after they are ripe, and in winter ſhould be ſheltered under a common hot-bed frame: in the ſpring the plants will come up, when they ſhould be inured to bear the open air by degrees; and when they are large enough to remove, ſome of them ſhould be planted in pots, and the other in a warm border, where they will require to be ſheltered the following winter, as they will not have obtained ſufficient ſtrength to reſiſt the cold.

Moſt of theſe Aloes are increaſed by offſets, which ſhould be taken from the mother plant, at the time when they are ſhifted, and muſt be planted in very ſmall pots, filled with the ſame earth as was directed for the old plants; but if, in taking the ſuckers off, you obſerve that part which joined to the mother root to be moiſt, you muſt let them lie out of the ground in a ſhady dry place ſix or eight days to dry before they are planted, otherwiſe they are very ſubject to rot. After planting, let them remain in a ſhady place (as was before directed in ſhifting the old plants) for a fortnight, when you ſhould remove the tender kinds to a very moderate hot-bed, plunging the pots therein, which will greatly facilitate their taking new root; but obſerve to ſhade the glaſſes in the middle of the day, and to give them a great ſhare of air.

Toward the middle of Auguſt, begin to harden theſe young plants, by taking off the glaſſes in good weather, and by raiſing them at other times with props, that the air may freely enter the bed, which is abſolutely neceſſary for their growth, and to prepare them to be removed into the houſe, which muſt be done toward the end of September, and managed as before directed for the old plants.

The African Aloes, for the moſt part, afford plenty of ſuckers, by which they are increaſed; but thoſe few that do not, may be moſt of them propagated, by taking off ſome of the under leaves, laying them to dry for ten days or a fortnight, as was directed for the offſets; then plant them in the ſame ſoil as was directed for them, putting that part of the leaf which adhered to the old plant, about an inch, or an inch and a half (according to the ſize of the leaf) into the earth, giving them a little water to ſettle the earth about them; then plunge the pots into a moderate hot-bed, obſerving to ſcreen them from the violence of the ſun, and give them gentle refreſhings with water once a week: the beſt ſeaſon for this is in June, that they may puſh out heads before winter.

The ſecond ſort produces the Aloes commonly ſold in the ſhops for horſes, and is called Aloe Hepatica. But it is from the fifteenth ſort, the Succotrine, or beſt ſort of Aloes, is produced; which is done by cutting their leaves tranſverſly, and placing earthen veſſels under them to receive the juice which drops from theſe cut leaves; which juice, when inſpiſſated, becomes the Aloe which is uſed in medicine. But I believe in making the coarſer ſort of Aloes, they preſs the leaves, whereby a greater quantity of juice is obtained: but this is not near ſo fine as the other.

ALOE AMERICANA MURICATA. See Agave.

ALOIDES. See Stratiotes.

ALOPECUROS [*Gr.* 'Αλωπέκουρος], Fox-tail, a kind of graſs.

ALPINIA.

This plant is ſo called after Proſper Alpinus, who was a famous botaniſt in his time, and travelled into Greece and Egypt, and has written two books in quarto of the plants of thoſe countries.

The Characters are,

It hath a trifid empalement, upon which reſts the germen. The flower is of one leaf, which is unequally divided at the top into four parts, and reſembles a perſonated flower; the upper ſegment which reſembles the helmet, and alſo the two ſide ſegments, are indented in the middle, and the lower one is divided into three parts at the brim; in the center is placed the round germen, ſupporting a ſingle ſtyle crowned with a three cornered ſtigma: this is attended by a ſingle ſtamina fixed to the tube of the flower, which is crowned with a very narrow ſummit. After the flower is paſt, the germen becomes an oval fleſhy fruit, divided into three parts, incloſing ſeveral oval ſeeds, which have tails.

This genus of plants, is by Dr. Linnæus ranged in his firſt claſs, which is entitled Monandria Monogynia, the flowers of which have but one ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Alpinia. Royen. Prod. 12. This is by father Plumier titled, Alpina racemoſa alba Cannacori foliis. Nov. Gen. 26. i. e. *White branching Alpina, with leaves like the flowering Reed.*

This plant is a native of the Weſt-Indies, from whence it has been brought into ſome of the curious gardens of Europe, where it muſt be preſerved in a good green-houſe, and the pots plunged into a tub of water, otherwiſe it will not thrive in this country. The leaves decay every winter, and are puſhed out from the roots every ſpring, like the Maranta; ſo may be propagated by parting of the roots when the leaves decay.

ALSINE [*Gr.* 'Αλσίνη], Chick-weed.

Theſe plants are ſo well known to moſt perſons, it will be needleſs to mention them in this place, unleſs it be to caution perſons from permitting them to grow either in their gardens, or on dunghills, where they will ſoon ſhed their ſeeds, and become troubleſome weeds; but as they are annual, they may with little trouble be deſtroyed, if they do not ſtand to produce ſeed.

ALTHÆA [Ἀλθαία, ſo called from ἀλθαίνω, *Gr.* to heal], Marſhmallow.

The CHARACTERS are,

The flower hath a double empalement; the outer is of one leaf, and is unequally divided into nine narrow ſegments at the brim; the inner one is alſo of one leaf, cut into five broad acute ſegments at the top; theſe are both permanent. The flower hath five petals which coaleſce at their baſe, but ſpread open above and are ſhaped like a heart. There are many ſtamina joined below, and form a kind of cylinder, but are looſe above, and inſerted in the column. In the center is placed the orbicular germen, ſupporting a ſhort cylindrical ſtyle, crowned with numerous ſtigma, which are of equal length with the ſtamina. The empalement afterward becomes an orbicular depreſſed capſule, divided into ſeveral cells, each containing one compreſſed kidney-ſhaped ſeed.

This genus of plants is ranged by Dr. Linnæus in the third ſection of his ſixteenth claſs, which is titled Monodelphia Polyandria, the ſtamina being joined together to form a ſort of column.

The SPECIES are,

1. ALTHÆA foliis ſimplicibus acuminatis acutè dentatis tomentoſis. *Marſhmallow with ſingle woolly leaves, which are indented in ſharp ſegments.* Althæa Dioſcoridis & Plinii. C. B. P. 315. *Common Marſhmallow.*
2. ALTHÆA (*Officinalis*) foliis ſimplicibus angulato-rotundioribus tomentoſis. *Marſhmallow with angular, woolly, round-pointed leaves.* Althæa folio rotundiori aut minùs acuminato. Sutherl. Edinb.
3. ALTHÆA (*Hirſuta*) foliis trifidis piloſo-hiſpidis ſupra glabris. Hort. Cliff. 349. *Marſhmallow with trifid, hairy, pungent leaves.* Alcea villoſa. Dalechamp. Hiſt. 594.
4. ALTHÆA (*Cannabina*) foliis inferioribus palmatis ſuperioribus digitatis. Hort. Cliff. 205. *Marſhmallow with the under leaves ſhaped like a hand, and the upper leaves more divided.* Alcea fruticoſo cannabino folio. Cluſ. Hiſt. p. 2. pag. 25.

The firſt ſort is the common Marſhmallow, which grows naturally in moiſt places in divers parts of England, and is frequently uſed in medicine. It hath a perennial root and an annual ſtalk. The plant grows erect, to the height of four or five feet, and puts out a few lateral branches on the ſide of the ſtalks, garniſhed with leaves which are hoary and ſoft to the touch; they are angular, and placed alternately on the branches; the flowers come out from the wings of the leaves, which are ſhaped like thoſe of the Mallow, but are ſmaller and of a pale colour. Theſe appear in June or July, and the ſeeds ripen in September. It may be propagated faſt enough, either by ſeeds or parting their roots. When it is propagated by ſeeds they ſhould be ſown in the ſpring, but if by parting their roots, the beſt time is in autumn, when the ſtalks decay. It will thrive in any ſoil or ſituation, but in moiſt places will grow larger than in dry land. The plants ſhould not be nearer together than two feet, for their roots ſpread wide on every ſide.

The ſecond ſort is ſomewhat like the firſt, but the leaves are not ſo long, nor do they end in a ſharp point, but are angular, and rounder than thoſe of the firſt. I have cultivated this in the Chelſea garden many years, and find it retains its difference.

The third ſort grows naturally in Spain and Portugal; from both theſe countries I have received the ſeeds. This is a low plant, whoſe branches trail on the ground, unleſs they are ſupported by ſtakes. The leaves and ſtalks are beſet with ſtrong hairs; the flowers come out at the wings of the ſtalks, and are ſmaller than thoſe of the common ſort, having purpliſh bottoms. The leaves are deeply cut into three parts, and have long foot-ſtalks; the ſtalks are woody, but ſeldom laſt more than two years.

If the ſeeds of this ſort are ſown in April, the plants will flower in July, and the ſeeds ripen in September. They ſhould be ſown in the places where they are to remain, for as the roots ſhoot deep into the ground, unleſs the plants are removed very young, they ſeldom ſurvive tranſplanting.

The fourth ſort has a woody ſtem, which riſes to the height of four or five feet, and puts out many ſide branches. Theſe are garniſhed with leaves of different ſhapes; thoſe which are on the lower part of the ſtalks are like a hand, very ſlightly cut toward their outſide, but thoſe which are placed on the upper part of the branches, are deeply cut into ſeveral parts; theſe are hairy, and grow alternately on the branches; the flowers come out from the wings of the ſtalks in the ſame manner as the other ſorts, but are not ſo large as thoſe of the common Marſhmallow; they are of a deeper red colour, and the empalement is much larger. This ſort ſeldom flowers the firſt year, unleſs the ſummer proves warm; but when the plants live through the winter, they will flower early the following ſummer, and produce good ſeeds. This grows naturally in Hungary and Iſtria, from both which places I have received the ſeeds.

It is propagated by ſeeds, which ſhould be ſown in the ſpring in the place where the plants are to remain; or if otherwiſe, the plants muſt be tranſplanted young, elſe they will not ſucceed. They ſhould have a ſheltered ſituation and a dry ſoil, otherwiſe they will not live through the winter in England. When theſe plants grow in a ſtony ſoil, or in lime rubbiſh, they will be ſtinted in their growth, but they will have leſs ſap in their branches, ſo will better endure the cold of this climate. This ſort ſeldom continues longer than two years in England, but as the ſeeds ripen here, the plants may be had in plenty.

ALTHÆA FRUTEX. See HIBISCUS and LAVATERA.

ALYSSOIDES. See ALYSSUM and LUNARIA.

ALYSSON ALPINUM LUTEUM. See DRABA.

ALYSSON SEGETUM. See MYAGRUM.

ALYSSON SERPILLI FOLIO. See CLYPEOLA.

ALYSSON VERONICÆ FOLIO. See DRABA.

ALYSSON VULGARE. See DRABA.

ALYSSUM, [Ἄλυσσον, of αλύσσω, *Gr.* to be mad; ſo called, becauſe it was believed to have the virtue of curing madneſs.] Madwort.

The CHARACTERS are,

The flower hath an oblong four-leaved empalement, which falls away. It hath four petals in form of a croſs, which ſpread open above the empalement. It hath ſix ſtamina, two of which are ſhorter than the other four, crowned with broad ſummits; in the center of the flower is ſituated the oval germen, ſupporting a ſingle ſtyle, crowned with an obtuſe ſtigma. After the flower is paſt, the germen becomes a globular or compreſſed ſeed-veſſel, in which are lodged ſeveral compreſſed ſeeds.

This genus is ranged in the fifteenth claſs of Linnæus, entitled Tetradynamia Siliculoſa; the flowers of this claſs have ſix ſtamina, four of which are longer than the other two, and the ſeed-veſſels are ſhort, in ſome globular, and in others they are compreſſed.

The SPECIES are,

1. ALYSSUM (*Saxatile*) caulibus fruteſcentibus paniculatis foliis lanceolatis molliſſimis undulatis integris. Prod. Leyd. 331. *Madwort with ſhrubby ſtalks, flowers growing in panicles, and whole, ſoft, ſpear-ſhaped waved leaves.* Alyſſon Creticum ſaxatile foliis undulatis incanis. Tourn. Cor. 15.
2. ALYSSUM (*Halimifolium*) foliis lanceolato-linearibus acutis integerrimis caulibus procumbentibus perennantibus. Hort. Cliff. 333. *Madwort with whole, ſpear-ſhaped, pointed leaves, and trailing perennial ſtalks.* Alyſſon halimi folio ſempervirens. Tourn. Inſt.
3. ALYSSUM (*Spinoſum*) ramis floreis ſenilibus ſpiniformibus nudis. Hort. Cliff. 332. *Madwort, whoſe older branches have naked ſpines.* Thlaſpi fruticoſum ſpinoſum. C. B. P. 108.
4. ALYSSUM (*Montanum*) ramulis ſuffruticoſis diffuſis foliis punctato-echinatis. Hort. Upſal. 185. *Madwort with ſhrubby diffuſed branches and leaves, having prickly punctures.* Thlaſpi montanum luteum. J. B. 2. p. 928.

5. ALYSSUM (*Incanum*) caule erecto foliis lanceolatis incanis integerrimis floribus corymboſis. Hort. Cliff. 332. *Madwort with an erect ſtalk, hoary ſpear-ſhaped leaves which are entire, and flowers collected into round heads.* Alyſſon fruticoſum incanum. Tourn. Inſt. R. H.

6. ALYSSUM (*Clypeatum*) caule erecto herbaceo ſiliculis ſeſſilibus ovalibus compreſſo-planis petalis acuminatis. Lin. Sp. Plant. 651. *Madwort with an erect herbaceous ſtalk, pods growing cloſe to the ſtalks, which are oval and compreſſed, and the flower leaves pointed.* Lunaria leucoii folio ſiliquâ oblongâ majori. Tourn. Inſt. 218.

7. ALYSSUM (*Sinuatum*) caule herbaceo foliis lanceolatis dentatis ſiliculis inflatis. Lin. Sp. Plant. 651. *Madwort with an herbaceous ſtalk, ſpear-ſhaped indented leaves, and ſwollen ſeed-veſſels.* Alyſſoides incanum foliis ſinuatis. Tourn. Inſt. 213.

8. ALYSSUM (*Creticum*) caule herbaceo erecto foliis incanis lanceolatis integerrimis ſiliculis inflatis. Lin. Sp. Plant. 651. *Madwort with an erect herbaceous ſtalk, hoary, ſpear-ſhaped, entire leaves, and a ſwelling ſeed-veſſel.* Alyſſoides fruticoſum Creticum leucoii folio incano. Tourn. Cor. 15.

9. ALYSSUM (*Veſicaria*) foliis linearibus dentatis, ſiliculis inflatis angulatis acutis. Lin. Sp. 910. *Madwort with linear indented leaves and ſwollen pods, which are angular and acute pointed.* Veſicaria Orientalis, foliis dentatis. Tourn. Cor. 49.

10. ALYSSUM (*Deltoideum*) caulibus ſuffruteſcentibus proſtratis, foliis lanceolato-deltoidibus, ſiliculis hirtis. Lin. Sp. 908. *Madwort with trailing ſhrubby ſtalks, deltoide ſpear-ſhaped leaves, and hairy pods.* Alyſſon Creticum foliis angulatis, flore violaceo. Tourn. Cor. 15.

11. ALYSSUM (*Calycinum*) caulibus herbaceus, ſtaminibus omnibus dentatis, calycibus perſiſtentibus. Jacq. Vind. 114. *Madwort with herbaceous ſtalks, all the ſtamina indented, and a permanent flower-cup.* Thlaſpi Alyſſon dictum campeſtre majus. C. B. P. 107.

12. ALYSSUM (*Campeſtre*) caule herbaceo, ſtaminibus ſtipatis pari ſetarum, calycibus deciduis. Lin. Sp. 909. *Madwort with an herbaceous ſtalk, and the flower-cup deciduous.* Alyſſon incanum, ſerpylli folio, fructu nudo. Tourn. Inſt. 217.

The firſt ſort is a low perennial plant, with a fleſhy ſtalk, which ſeldom riſes more than one foot high, but divides into many leſs branches which grow near the ground, ſo that a ſingle plant will ſpread to a conſiderable diſtance. The branches are garniſhed with long ſpear-ſhaped leaves, which are hoary and waved on their edges, placed on without any order. The flowers are produced in looſe panicles, at the extremity of every branch, and are of a bright yellow colour, conſiſting of four petals, placed in form of a croſs: theſe being numerous, make a fine appearance during their continuance. They appear the latter end of April, or the beginning of May, and if the ſeaſon is moderate, will continue three weeks in beauty. The ſeeds ripen in July, but it is only from young plants that ſeeds can be expected; for the old plants, or thoſe which are raiſed from ſlips or cuttings, rarely produce ſeeds in England.

This plant is hardy, and although brought from a more ſoutherly climate, yet, if planted in a dry, lean, or rubbiſhy ſoil, will endure our ſevereſt winters abroad. It is increaſed by ſowing the ſeeds in March in a light ſandy ſoil, or by planting cuttings in April or May; which are very apt to take root, if kept ſhaded in the heat of the day, and gently refreſhed with water.

The ſecond ſort ſeldom continues above two or three years with us, and muſt therefore be often ſown to preſerve it; or if the ſeeds are ſuffered to fall, and remain upon the ground, the plants will riſe without any trouble. This plant ſpreads itſelf upon the ground, and never riſes to any height. It produces, at the extremity of its branches, very pretty tufts of ſmall white flowers; of which the plant is ſeldom deſtitute for ſix or ſeven months ſucceſſively, for which reaſon it deſerves a place in the gardens of the curious. This will grow from ſeeds, and alſo from cuttings, if planted and managed as the former.

The third ſort hath ligneous branches which riſe about two feet high; theſe are armed with ſmall ſpines; the leaves are hoary, ſpear-ſhaped, and thinly placed on the ſtalks without any order. The flowers are white, croſs-ſhaped, and grow in ſmall cluſters at the extremity of the branches. After the flowers are paſt, the germen turns to an oblong ſeed-veſſel, containing ſeveral round ſeeds.

This may be propagated in the ſame manner as the firſt ſort, either by ſeeds or ſlips; and when the plants grow in rubbiſh, or on old walls, they will laſt much longer, and endure the cold of our winters better than thoſe which are in a good ſoil. It grows naturally in Spain, Italy, and the ſouth of France.

The fourth ſort hath trailing branches, which lie on the ground; theſe are garniſhed with oblong hoary leaves, which are rough to the touch, and are placed alternately on every ſide of the branches; the flowers are produced in ſmall cluſters at the extremity of the branches, which are of a dark yellow colour, and are ſucceeded by ſeed-veſſels ſhaped like thoſe of the third ſort. This grows naturally upon rocks and ruins, in Burgundy, and ſome other parts of France, as alſo about Baſil. It may be propagated in the ſame manner as the former ſorts, and when it grows in rubbiſh, the plants will continue ſome years; but in rich ground, they ſeldom live through the winter in England.

The fifth ſort grows to the height of two feet, having ligneous ſtalks, which divide into ſeveral branches toward the top. Theſe are garniſhed with hoary ſpear-ſhaped leaves, which are placed alternately on the branches: at the extremity of every ſhoot, the flowers are produced in round bunches, which are ſmall, white, and croſs-ſhaped; theſe are ſucceeded by oval ſeed-veſſels, which are full of brown ſeeds. It grows naturally in the ſouth of France, Spain, and Italy, chiefly on rocky or gravelly ſoils. When this is ſown in a rich ſoil, it ſeldom ſurvives the winter; but in lime rubbiſh, or upon old walls, it will continue ſeveral years. It flowers in June, July, Auguſt, and September, and the ſeeds ripen ſoon after; which if permitted to ſcatter, the plants will come up, and require little care.

The ſixth ſort is a biennial plant with an herbaceous ſtalk, which is garniſhed with oblong hoary leaves, placed alternately; the flowers come out from the wings of the ſtalks ſingle, and are ſucceeded by oval compreſſed ſeed-veſſels, ſhaped like thoſe of the Lunaria, which contain many flat ſeeds. It grows naturally in Spain and Portugal, from whence I have received the ſeeds. It is propagated by ſeeds, which muſt be ſown upon dry ground, or lime rubbiſh; for in rich land the plants will grow too vigorous in ſummer, ſo that in autumn they generally rot off and decay.

The ſeventh ſort is a low ſpreading plant, which divides into ſmall branches; theſe ſpread near the ground, and are garniſhed with oblong hoary leaves which continue through the year: the flowers are produced in ſmall cluſters at the extremity of the branches; they are of a bright yellow colour, conſiſting of four petals placed in form of a croſs. After the flower is paſt, the germen becomes an oval ſwelling ſeed-veſſel, which is filled with roundiſh ſeeds. This grows naturally in the iſlands of the Archipelago, but is hardy enough to live in the open air in England, in a dry ſoil and a warm ſituation. It is propagated by ſeeds, and ſeldom laſts longer than two or three years.

The eighth ſort grows more erect, having an herbaceous ſtalk, which ſends out a few lateral branches toward the top, garniſhed with oblong hoary leaves. The flowers grow in ſmall cluſters at the extremity of the branches, which are ſucceeded by oval ſwelling ſeed-veſſels like the former. This ſeldom continues longer than two years in England; it muſt have a warm dry ſituation, otherwiſe it will not live in the open air, and is propagated by ſeeds, which ſhould be ſown in Auguſt, ſoon after they are ripe; and if a few of them are potted in October, and ſheltered under a frame in winter, they will flower the following June, ſo good ſeeds may be obtained the ſame year; for thoſe plants which ariſe early in the year, grow luxuriantly in ſummer, ſo do not often live through the winter, or ripen ſeeds.

The ninth and tenth ſorts have trailing ſtalks, which ſpread on the ſurface of the ground; the plants produce their flowers toward the extremity of the ſtalks in looſe ſpikes, which are formed like thoſe of the other ſorts, having four petals in each in form of a croſs; thoſe of the ninth ſort are ſucceeded by ſwollen ſeed-veſſels, but the tenth, which flowers early in the ſpring, are rarely ſucceeded by ſeed-veſſels in this country. This is an abiding plant, which may be propagated from its trailing branches, which, if planted in April, will take root and become good plants by the following autumn, when two or three plants may be placed in a common frame for ſhelter in winter, to preſerve the ſpecies; for in hard winters, thoſe which are expoſed are ſometimes deſtroyed.

The eleventh and twelfth are both annual plants, ſo are propagated by ſeeds, which ſhould be ſown in a border of light earth in April, in ſuch places where the plants are to remain; if theſe are thinned and kept clean from weeds, they will flower in July, and perfect their ſeeds in autumn.

AMARANTHOIDES. See GOMPHRENA.

AMARANTHUS ['Αμάραντος; of *α* privative, and *μαραίνω*, *Gr.* to wither; ſo called, becauſe the flower of this plant being cropped, does not ſoon wither; but being dried, keeps the beauty of its colour a great while,] Flower-gentle.

The CHARACTERS are,

It hath male and female flowers in the ſame plant. The flower hath no petals, but the empalement conſiſts of three or five pointed ſpear-ſhaped leaves which are coloured and permanent; this is common to both ſexes. The male flowers have in ſome ſpecies three, and in others five ſlender ſtamina, which are of the ſame length with the empalement, crowned with oblong ſummits. The female flowers have an oval germen, ſupporting three ſhort awl-ſhaped ſtyles, which are crowned with ſimple ſtigma. The empalement afterward becomes an oval coloured ſeed-veſſel having one cell, in which is lodged a ſingle globular ſeed.

This genus of plants is by Dr. Linnæus ranged in the fifth diviſion of his twenty-firſt claſs, entitled Monœcia Pentandria, from their having male and female flowers on the ſame plant, and the male flowers having five ſtamina.

The SPECIES are,

1. AMARANTHUS (*Tricolor*) glomerulis triandris axillaribus ſubrotundis amplexicaulibus foliis lanceolato-ovatis. Lin. Sp. Plant. 1403. *Flower-gentle with roundiſh heads, placed at the wings of the ſtalks embracing them, whoſe flowers have three ſtamina, and the leaves are oval and ſpear-ſhaped.* Amaranthus tricolor. Lob. Icon. 252. i. e. *Three coloured Amaranthus.*
2. AMARANTHUS (*Melancholicus*) glomerulis triandris axillaribus ſubrotundis ſeſſilibus foliis lanceolatis acuminatis. Lin. Sp. Plant. 1403. *Flower-gentle with three ſtamina, roundiſh heads growing cloſe to the ſtalk, and acute-pointed ſpear-ſhaped leaves.* Amaranthus colore obſcuriori ſive mas. Tourn. Inſt. 236. Amaranthus bicolor.
3. AMARANTHUS (*Triſtis*) glomerulis triandris rotundatis ſubſpicatis, foliis ovato-cordatis emarginatis petiolo brevioribus. Lin. Sp. 1404. *Flower-gentle with three ſtamina, roundiſh heads growing from the wings of the ſtalks in ſpikes, and oval heart-ſhaped leaves with ſhort foot-ſtalks.*
4. AMARANTHUS (*Caudatus*) racemis pentandris decompoſitis cylindricis pendulus longiſſimis. Hort. Cliff. 443. *Flower-gentle with five ſtamina, and very long, hanging, cylindrical ſpikes.* Amaranthus maximus paniculâ longâ pendulâ ſemine rubello. Raii Hiſt.
5. AMARANTHUS (*Maximus*) racemis ſubcylindricis pendulis, caule erecto arboreo. *Flower-gentle with hanging almoſt cylindrical ſpikes, and an erect tree-like ſtalk.* Amaranthus maximus. C. B. P. 120. *Commonly called Tree-like Amaranthus.*
6. AMARANTHUS (*Lividus*) glomerulis triandris ſubſpicatis rotundatis, foliis rotundo-ovatis retuſis. Lin. Sp. 1404. *Flower-gentle with roundiſh ſpikes of flowers having three ſtamina, and roundiſh, oval, blunt leaves.* Blitum pulchrum rectum magnum rubrum. J. B. 2. p. 966.
7. AMARANTHUS (*Flavus*) racemis pentandris compoſitis, ſummo infimiſque nutantibus, foliis ovatis mucronatis. Lin. Sp. 1406. *Flower-gentle with a compound ſpike of flowers having five ſtamina, and oval pointed leaves.*
8. AMARANTHUS (*Blitum*) glomeratis lateralibus trifidis foliis ovatis retuſis, caule diffuſo. Lin. Sp. Plant. 990. *Flower-gentle with roundiſh heads at the joints of the ſtalks, oval blunt leaves, and diffuſed ſtalks.* Blitum album minus. C. B. P. 118. *The ſmaller white Blite.*
9. AMARANTHUS (*Græcizans*) glomerulis triandris axillaribus foliis lanceolatis obtuſis. Lin. Sp. Plant. 1405. *Flower-gentle with flowers having three ſtamina, which grow in cluſters from the wings of the ſtalks, and blunt ſpear-ſhaped leaves.* Amaranthus floribus lateralibus congeſtis foliis lanceolatis obtuſis. Flor. Virg. 116. *Commonly called Pellitory-leaved Blite.*
10. AMARANTHUS (*Hybridus*) racemis pentandris decompoſitis congeſtis nudis, ſpiculis conjugatis. Flor. Virg. 148. *Flower-gentle with five ſtamina, decompounded ſpikes having double ſpiculæ.* Amaranthus ſylveſtris maximus Novæ Angliæ ſpicis viridibus. Raii Hiſt. 201. *Or Wild New England Blite with green ſpikes.*
11. AMARANTHUS (*Hypocondriacus*) racemis pentandris compoſitis confertis erectis, foliis ovatis mucronatis. Hort. Cliff. 444. *Flower-gentle with five ſtamina, erect cluſtered ſpikes, and oval-pointed leaves.* This is the Amaranthus ſylveſtris maximus Novæ Angliæ ſpicis purpureis. Tourn. Inſt. R. H. 235. *Commonly called Purple Flower-gentle.*
12. AMARANTHUS (*Spinoſus*) racemis pentandris cylindricis erectis axillis ſpinoſis. Hort. Cliff. 444. *Flower-gentle with five ſtamina, upright cylindrical ſpikes, and ſpines at the joints of the ſtalks.* Amaranthus Indicus ſpinoſus ſpicâ herbaceâ. H. L. 31.
13. AMARANTHUS (*Sanguineus*) racemis pentandris compoſitis erectis, lateralibus patentiſſimis, foliis ovato-oblongis. Lin. Sp. 1407. *Flower-gentle with compound ſpikes, whoſe lateral ſpikes ſpread out, the upper are erect, and oblong oval leaves.* Amaranthus racemis cylindricis lateralibus terminalibuſque cruciatim poſitis. Fig. Plant. 22.
14. AMARANTHUS (*Retroflexus*) racemis pentandris lateralibus terminalibuſque caule flexuoſo villoſo ramis retrocurvatis. Lin. Sp. Plant. 991. *Flower-gentle with five ſtamina, ſpikes proceeding from the wings of the ſtalks, and alſo at their extremities, and flexible, hairy, recurved branches.*
15. AMARANTHUS (*Oleraceous*) glomeribus triandris pentandriſque, foliis ovatis obtuſiſſimis emarginatis rugoſis. Lin. Sp. 1403. *Flower-gentle whoſe globes have flowers with three and five ſtamina, and rough, obtuſe, indented leaves.* Blitum album majus. C. B. P. 118.
16. AMARANTHUS (*Viridis*) glomerulis triandris, floribus maſculis trifidis, foliis ovatis emarginatis, caule erecto. Lin. Sp. 1405. *Flower-gentle with globular heads whoſe flowers have three ſtamina; the male are trifid, oval, indented leaves, and an upright ſtalk.*
17. AMARANTHUS (*Cruentus*) racemis pentandris decompoſitis remotis patulo nutantibus, foliis lanceolato-ovatis. Lin. Sp. Pl. 1406. *Flower-gentle with decompounded ſpikes of flowers with five ſtamina, the outer ſpreading aſunder, and oval ſpear-ſhaped leaves.* Amaranthus ſinenſis foliis variis, panicula ſpecioſa patula. Cent. tab. 6.

The firſt ſort has been long cultivated in gardens for the beauty of its variegated leaves, which are of three colours, viz. green, yellow, and red; theſe are very elegantly mixed: and when the plants are in full vigour, the leaves are large, and cloſely ſet from the bottom to the top of the ſtalks, and the branches form a ſort of pyramid; ſo that there is not a more beautiful plant than this, when it is in full luſtre. From the leaves of this plant being partly coloured like the feathers of parrots, ſome botaniſts have ſeparated this ſpecies from the others, and conſtituted a genus of it by the title of Pſittacus.

The ſecond ſort hath been introduced into the Engliſh gardens much later than the former. This grows to the ſame height, and in the manner of its growth greatly reſembles it; but the leaves have only two colours, which are an obſcure purple, and a bright crimſon; theſe are ſo blended as to ſet off each other, and when the plants are vigorous, they make a fine appearance.

The third ſort hath no great beauty; it grows about three feet high with an upright ſtalk, which ſends out ſome lateral branches toward the top; theſe are garniſhed with oval heart-ſhaped leaves. The flowers are produced at the wings of the ſtalks in roundiſh ſpikes, as alſo at the extremity of the branches, but have very little beauty, ſo do not deſerve a place in the flower-garden. The young plants of this ſort are gathered to boil inſtead of Spinach by the inhabitants of India, where it grows naturally, and from thence I received the ſeeds of it as an eſculent plant.

The fourth ſort grows naturally in America. This hath an upright ſtem, three feet high; the leaves and ſtalks are of a pale green colour; the ſpikes of flowers are produced from the wings of the ſtalks, and alſo in cluſters at the extremity of the branches: they are very long and hang downward, being of a bright purple colour. I have meaſured ſome of theſe ſpikes, which were two feet and a half long, ſo that many of them have reached the ground.

The fifth ſort hath a ſtrong ſtem, which riſes to the height of ſeven or eight feet, ſending forth many horizontal branches toward the top, garniſhed with oblong, rough, green leaves. At the extremity of every ſhoot, the cylindrical ſpikes of a purple colour are produced, which hang downward; but theſe are ſeldom half the length of thoſe of the former ſort, and are much thicker. This is the ſort of Amaranth, which is directed by the college to be uſed in medicine.

The ſixth ſort grows near three feet high, putting out ſeveral ſide branches, which are garniſhed with oval blunt leaves; at the ends of the branches the ſpikes are produced in cluſters and grow erect, theſe are of a deep purple colour.

The ſeventh ſort grows near four feet high; the ſtalks are inclined to red; the leaves are of an oval ſpear-ſhaped figure, green colour, marked with purple ſpots, and have very long foot-ſtalks. The ſpikes come out at the extremity of the branches in cluſters, as alſo from the wings of the ſtalks; theſe are of a pale green colour, and grow erect. I have received the ſeeds of this ſort from Portugal, by the title of Bredos, recommending it to be cultivated as a culinary herb.

The eighth ſort grows naturally in moſt of the warm parts of Europe, and alſo in America; for wherever it is permitted to ſcatter its ſeeds, the plants will come up the following ſummer, and become troubleſome weeds, as will alſo the ninth ſort; ſo theſe are ſeldom cultivated, as they are only preſerved in botanic gardens for the ſake of variety. The ſtalks of both theſe ſorts ſpread on the ground.

The tenth ſort grows upward of three feet high, and ſends out many ſide branches, which are hairy, and garniſhed with oblong rough leaves. The ſpikes are produced from the wings of the ſtalks, as alſo at the extremity of the branches, growing horizontally, and are of a green colour. There is little beauty in this plant, therefore is ſeldom admitted to gardens, unleſs for the ſake of variety.

The eleventh ſort has been long in England, and was formerly propagated in flower-gardens, but is now become a common weed, frequently growing upon dunghills: for as the plants abound with ſeeds, ſo where they are permitted to ſcatter, there will be plenty of the plants come up the following ſummer. And theſe ſeeds will remain in the ground ſeveral years, and as often as they are turned up to the ſurface, they will produce plants; ſo that when plants are ſuffered to ſtand till their ſeeds fall, there will be every ſummer freſh crops of the plants for ſeveral years.

The twelfth ſort grows about two feet high, putting out many ſide branches, ſo as to form a buſhy plant; the leaves are oblong, and the ſpikes come out at every joint, where the ſtalks are armed with ſharp prickles, and at the extremity of the branches, the ſpikes are longer than thoſe of the ſide: theſe are ſlender, and are inclining to a brown colour, ſo make no great figure, therefore is rarely allowed to have a place, except in botanic gardens.

The ſeeds of the thirteenth ſort were ſent me from the Bahama Iſlands, as an eſculent plant, bearing fine flowers. This grows three feet high, with purple ſtalks and leaves; the ſpikes are ſhort and cylindrical; theſe are frequently produced from the wings of the ſtalks, but at the extremity of the ſtalk ariſes a large cluſter of ſpikes which are placed croſswiſe, with one upright ſtalk in the middle. Theſe are of a bright purple colour at firſt, but afterward fade to a darker colour, as the ſeeds ripen.

The fourteenth ſort is a native of North America, from whence the ſeeds were ſent to Europe, but is now become a common weed in many gardens near London, ſo is ſeldom allowed a place, except in botanic gardens.

The fifteenth ſort has no beauty, therefore not worthy of a place in gardens: this and the ſixteenth ſort are eſteemed in ſome parts of India as eſculent herbs; the inhabitants of thoſe warm countries, gather the herbs while young, and dreſs them inſtead of Spinach, but being much inferior to it, they are ſeldom uſed in thoſe countries where Spinach will thrive. Theſe plants grow from two to three feet high, and when they have room, will ſend out many ſide branches; but if their ſeeds are permitted to ſcatter, there will be a plentiful ſupply of plants the following ſummer.

The ſeeds of the ſeventeenth ſort were brought from China, and the two firſt years they were ſown in England, produced beautiful heads of flowers, which made a gay appearance; but afterward the ſeeds degenerated, and the plants which were produced from them had little beauty; which is the caſe with ſome others of this genus, ſo ſhould not be eſteemed as diſtinct ſpecies.

The ſorts which are worthy of a place in the pleaſure-garden, are particularly the firſt and ſecond: theſe are tender, and require ſome art and care to bring them to perfection in England, therefore their management will be hereafter more particularly inſerted.

Next to theſe are the fourth, fifth, and thirteenth ſorts. The ſeeds of theſe ſhould be ſown upon a moderate hot-bed toward the end of March, and when the plants come up, they ſhould have a large ſhare of air admitted to them in mild weather, to prevent their drawing up weak. When they are large enough to tranſplant, there ſhould be another moderate hot-bed provided, to which they ſhould be removed, placing them at ſix inches diſtance every way, obſerving to water them, as alſo to ſhade them from the ſun until they have taken new root; after which the air ſhould be freely admitted to them, at all times when the weather is favourable; their waterings ſhould be frequent, but not given in great quantities. As the plants advance, and the warmth of the ſeaſon increaſes, they ſhould have a greater ſhare of air, that by degrees they may be hardened to bear the open air. The beginning of June they may be taken up with large balls of earth to their roots, and planted ſome into pots, and others into the borders of the pleaſure-garden, obſerving to ſhade them until they have taken good root; after which they muſt be frequently watered in dry weather, eſpecially thoſe in the pots, which will require watering every evening in warm dry weather. The fifth ſort will not thrive in pots, ſo ſhould be planted in a rich light ſoil, where, if it is allowed room, and plentifully watered in dry weather, the plants will grow to a very large ſize, and make a fine appearance.

The twelfth ſort is alſo tender, ſo whoever is inclinable to cultivate that plant, ſhould treat it in the ſame manner as is directed for the former.

The other ſorts are hardy enough to grow in the open air, ſo may be ſown on a bed of light earth in the ſpring, and when the plants are fit to remove, they may be tranſplanted into any part of the garden, where they will thrive, and produce plenty of ſeeds, which, if permitted to ſcatter, will ſtock the garden with plants.

The two firſt ſorts muſt be ſown on a good hot-bed in February, or the beginning of March at fartheſt; and in about a fortnight's time, if the bed is in good temper, the plants will riſe; ſoon after which you muſt prepare another hot-bed, covered with good, rich, light earth, about four inches thick; then raiſe up the young plants with your finger, ſo as not to break off the tender roots, and prick them into your new hot-bed about four inches diſtance every way, giving them a gentle watering to ſettle the earth to their roots; but in doing this, be very cautious not to bear the young plants down to the ground by haſty watering, which rarely riſe again, or at leaſt ſo as to recover their former ſtrength in a long time, but very often rot in the ſtems, and die quite away.

In the middle of the day keep them ſcreened with mats from the heat of the ſun, and give them air by raiſing up the glaſſes; and if the glaſſes are wet, it will be proper to turn them every day, in good weather, that they may dry; for the moiſture which is occaſioned by the fermentation of the dung, and the perſpiration of the plants, is of a noxious quality, and very unkindly to plants; ſo that if the weather happens to prove bad, that you cannot turn your glaſſes, it will be of great ſervice to the plants to wipe off all moiſture two or three times a day with a woollen cloth to prevent its dropping upon the plants. When the plants are firmly rooted, and begin to grow, you muſt obſerve to give them air every day, more or leſs, as the weather is cold or hot, to prevent their drawing up too faſt, which greatly weakens their ſtems.

In about three weeks or a month's time, theſe plants will have grown ſo as to meet, and will ſtand in need of another hot-bed, which ſhould be of a moderate temper, and covered with the ſame rich earth about ſix inches thick, in which they ſhould be removed, obſerving to take them up with as much earth about their roots as poſſible, and plant them ſix or ſeven inches diſtance every way, giving them ſome water to ſettle the earth about their roots; but be very careful not to water them heavily, ſo as to bear down the plants, as was before directed; and keep them ſhaded in the heat of the day, until they have taken freſh roots; and be ſure to refreſh them often gently with water, and give them air in proportion to the heat of the weather, covering the glaſſes with mats every night, leſt the cold chill your beds, and ſtop the growth of the plants.

The middle of May you muſt provide another hot-bed, which ſhould be covered with a deep frame, that the plants may have room to grow. Upon this hot-bed you muſt ſet as many three-penny pots as can ſtand within the compaſs of the frame; theſe pots muſt be filled with good rich earth, and the cavities between each pot filled up with any common earth, to prevent the heat of the bed from evaporating, and filling the frame with noxious ſteams: when the bed is in good order to receive the plants, they ſhould be carefully taken up with a trowel, or ſome ſuch inſtrument, obſerving to preſerve as much earth to their roots as poſſible; then place each ſingle plant in the middle of one of the pots, filling the pot up with the earth before deſcribed, and ſettle it cloſe to the root of the plant with your hands; water them gently, as before, and ſhade them in the heat of the day from the violence of the ſun, by covering the glaſſes with mats.

In about three weeks more theſe plants will have grown to a conſiderable ſize and ſtrength, ſo that you muſt now raiſe the glaſſes very much in the day-time; and when the air is ſoft, and the ſun is clouded, draw off the glaſſes, and expoſe them to the open air; and repeat this as often as the weather will permit, which will harden them by degrees to be removed abroad into the places where they are to remain the whole ſeaſon; but it is not adviſeable to ſet theſe plants in the open air till after the firſt week in July, obſerving to do it when the air is perfectly ſoft, and, if poſſible, in a gentle ſhower of rain.

Let them at firſt be ſet in ſhelter for two or three days, where they may be ſcreened from the violence of the ſun, and ſtrong winds, to which they muſt be inured by degrees. Theſe plants, when grown to a good ſtature, perſpire very freely, and muſt be every day refreſhed with water, if the weather proves hot and dry; otherwiſe they will ſtint, and never produce ſo large leaves, as thoſe which are ſkilfully treated.

This is the proper management, in order to have fine Amaranths, which, if rightly followed, and the kinds are good, in a favourable ſeaſon, will produce large fine leaves, and are the greateſt ornament to a good garden for upwards of two months in the latter part of ſummer.

Where perſons are curious in having theſe annual plants in great perfection, there ſhould be a glaſs-caſe erected with upright and ſloping glaſſes on every ſide, with a pit in the bottom for tan, in which the pots ſhould be plunged; if this is raiſed eight or nine feet to the ridge, and the upright glaſſes are five feet, there will be room and height enough to raiſe theſe and other annual plants to great perfection, and in ſuch a building, many of thoſe tender annual plants, which rarely perfect ſeeds in this climate without ſuch contrivance, may be every year brought ſo forward as to ripen their ſeeds.

AMARANTHUS CRISTATUS. See CELOSIA.

AMARYLLIS, Lily Daffodil.

The CHARACTERS are,

It hath an oblong compreſſed ſpatha, (or ſheath) which incloſes the flower-buds, and open ſide ways, becomes dry, and is permanent; the flower hath ſix ſpear-ſhaped petals. In the center is ſituated the roundiſh furrowed germen, ſupporting a ſlender ſtyle, crowned with a three-cornered ſtigma; this is attended by ſix awl-ſhaped ſtamina, which are crowned with incumbent ſummits. After the flower is paſt, the germen becomes an oval capſule, opening in three parts, having three cells, which contain round ſeeds.

This genus is ranged by Dr. Linnæus in the firſt ſection of his ſixth claſs of plants, entitled Hexandria Monogynia, from the flower having ſix ſtamina and one ſtyle.

The SPECIES are,

1. AMARYLLIS (*Lutea*) ſpathâ uniflorâ, corollâ æquali, ſtaminibus declinatis. Lin. Sp. 420. *Lily Daffodil with a ſingle flower in each ſpatha, which is equal, and the ſtamina declined.* Lilio Narciſſus luteus autumnalis major. Tourn. Inſt. 386. *Commonly called autumnal Narciſſus.*
2. AMARYLLIS (*Atamaſco*) ſpathâ uniflorâ, corollâ æquali, piſtillo declinato. Hort. Cliff. 135. *Lily Daffodil with a ſingle flower in each ſheath, which has equal petals, and the pointal declining.* Lilio Narciſſus Indicus pumilus monanthos albus. Mor. Hiſt. 2. 266. *Commonly called Atamuſco Lily.*
3. AMARYLLIS (*Formoſiſſima*) ſpathâ uniflorâ, corollâ inæquali, petalis tribus genitalibuſque declinatis. Hort. Cliff. 135. *Lily Daffodil with one flower in each cover, which has unequal petals, and the ſtamina and ſtyle are declined.* Lilio Narciſſus Jacobæus flore ſanguineo nutante. Hort. Elth. 195. *Commonly called Jacobæa Lily.*
4. AMARYLLIS (*Sarnienſis*) ſpathâ multiflorâ, corollis revolutis genitalibus. Hort. Upſal. 75. *Lily Daffodil with*

with many flowers in one cover; the petals equal, ſpread open, and turned backward, with broken ſtamina, commonly called Guernſey Lily.

5. AMARYLLIS (*Regina*) ſpathâ multiflorâ, corollis campanulatis æqualibus, genitalibus declinatis. Hort. Cliff. 135. *Lily Daffodil with many flowers in one cover, the petals equal and bell-ſhaped, and the ſtamina declined.* Lilio Narciſſus polyanthos flore incarnato, fundo ex luteo albeſcente. Sloan. Cat. Jam. 115. *commonly called Belladonna Lily.*

6. AMARYLLIS (*Belladonna*) ſpatha multiflorâ corollis campanulatis marginibus reflexis genitalibus declinatis. *Lily Daffodil with many flowers in one cover, the petals equal and bell-ſhaped, their borders turning backward, and declining ſtamina.* Lilium Americanum puniceo flore, Belladonna dictum. Par. Bat. 194. *commonly called Mexican Lily.*

7. AMARYLLIS (*Longifolia*) ſpathâ multiflorâ, corollis campanulatis æqualibus, ſcapo compreſſo longitudini umbellæ. Flor. Leyd. 36. *Lily Daffodil with many flowers in one cover, the petals equal, and the cover compreſſed the length of the umbel.* Lilium Africanum humile longiſſimis foliis polyanthos ſaturato colore purpuraſcens. Par. Bat. 195.

8. AMARYLLIS (*Zeylanica*) ſpathâ multiflorâ corollis campanulatis æqualibus, genitalibus declinatis ſcapo tereti ancipiti. Flor. Leyd. 36. *Lily Daffodil with many flowers in one cover, the petals equal, and the cover opening two ways.* Lilio Narciſſus Zeylanicus latifolius flore niveo externè lineâ purpureâ ſtriato. Hort. Amſt. 1. 73. *commonly called the Ceylon Lily.*

9. AMARYLLIS (*Ciliaris*) ſpathâ multiflorâ, foliis ciliatis. Flor. Leyd. 37. *Lily Daffodil with many flowers in one cover, and the edges of the leaves hairy.* Lilio Narciſſus ſphæricus Æthiopicus foliis guttatis & cilii inſtar piloſis. Pluk. Alm. 220. *commonly called the African Scarlet Lily.*

10. AMARYLLIS (*Vernalis*) ſpathâ uniflorâ, corollâ æquali, ſtaminibus erectis. *Lily Daffodil with one flower in a cover, with equal petals, and erect ſtamina.* Lilio Narciſſus luteus vernus. Tourn. Inſt. 386. *commonly called Spring yellow Lily Narciſſus.*

11. AMARYLLIS (*Orientalis*) ſpathâ multiflorâ corollis inæqualibus foliis linguiformibus. Buttn. *Lily Daffodil with many flowers in a cover, whoſe petals are unequal, and leaves ſhaped like a tongue.* Lilio Narciſſus Indicus maximus ſphæricus floribus plurimis rubris liliaceis. Mor. Hiſt. 2. 268. *Brunſwigia of Dr. Heiſter.*

12. AMARYLLIS (*Capenſis*) ſpathâ triflorâ corollis campanulatis æqualibus gentialibus declinatis. *Lily Daffodil with three flowers in each cover, whoſe petals are equal and bell-ſhaped, with declining ſtamina.*

The firſt ſort is very hardy, and increaſes very faſt by offsets. The ſeaſon for tranſplanting theſe roots is any time from May to the end of July, when their leaves are decayed, after which it will be too late to remove them; for they will begin to puſh out new fibres by the middle of Auguſt, or ſooner if the ſeaſon be moiſt, and many times they flower the beginning of September; ſo that if they are tranſplanted, it will ſpoil their flowering. This plant will grow in any ſoil or ſituation; but it will thrive beſt in a freſh, light, dry ſoil, and in an open ſituation; i. e. not under the dripping of trees, nor too near walls. It is commonly called by the gardeners, the Yellow Autumnal Narciſſus, &c. and is uſually ſold by them with Colchicums, for autumnal ornaments to gardens; for which purpoſe this is a pretty plant, as it will frequently keep flowering from the beginning of September to the middle of November, provided the froſt is not ſo ſevere as to deſtroy the flowers; for although there is but one flower in each cover, yet there is a ſucceſſion of flowers from the ſame root, eſpecially when they are ſuffered to remain three or four years unremoved. The flowers ſeldom riſe above three or four inches high; they are ſhaped ſomewhat like the flowers of the large yellow Crocus; the green leaves come up at the ſame time, like the Saffron, and after the flowers are paſt, the leaves increaſe all the winter. The roots are bulbous, and ſhaped like thoſe of the Narciſſus, ſo are proper ornaments for ſuch borders as are planted with Cyclamens, Saffron, Autumnal Crocus, Colchicums, and ſuch low autumnal flowers.

The tenth ſort is more rare in England than any of the other, at preſent. It was formerly in ſeveral curious gardens, but as it flowers at a ſeaſon when there are ſo many finer ſorts in beauty, it was neglected and caſt out of the gardens, whereby it is almoſt loſt in England: it grows naturally in Spain and Portugal, where it flowers early in January. This is as hardy as the firſt ſort, and may be planted in the open borders, and treated in the ſame manner, excepting that this will not loſe its leaves ſo ſoon, ſo ſhould not be taken out of the ground to tranſplant, till the end of July, or beginning of Auguſt. It flowers in April or the beginning of May, but is not of long duration.

The ſecond ſort is a native of Virginia and Carolina, in which countries it grows very plentifully in the fields and woods, where it makes a beautiful appearance when it is in flower. The flowers of this ſort are produced ſingle, and at their firſt appearance have a fine Carnation colour on their outſide; but fades away to a pale, or almoſt white, before the flowers decay. This plant is ſo hardy, as to thrive in the open air in England, provided the roots are planted in a warm ſituation, and on a dry ſoil; it may be propagated by offsets from the roots. The flowers of this ſort are almoſt as large as thoſe of the ſmall Orange Lily, but do not grow above ſix or eight inches high; they appear the latter end of May, or beginning of June, and ſometimes it flowers in Auguſt in this country.

The third ſort, which is commonly called Jacobæa Lily, is now become pretty common in the curious gardens in England, the roots ſending forth plenty of offsets, eſpecially when they are kept in a moderate warmth in winter: for the roots of this kind will live in a good green-houſe, or may be preſerved through the winter under a common hot-bed frame; but then they will not flower ſo often, nor ſend out ſo many offsets, as when they are placed in a moderate ſtove in winter. This will produce its flowers two or three times in a year, and is not regular to any ſeaſon; but from March to the beginning of September, the flowers will be produced when the roots are in vigour. The ſtems of theſe flowers are produced from the ſides of the bulbs, ſo that after the flowers produced on one ſide are decayed, there is another ſtalk ariſes from the other ſide of the bulb; but there is no more than one flower produced on the ſame ſtalk. The flowers are large, and of a very deep red; the under petals, or flower-leaves, are very large, and the whole flower ſtands nodding on one ſide of the ſtalk, making a beautiful appearance.

It is propagated by offsets, which may be taken off every year; the beſt time to ſhift and part theſe roots is in Auguſt, that they may take good root before winter; in doing of this, there ſhould be care taken not to break off the fibres from their roots. They ſhould be planted in pots of a middling ſize, filled with light kitchen-garden earth; and if they are kept in a moderate degree of warmth, they will produce their flowers in plenty, and the roots will make great increaſe.

The ſixth ſort, which is commonly called the Mexican Lily, is not ſo hardy as the former ſort, ſo muſt be placed in a warm ſtove; and if the pots are plunged into a hot-bed of tanners bark, the roots will thrive better, and the flowers will be ſtrong. This is increaſed by offsets, as the others of this tribe; and flowers uſually the beginning of ſpring, when it makes a fine appearance in the ſtove: the flower-ſtems of this ſort, ſeldom riſe more than one foot high, each ſtem ſupports two, three, or four flowers, rarely more than that number. The flowers are large, and of a bright copper colour, inclining to red; the ſpatha, or ſheath, which covers the buds before they open, divides into two parts to the bottom, ſtanding on each ſide the umbel of flowers, joined to the ſmall foot-ſtalks, The eighth ſort is alſo tender, and muſt be treated in the ſame manner as the ſixth; this is more common in the gardens in Holland than in this country, and as it is a plant which increaſes but ſlowly, will not be very common here. This flowers uſually in June and July, and ſometimes the ſame root will flower again in autumn; for if the pots are plunged into a bed of tanners bark, the roots generally flower twice every year, but the flowers are not of long duration. This grows naturally in the Weſt-Indies, from whence I have received roots and ſeeds.

The ſeventh and ninth ſorts are more hardy, and may be treated in the ſame manner as the Jacobæa Lily; theſe will increaſe pretty faſt by offſets, when they are properly managed, eſpecially the ninth, which ſends out many offſets, ſo as to fill the pots with roots, but it ſeldom flowers in England. The leaves of this are long and narrow, not much unlike thoſe of the Snowdrop. The petals of the flower turn back like thoſe of the Guernſey Lily, but are of a lighter colour, rather inclining to ſcarlet; the roots of this are ſmall. The ſeventh ſort uſually flowers in winter, if the pots are placed in a moderate ſtove; and as at that ſeaſon there are few flowers in the open air, theſe are more valuable on that account.

I received roots of both theſe ſorts from the Cape of Good Hope, which have ſucceeded in the Chelſea garden. The ſeventh ſort produces a great number of flowers in each umbel, which are of a deep purple colour, but the ſtalk which ſupports them, rarely riſes more than three or four inches high; theſe flowers appear in December. The roots of this ſort are very large, and the leaves are long, but narrow.

The eleventh ſort is figured by Ferrarius in his Garden of Flowers, as alſo by Morriſon in his Hiſtory of Plants; but Dr. Heiſter has ſeparated this from the genus, and has conſtituted a new genus by the title of Brunſwigia, in honour to the duke of Brunſwic. But although the ſhape of the flowers in this plant are different from moſt of the others of this genus, yet as there is a unformity in the characteriſtic notes of the genus, it ſhould not be ſeparated; for the Jacobæa Lily differs in the form of its flowers, from the other ſpecies, full as much as this, therefore might for the ſame reaſon be ſeparated from this genus.

This grows naturally at the Cape of Good Hope, from whence I have received the roots, which have ſucceeded in the Chelſea garden. The bulbs of this ſort are large and almoſt round, the leaves are long, broad, and rounded at their extremities; theſe ſpread two ways on the ſurface of the ground; and do not come up till after the flower-ſtem appears, which is generally in November; and after the flowers are paſt, the leaves increaſe till ſpring, and in May they begin to decay, ſo that from the middle of June to October, the roots are entirely naked of leaves.

The twelfth ſort is alſo a native of Africa, I received the roots of this from the Cape of Good Hope with the former. This produces its flowers in February and March. The ſtems of this riſe near two feet high, and have commonly but three flowers incloſed in each ſheath, or cover. The flowers are as large as thoſe of the Belladonna Lily, and are of the ſame form, growing erect, but of a deeper red colour; the leaves are long and narrow, and have a hollow furrow on their upper ſide, where there is a pale ſtripe running the length of the leaves, and are very like thoſe of the American Pancratium. Theſe leaves decay in ſummer, about the ſame time as thoſe of the former, and appear again at the ſame ſeaſon.

Both theſe ſorts may be treated in the ſame manner, as hath been directed for the Jacobæa Lily, with this difference only, of placing theſe in winter in a ſtove, where there is a moderate ſhare of warmth, for the roots of theſe will not endure ſo much cold as thoſe, nor ſhould they have ſo much water given them.

The beſt time to tranſplant theſe roots is about the beginning of Auguſt, when their leaves are quite decayed, before they put out new fibres, for it will be very improper to remove them afterwards.

All theſe bulbous-rooted flowers delight in a looſe ſandy earth, mixed with good kitchen-garden mould; and in the culture of them there ſhould be but little water given them at thoſe times when their leaves decay, and the roots are not in a growing ſtate, for much moiſture at that time will often cauſe them to rot; but when they are growing, and putting out their flower-ſtems, they ſhould be frequently refreſhed with water, but not given in too great quantities at a time. The pots, with the tender ſorts, ſhould conſtantly be kept in the ſtove; and in ſummer they ſhould have as much free air as poſſible; for although ſome of theſe ſorts may be kept abroad in ſummer, yet thoſe do not thrive ſo well, nor flower ſo conſtantly, as thoſe which are treated in the manner here deſcribed.

The fifth ſort, which is called the Belladonna Lily, was brought to England from Portugal, where the gardens ſome years ago abounded with theſe flowers; for the roots increaſe very faſt, eſpecially in ſuch countries where they live in the open air. The gardens in Italy have alſo great quantities of theſe flowers, eſpecially about Florence; where, at the ſeaſon of their flowering, they are commonly ſold in the markets to adorn their rooms; the Italians call it Narciſſus Belladonna. This plant thrives ſo well in Italy, as to need no other culture than the common Lily; and although it does not flower until Auguſt, yet it commonly produces good ſeeds in that country, from which they propagate them in great plenty; but with us they require more care, otherwiſe they cannot be preſerved. The roots of this ſort were generally planted in pots, and placed under a hot-bed frame, to ſcreen them from the froſt in winter; for as their green leaves come out in autumn, and continue growing all the winter, ſo when they are expoſed to the froſt, whereby their leaves are killed, the roots will be in danger of periſhing; but if they ſhould ſurvive, they will be greatly weakened by it. With this culture the roots were preſerved, but they did not conſtantly flower, nor put out many offſets, ſo that few gardens were furniſhed with this plant; and of late years the roots have been ſcarce in Portugal, for the Jacobæa Lily having been introduced into that country, has ſupplanted the other, in moſt of their gardens, ſo that the roots which have been brought from thence of late years for the Belladonna Lily, have proved the Jacobæa Lily.

The method in which I have cultivated this plant for ſome years paſt, with great ſucceſs, is as follows. I prepared a border cloſe to a ſouth-weſt aſpected wall, of about ſix feet wide, in the following manner, viz. I removed all the earth to the depth of three feet, then I put ſome very rotten dung in the bottom, ſix inches thick, upon which I laid light garden mould about twenty inches deep; after making this level, I placed the roots at ſix inches diſtance every way, and then covered them over with light ſandy earth, to the height of the border, whereby the upper part of the roots were five or ſix inches buried, and in the winter I covered the border all over with rotten tanners bark, three inches deep, to prevent the froſt from penetrating the ground; and when the froſt was very ſevere, I laid ſome mats or ſtraw over the leaves to protect them from being killed. With this management the roots have greatly increaſed, and have conſtantly flowered every year; ſome of them have put out two or three ſtems, which grew near three feet high, and produced many flowers in each umbel, which have made a fine appearance during the month of October. The green leaves come up ſoon after, and abide all the winter and ſpring until June, at which time they decay; ſoon after which the roots ſhould be tranſplanted, for if they are let ſtand till July, they will have ſent forth new fibres, when it will greatly injure the roots, if they are diſturbed. If ſome of theſe roots are planted in a warm border, cloſe to a ſouth wall, and on a dry ſoil, they will thrive very well, eſpecially if they are covered in ſevere froſt; and theſe roots will flower much ſtronger than thoſe which are kept in pots, and will multiply faſter.

The fourth ſort is ſuppoſed to come originally from Japan, but has been many years cultivated in the gardens of Guernſey and Jerſey; in both which places, they ſeem to thrive as well as if it was their native country; and from thoſe iſlands their roots are ſent annually to the curious in moſt parts of Europe, and are commonly called Guernſey Lilies. The roots of this plant are generally brought over in June and July; but the ſooner they are taken out of the ground after their leaves decay, they are the better: for although the roots which are taken up when their flower-ſtems begin to appear, will flower, yet their flowers will not be ſo large, nor will their roots be near ſo good after, as thoſe which were removed before they had ſent out freſh fibres.

When theſe roots come over, they ſhould be planted in pots filled with freſh, light, ſandy earth, mixed with a little very rotten dung, and placed in a warm ſituation, obſerving now and then to refreſh the earth with water: but by no means let them have too much wet, which would rot their roots, eſpecially before they come up. About the middle of September, ſuch of the roots as are ſtrong enough to flower, will begin to ſhew the bud of their flower-ſtem (which is commonly of a red colour); therefore you ſhould remove theſe pots into a ſituation where they may have the full benefit of the ſun, and may be ſheltered from ſtrong winds: but by no means place them too near a wall, nor under glaſſes, which would draw them up weak, and render them leſs beautiful. At this ſeaſon they ſhould be gently refreſhed with water, if the weather be warm and dry; but if it ſhould prove very wet, they ſhould be ſcreened from it.

When the flowers begin to open, the pots ſhould be removed under ſhelter, to prevent the flowers from being injured by too much wet: but they muſt not be kept too cloſe, nor placed in a ſituation too warm, which would occaſion their colour to be leſs lively, and haſten their decay. The flowers of this plant will continue in beauty (if rightly managed) a full month; and though they have no ſcent, yet, for the richneſs of their colour, they are juſtly eſteemed in the firſt rank of the flowery tribe.

After the flowers are decayed, the green leaves will begin to ſhoot forth in length, and if ſheltered from ſevere cold, will continue growing all the winter; but they muſt have as much free air as poſſible in mild weather, and covered only in great rains or froſts; for which purpoſe, a common hot-bed frame is the propereſt ſhelter for them; under which if they are placed, the glaſſes may be taken off conſtantly every day in dry open weather, which will encourage the leaves to grow ſtrong and broad; whereas when they are placed in a green-houſe, or not expoſed to the open air, they will grow long and ſlender, and have a pale weak aſpect, whereby the roots will become weak, ſo that it ſeldom happens that they produce flowers under ſuch management.

Theſe roost ſhould be tranſplanted every fourth or fifth year toward the latter end of June, or beginning of July, and planted into freſh earth (but they ſhould not be oftener removed, for that would retard their flowering.) The offsets ſhould alſo be taken off, and planted into ſeveral pots, which, in three years time, will produce flowers; ſo that after a perſon is once ſtocked with theſe roots, they may increaſe them, ſo as to have a ſupply of blowing roots, without being at the trouble or expence of ſending to Guernſey every year for freſh roots; and the roots preſerved here will flower ſtronger than thoſe which are uſually brought from thence, for the inhabitants of thoſe iſlands are not very curious in cultivating them. Their uſual method is to plant them at a great diſtance in a bed of common earth, where they let them remain for many years: in which time they produce ſuch a number of offsets, that many times one ſingle cluſter has contained above a hundred roots; by which means, thoſe which grow on the inſide are ſo much compreſſed by the outer roots, that they are perfectly flatted; and from the number of roots growing in each cluſter, they are all rendered weak, and unfit to produce ſuch large ſtems of flowers, as thoſe which have grown ſingle, and are of a ſpherical figure.

But when a perſon is poſſeſſed of a large number of theſe roots, it will be troubleſome to preſerve them in pots; therefore there ſhould be a bed prepared of the following earth, in ſome well ſheltered part of the garden, viz. Take a third part of freſh virgin earth from a paſture ground, which is light, then put near an equal part of ſea ſand, to which you ſhould add rotten dung, and ſifted lime rubbiſh, of each an equal quantity. With this earth (when well mixed and incorporated) you ſhould make your bed about two feet thick, raiſing it about four or five inches above the ſurface of the ground, if the ſituation be dry; but if the ground be wet, it ſhould be raiſed eight or nine inches higher. In this bed, about the beginning of July (as was before directed), you ſhould plant the roots about ſix or eight inches aſunder each way; and in the winter, when the froſt begins, you ſhould either cover the bed with a frame, or arch it over, and cover it with mats and ſtraw, to prevent their leaves from being pinched with cold; but in the ſpring the covering may be entirely removed, and the bed kept conſtantly clear from weeds, during the ſummer, obſerving to ſtir the ſurface of the earth now and then; and every year, when the leaves are decayed, you ſhould ſhift a little freſh earth over the beds, to encourage the roots. In this bed the roots may remain until they are ſtrong enough to produce flowers, when they may be taken up and planted in pots, as was before directed, or ſuffered to remain in the ſame bed to flower.

The roots of theſe plants do not flower again the ſucceeding year (as in many other ſorts of bulbs;) but if their bulbs contain two buds in their center, as is often the caſe, they very often flower twice within the compaſs of three years; after which, the ſame individual root does not flower again in ſeveral years, but only the offsets from it.

AMBROSIA [ſo called from ἀ privative and βροτὸς mortal,] becauſe feigned by the poets to be the food of the gods.

The CHARACTERS are,

It hath male and female flowers on the ſame plant. The male flowers are compoſed of many florets, which are included in one common empalement of one leaf, which is plain, and extended the length of the florets: each floret is of one leaf, funnel-ſhaped, and cut into five parts at the brim; in the center is ſituated the five ſmall ſtamina, which are crowned with pointed erect ſummits. The female florets are placed under the male in the ſame ſpike; theſe have an empalement of one leaf, which is pointed and permanent: they have no petals, but an oval germen placed in the bottom of the empalement, ſupporting a ſlender ſtyle, crowned with two long hairy ſtigma. The germen afterward becomes an oval hard capſule with one cell, crowned with the acute ſegments of the empalement, and incloſing one roundiſh ſeed.

This genus of plants, is by Dr. Linnæus ranged in the fifth diviſion of his twenty-firſt claſs, entitled Monœcia Pentandria, from their having male and female flowers in the ſame plant, and the male flowers having five ſtamina.

The SPECIES are,

1. AMBROSIA (*Maritima*) foliis multifidis racemis ſolitaris piloſis. Lin. Sp. Plant. 988. *Ambroſia with leaves divided into many parts, and ſingle hairy ſpikes of flowers.* Ambroſia maritima. C. B. P. Sea Ambroſia.
2. AMBROSIA (*Elatior*) foliis bipinnatifidis, racemis paniculatis terminalibus glabris. Hort. Upſal. 284. *Ambroſia with double winged leaves, a ſmooth looſe ſpike of flowers growing at the extremity of the branches.* Ambroſia maritima foliis artemiſiæ inodoris elatior. H. L. 32.
3. AMBROSIA (*Trifida*) foliis trilobis & quinquelobis ſerratis. Lin. Sp. 988. *Ambroſia with leaves having three and five lobes,*

lobes, which are ſawed on their edges. Ambroſia Virginiana maxima, platani orientalis folio. Mor. Hiſt. 3. p. 4.

4. Ambrosia (*Artemiſifolia*) foliis bipinnatifidis primoribus ramulorum indiviſis integerrimis. Lin. Sp. Plant. 988. *Ambroſia with double winged leaves, and the younger branches having entire leaves.* Ambroſia maxima inodora marrubii aquatici foliis tenuiter laciniatis Virginiana. Pluk. Alm. 27. tab. 10.

5. Ambrosia (*Arboreſcens*) foliis pinnatifidis hirſutis racemis ſolitariis terminalibus, caule fruticoſo perenne. *Ambroſia with hairy winged leaves, ſingle ſpikes of flowers growing at the extremity of the branches, and a ſhrubby perennial ſtalk.*

The firſt ſort grows naturally in Cappadocia, &c. near the ſea ſhore; this riſes about two feet and a half high, ſending out branches, garniſhed with leaves divided into many parts, and upon being handled emit a ſtrong odour. The ſpikes of flowers are produced from the wings of the ſtalks, which are long, ſingle, and hairy; the upper part being furniſhed with many male flowers, and the lower part with female flowers; theſe grow cloſe to the ſtalk. After the flowers are paſt, the female flowers are ſucceeded by hard leafy capſules having one cell, in which is included a ſingle round ſeed. This is an annual plant, which ſeldom perfects its ſeeds in England, unleſs the plants are brought forward in the ſpring; therefore the ſeeds ſhould be ſown in the autumn in a warm border, and when the plants come up in the ſpring, they ſhould be tranſplanted into another warm border of poor ground; for when theſe plants are put into rich moiſt land, they grow very luxuriantly, ſo do not flower till late in the ſeaſon. Therefore the beſt method to obtain good ſeeds, is to plant ſome of the plants in lime rubbiſh, to prevent their luxuriant growth, which will cauſe them to flower early, whereby good ſeeds may be obtained.

If the ſeeds ripen and are permitted to ſcatter, the plants will come up the following ſpring without care; for when the ſeeds are ſown in the ſpring, the plants ſeldom come up the ſame year, but will remain in the ground a year before they vegetate. There is not much beauty in this plant, ſo it is not often admitted to have a place in gardens, except in thoſe where a variety of plants are preſerved.

The ſecond ſort grows naturally in the iſlands of America, as alſo in Carolina and Virginia; from the two latter countries I have frequently received the ſeeds, and in the tubs of earth which came with plants from the former, the plants have come up in plenty, ſo is undoubtedly a common weed there. This grows more than three feet high, dividing into many branches; garniſhed with winged leaves in ſhape like thoſe of Mugwort; at the extremity of each branch, the looſe ſpikes of flowers are produced, compoſed of one long ſpike in the middle, and three or four ſhorter lateral ſpikes: theſe are ſmooth, and have male and female flowers ranged in the ſame manner as the former; the female flowers are ſucceeded by ſeeds of the ſame ſhape.

This ſort will come up and thrive in the open air in England, but the plants ſo raiſed will not produce good ſeeds, unleſs the ſeaſon is warm; therefore to obtain them every year, it is neceſſary to cultivate them in the following manner.

The ſeeds of this plant ſhould be ſown on a moderate hot-bed in March, and when the plants are come up two inches high, they muſt be tranſplanted into another moderate hot-bed, allowing each plant three or four inches ſquare; obſerving to water them pretty well, and ſhade them until they have taken new root; afterward they muſt have a large ſhare of freſh air every day, when the weather is warm, and frequent waterings, for they are very thirſty plants. When the plants are grown pretty ſtrong, they muſt be taken up with balls of earth to their roots, and planted in large pots filled with light earth; and if they are placed on a very moderate hot-bed until they are well rooted, it will greatly forward their flowering. Toward the latter end of May they ſhould be placed abroad with other hardy annual plants, among which they will make a variety. Theſe will flower in July, and their ſeeds ripen in September.

The third ſort is a native of North America, where it is a very common weed. This often grows eight or ten feet high; and if it is planted in a rich moiſt ſoil, or is often watered, it will grow much higher, and ſpread out into many branches. The ſeeds of this plant, when ſown in the ſpring, ſeldom come up the firſt year, but frequently remain in the ground until the following ſpring; ſo that when the plants do not come up, the ground muſt not be diſturbed till after the ſpring following. When the plants come up, ſome of them may be tranſplanted into a moiſt rich ſoil, allowing them at leaſt four or five feet room every way; if they are frequently watered in dry weather, they will grow to a large ſize; but their branches muſt be ſupported by ſtakes, otherwiſe they are very ſubject to break with ſtrong winds. The flowers of this plant are not more conſpicuous than thoſe of the Hemp, to which theſe are near akin; therefore are only preſerved by ſuch perſons as are curious in botany, for the ſake of variety. If the ſeeds of this ſort ripen and are ſuffered to ſcatter, the plants will come up the following ſpring, provided the ground is not diſturbed; or if the ſeeds are ſown in autumn, the plants will come up the following ſpring, and may be treated as above.

The fourth ſort grows naturally in North America, from whence I have frequently received the ſeeds. This divides into many branches, the lower part of which are garniſhed with whole leaves, but the upper part hath compound leaves reſembling thoſe of the ſecond ſort; the ſpikes of flowers are produced from the wings of the ſtalks, in which this differs from the ſecond. This may be treated in the ſame manner as the ſecond ſort.

The fifth ſort is a native of Peru, from whence the younger Juſſieu ſent the ſeeds to the royal garden at Paris, and by the generoſity of his brother Dr. Barnard de Juſſieu, I was favoured with this plant, which has ſucceeded in the Chelſea garden, where it annually perfects its ſeeds.

This grows to the height of ten or twelve feet, with a woody ſtem, dividing into ſeveral branches, garniſhed with hairy leaves, compoſed of ſeveral winged lobes, and are placed alternately upon the branches; the ſpikes of flowers are ſingle, hairy, and are produced at the extremity of the branches. The female flowers (which are ſituated below the male, on the ſame ſpikes) grow in ſmall cluſters, at ſeparate diſtances, each having two long narrow ſegments of the empalement, which riſe above the capſule or ſeed veſſel.

This is a perennial plant, and may be propagated by cuttings or ſeeds; if by the former, they ſhould be planted in a ſhady border, in either of the ſummer months; theſe will require to be frequently watered: in a month or five weeks they will have good roots, therefore ſhould then be taken up and potted; for when they are left longer in the full ground, they will grow very luxuriant, and not ſo ſoon recover their removal, as thoſe which are tranſplanted earlier. Theſe plants are hardy, ſo may be expoſed to the open air in ſummer; and in the winter, if they are ſheltered in a common green-houſe, with Myrtles and other hardy exotic plants, they will live ſeveral years. In mild winters, the roots of this plant have lived in the full ground in a warm border, without any covering, but hard froſt will kill them.

The ſeeds of this ſort ſeldom come up the ſame year, when they are ſown in ſpring, but thoſe which have fallen in the autumn, have grown the following year, and ſo have thoſe which have been ſown at the ſame ſeaſon.

AMELANCHIER. See Chionanthus.

AMELLUS, Star-flower.

The Characters are,

The common flower-cup is round and ſcaly; the flower is of the compound radiated kind; the hermaphrodite flowers compoſe

compoſe the diſk, and the female the rays: the hermaphrodite are tubulous, with five ſegments; the female are tongue-ſhaped, divided into two or three ſegments; the firſt have five ſhort ſtamina, an oval germen with a ſlender ſtyle, and two ſtigmas; the female are like them. The flower-cup afterward contains one oval ſeed, crowned with hairy down.

This genus of plants is ranged by Dr. Linnæus in the ſecond ſection of his ninteenth claſs; the flowers of this ſection are compoſed of hermaphrodite florets in the center, and female in the circumference.

The Species are,

1. Amellus (*Lychnitis*) foliis oppoſitis lanceolatis obtuſis, pedunculis unifloris. Lin. Sp. 1276. *Star-flower with ſpear-ſhaped obtuſe leaves placed oppoſite, and one flower on each foot-ſtalk.*

2. Amellus (*Umbellatus*) foliis oppoſitis triplinerviis ſubtus tomentoſis, floribus umbellatus. Amœn. Acad. 5. p. 407. *Star-flower with oppoſite leaves having three veins, and flowers in umbels.*

The firſt ſort grows naturally at the Cape of Good Hope. It riſes from two to three feet high, ſending out branches on every ſide, garniſhed with ſpear-ſhaped leaves placed oppoſite, terminated by flower-ſtalks, each ſupporting one Violet-coloured flower, with a yellow diſk, ſhaped like thoſe of the Aſter, which appear in July or Auguſt.

This is a perennial plant, which is eaſily propagated by cuttings, which, if planted in ſhade during any of the ſummer months, and duly watered, will put out roots; theſe ſhould be taken up with balls of earth to their roots, and planted in pots, that they may be ſheltered in winter, either under a common frame, or in a green-houſe, where they may have plenty of air in mild weather, otherwiſe they will draw up weak and have little beauty.

The ſecond ſort grows naturally in Jamaica; this hath hoary ſtalks which riſe two feet high, ſending out ſide branches, which are garniſhed with oval leaves placed oppoſite; the flowers which terminate the branches grow in ſmall umbels, but theſe have little beauty. It may be propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring; when the plants are fit to remove, two or three of them ſhould be planted in pots, then plunged into a hot-bed of tan, to bring them forward to get ripe ſeeds in the autumn, otherwiſe the plants will require a ſtove in winter.

AMENTACEOUS flowers [of *Amentum*, *Lat.* a ſtring, thong, or latchet] are ſuch as have an aggregate of ſummits, hanging down in form of a rope, or cat's tail, which is alſo called an Iulus; as in Willows, Walnuts, Poplars, &c.

AMETHYSTEA. Lin. Gen. 32. Amethyſtina. Amman. Haller. Amethyſt.

The Characters are,

The flower hath a permanent bell-ſhaped empalement of one leaf, cut into five equal pointed ſegments at the brim; the flower is of one leaf, of the lip kind, divided into five unequal parts at the top; the upper leaf is erect, roundiſh, concave, and cut into two; the lower lip is cut into three parts, the middle ſegment being concave and of the ſame length with the upper lip, but the two ſide ſegments are ſhorter and erect. It hath two ſlender ſtamina, which ſtand under the upper lip, but are longer; theſe are crowned with roundiſh ſummits. In the center is ſituated a quadrifid germen, ſupporting a ſingle ſtyle, crowned with two acute ſtigma: after the flower is paſt, the germen becomes four naked ſeeds, ſhut up in the empalement.

This genus of plants is by Dr. Linnæus ranged in his ſecond claſs of plants, entitled Diandria Monogynia, the flower having two ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Amethystea. Hort. Upſal. 9. Amethyſtina montana erecta foliis exiguis digitatis trifidis ſerratis, floſculis cum comâ è cœruleo-janthinis. Amman. Ruth. 4. i. e. *Mountain upright Amethyſt, with ſmall, trifid, ſawed leaves, and the heads and flowers of a jacinth blue.*

This plant is a native of the mountains in Siberia, from whence the ſeeds were ſent to the imperial garden at Peterſburgh, where the plants flouriſhed and perfected their ſeeds, part of which were ſent me by the late Dr. Amman, which grew in the Chelſea garden, where the plants annually produce ſeeds.

It is an annual plant with an upright ſtalk, which riſes about a foot high; toward the top it puts out two or three ſmall lateral branches, garniſhed with ſmall trifid leaves, ſawed on their edges, of a very dark green colour; at the extremity of the branches the flowers are produced in ſmall umbels; they are of a fine blue colour, as are alſo the upper part of the branches, and the leaves immediately under the umbel; ſo that although the flowers are ſmall, yet from their colour with thoſe of the upper part of the ſtalks, the plants make a pretty appearance, during their continuance in flower. If the ſeeds of this plant are ſown in the autumn, or are permitted to ſcatter, the plants will come up early the following ſpring, and theſe will flower the beginning of June; but thoſe which are ſown in the ſpring, will not flower till July; and in dry ſeaſons, the ſeeds will remain in the ground a whole year, ſo that the beſt time for ſowing them is in the autumn.

When the plants come up, they will require no other care but to keep them clean from weeds, and where they are too cloſe to thin them; for they do not thrive when tranſplanted, therefore the ſeeds ſhould be ſown where they are to remain.

AMMANNIA. Houſt. Nov. Gen. Lin. Gen. Plant. 144.

The Characters are,

It hath a bell-ſhaped, oblong, erect, permanent empalement, having four angles, and divided at the brim into eight ſlender parts. The flower hath no petals, but four ſlender ſtamina which are as long as the empalement in which they are inſerted. Theſe are crowned with double ſummits. In the center is ſituated a large round germen, ſupporting a ſhort ſtyle crowned with a ſtigma; the empalement afterward becomes a round capſule with four cells, which are filled with ſmall ſeeds.

This genus is by Dr. Linnæus ranged in his fourth claſs of plants, entitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

The Species are,

1. Ammannia (*Latifolia*) foliis ſemiamplexicaulibus, caule tetragono. Hort. Cliff. 344. *Ammannia with a ſquare ſtalk, and leaves embracing it half round.* Ammannia paluſtris, caule quadrangulari foliis anguſtis. Houſt. MSS.

2. Ammannia (*Ramoſior*) foliis ſubpetiolatis caule ramoſa. Lin. Sp. Plant. 120. *Ammannia with leaves having ſhort foot-ſtalks and a branching ſtalk.* Ludvigia aquatica erecta caule rubente, foliis ad genicula binis longis anguſtis hyſſopi inſtar flore tetrapetalo albo. Clayt.

3. Ammannia (*Baccifera*) foliis ſubpetiolatis capſulis calyce majoribus coloratis. Lin. Sp. Plant. 120. *Ammania whoſe leaves have ſhort foot-ſtalks, and a coloured ſeed-veſſel larger than the flower-cup.*

The firſt ſort grows naturally in moiſt places in Jamaica, from whence Dr. Houſton ſent the ſeeds to England, which ſucceeded at Chelſea, and have from thence been diſtributed to moſt of the botanic gardens in Europe.

It grows about a foot and a half high, with an upright ſquare ſtalk, and long narrow leaves ſet in form of a triangle, whoſe baſe half ſurrounds it; theſe grow the whole length of the ſtem. They are of a pale green, and of the conſiſtence of thoſe of Purſlane; the ſtalks are alſo ſucculent, and of the ſame colour with thoſe of that plant. The flowers come out in whorles round the ſtalks, at the joints where the leaves adhere, in cluſters: theſe have no petals, ſo make no great appearance, and are ſoon ſucceeded by round ſeed-veſſels, which are full of ſmall ſeeds.

The plant muſt be raiſed on a hot-bed in the ſpring, and afterward removed to another hot-bed to bring it forward. When the plants have acquired ſtrength, they ſhould be tranſplanted into pots filled with rich light earth, and placed under a frame, obſerving to ſhade them till they have taken freſh root; then they ſhould be placed in a glaſs-caſe or ſtove to ripen their ſeeds, for the plants are too tender to thrive in the open air in this country, unleſs the ſummer proves very warm.

The ſecond ſort grows naturally in Virginia and Carolina; this is an annual plant, which riſes about a foot high, with red ſucculent ſtalks, putting out ſide branches, which grow oppoſite: the flowers are produced ſingle from the wings on the lower part of the branches, but toward the top they are in cluſters; theſe have no beauty, ſo are only preſerved in botanic gardens for the ſake of variety. This ſort will perfect its ſeeds in the open air, if the plants are raiſed on a hot-bed in the ſpring, and planted in a warm border.

The third ſort grows naturally in China; this is a very low plant, ſeldom riſing more than three inches high; the leaves are placed oppoſite on the branches, and the flowers grow in whorles from the wings of the ſtalk. As this plant has little beauty, it is rarely preſerved in gardens. It muſt be raiſed on a hot-bed in the ſpring, and treated in the ſame manner as the firſt ſort, with which management the ſeeds will ripen in England.

AMMI [Ἄμμι, *Gr.*] Biſhops-weed.

The CHARACTERS are,

It is an umbelliferous plant; the great umbel is compoſed of many ſmaller, which are diſpoſed like rays. The outer involucrum is compoſed of many narrow-pointed leaves, which are almoſt the length of the umbel. The ſmall umbels have a ſhort many-leaved involucrum. The flowers are difform, each having five petals, which are heart-ſhaped; thoſe in the outer rays being large and unequal in ſize, but thoſe in the center, which compoſe the diſk, are nearly equal. The flowers have five ſlender ſtamina, which are crowned with roundiſh ſummits. In the center of the empalement is ſituated the germen, ſupporting two reflexed ſtyles, crowned with obtuſe ſtigma. The germen afterward becomes a ſmall, round, ſtriated fruit, compoſed of two ſeeds, which are plain within and convex on their outſide.

This genus of plants is by Dr. Linnæus ranged in the ſecond ſection of his fifth claſs, entitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The SPECIES are,

1. AMMI (*Majus*) foliis inferioribus pinnatis lanceolatis ſerratis, ſuperioribus multifidis linearibus. Hort. Upſal. 59. *Biſhops-weed with under leaves, which are winged, ſpear-ſhaped, and ſawed, and the upper leaves are divided into many narrow ſegments.* This is the Ammi majus. C. B. P. 159. And the Ammi vulgare. Dod. p. 415. *Common Biſhops-weed.*
2. AMMI (*Glaucifolium*) foliorum omnium lacinulis lanceolatis. Guett. 2. p. 433. i. e. *Biſhops-weed with all its leaves cut in ſhape of a ſpear.* Ammi petræum glaucifolium perenne. Mor. Hiſt. 3. p. 295.

The firſt ſort is annual; of this there is a variety, which is mentioned by John Bauhin as a diſtinct ſpecies, under the title of Ammi majus foliis plurimum inciſis & nonnihil criſpis; but I have frequently had this variety ariſe from the ſeeds of the former, ſo I have not enumerated it as a different ſort.

This plant is propagated by ſeeds, which ſhould be ſown in the autumn in the place where it is to remain; and in the ſpring, the ground ſhould be hoed to cut up the weeds, and alſo to thin the plants in the ſame manner as is practiſed for Carrots, leaving them four or five inches aſunder; or if the ground is good where they grow, they muſt be left at leaſt ſix inches, for they will grow large and cover the ground; after this they will require no farther care, but to keep them clean from weeds. In June they will flower, and their ſeeds will ripen in Auguſt, which ſhould be gathered as it ripens, otherwiſe it will ſoon ſcatter. Theſe ſeeds are uſed in medicine, ſo may be had in plenty with this management; for it will grow in any ſituation that is open, but thrives beſt on light ſandy land. When the ſeeds are ſown in the ſpring, they ſeldom come up the ſame year; and if they ſhould, thoſe plants will be weak and produce few ſeeds.

The ſecond ſort is a perennial plant, which is preſerved in botanic gardens for variety, but having little beauty, is rarely admitted into other gardens. It may be propagated by ſeeds, which ſhould be ſown in the autumn, becauſe thoſe ſown in the ſpring, ſeldom come up the ſame year. It will grow in any open ſituation, is very hardy, and thrives beſt on a moiſt ſoil.

AMMI PERENNE. See SIUM.

AMOMUM. Lin. Gen. Plant. 2. Zinziber. C. B. P. 35. Ginger.

The CHARACTERS are,

The flowers are collected into a ſcaly ſpike, each having a double (ſpatha) or ſheath; the outer ſheath looſely covers the ſcale, and the inner encompaſſes the tube of the flower with the parts of generation: the flower is of one leaf, tubulous below, but divided into three parts at the brim, the middle ſegment being longer and broader than the others. In the boſom of the flower is ſituated an oblong thick nectarium. From the tube of the flower ariſes two ſlender ſtamina, which are crowned with thick ſhort ſummits. Under the receptacle of the flower is placed the round germen, ſupporting a ſingle ſtyle, which is as long as the tube of the flower, crowned with a hairy ſtigma. The germen afterward becomes an oval three-cornered ſeed-veſſel, opening in three parts, containing ſeveral ſeeds.

This genus of plants is by Dr. Linnæus ranged in his firſt claſs, entitled Monandria Monogynia; but it more properly belongs to his ſecond, for the flowers of this have two ſtamina, one of which is joined to the upper ſegment of the flower, and this ſoon loſes it ſummits, ſo appears to be only a ſegment. This I have conſtantly found in all the flowers which I have examined; the flowers have but one ſtyle.

The SPECIES are,

1. AMOMUM ſcapo nudo ſpicâ ovato. Hort. Cliff. 3. *Amomum with a naked ſtalk and oval ſpike of flowers.* Zinziber. C. B. P. 35. *Ginger.*
2. AMOMUM ſcapo nudo ſpicâ oblongâ obtuſâ. Hort. Cliff. 3. *Amomum with a naked ſtalk and an oblong blunt flower-ſpike.* Zinziber latifolium ſylveſtre. Hort. Lugd. 636. *Broad-leaved wild Ginger, called Zerumbet.*
3. AMOMUM ſcapo bracteis alternis laxis, caule foliorum altiſſimo. *Amomum with flower-ſtalks looſely branching alternately, and very tall leaf-ſtalks.*

The firſt, which is the common Ginger, is cultivated for ſale in moſt of the iſlands of America, but is a native of the Eaſt-Indies, and alſo of ſome parts of the Weſt-Indies, where it is found growing naturally without culture. The dried roots of this ſort furniſh a conſiderable export from the Britiſh colonies in America. The roots are of great uſe in the kitchen, as alſo in medicine; and the green roots preſerved as a ſweatmeat, are preferable to every other ſort.

The roots of this ſort are jointed, and ſpread in the ground; theſe put out many green reed-like ſtalks in the ſpring, which riſe to the height of two feet and a half, garniſhed with long narrow leaves, cloſely embracing the ſtalks at their baſe. The flower-ſtems afterward ariſe by the ſide of theſe, immediately from the root; theſe are naked, ending with an oblong ſcaly ſpike; from each of theſe ſcales is produced a ſingle blue flower, whoſe petals are but little longer than the ſquamoſe covering. The flowers appear in September, and in about a month after the ſtalks entirely decay, ſo that the roots remain inactive three or four months.

The ſecond ſort grows naturally in India; the roots of this are much larger than thoſe of the firſt, but are jointed in the ſame manner. The ſtalks grow from three, to near four feet high, garniſhed with oblong leaves, placed alternately, and embrace the ſtalks at their baſe. The flower-ſtems ariſe immediately from the root; theſe are terminated by oblong, blunt, ſcaly heads; out of each ſcale is produced a ſingle white flower, whoſe petals extend a conſiderable length beyond their ſcaly covering. Theſe appear in September, and in November all the ſtalks periſh in the ſame manner as the Ginger.

The third ſort hath thick fleſhy roots, reſembling thoſe of the large Flag Iris; in the ſpring theſe ſend forth many green reed-like ſtalks, which riſe to the height of ſeven or eight feet, garniſhed with very long narrow leaves, ſet alternately, cloſely embracing them at their baſe. The ſtalks decay entirely in autumn, and new ariſe from the roots in the ſpring, but it hath not produced any flowers as yet in England, though the roots thrive and increaſe greatly where they are properly managed.

All theſe ſorts are tender, and require a warm ſtove to preſerve them in this country. They are eaſily propagated by parting of their roots; the beſt time for doing this is in the ſpring, before they put out new ſhoots; for they ſhould not be tranſplanted in ſummer when they are in full vigour, nor do they ſucceed ſo well when they are removed in autumn, becauſe they remain long after in an inactive ſtate; and during that time, if wet comes to the roots, it often cauſes them to rot. When the roots are parted, they ſhould not be divided into ſmall pieces, eſpecially if they are deſigned to have flowers; for until the roots have ſpread to the ſide of the pots, they rarely put out flower-ſtems, for which reaſon they ſhould not be planted in very large pots.

Theſe plants thrive beſt in a light rich earth, ſuch as may be found in the kitchen-garden; with this the pots ſhould be filled within two inches of the top, then the roots ſhould be placed in the middle of the pots, obſerving that their crowns are upwards, and the pots filled up with the ſame rich earth; after this the pots ſhould be plunged into a hot-bed of tanners bark, and muſt be ſparingly watered, until their ſtalks appear above ground, when they will require a greater ſhare of moiſture, eſpecially during the warm ſummer months; but in autumn the waterings muſt not be often, nor in great plenty; and during the winter ſeaſon, when the roots are inactive, very little water ſhould be given them. The pots with theſe roots ſhould conſtantly remain plunged in the tan-bed, for if they are taken out and placed on ſhelves in the ſtove, their fibres frequently ſhrink, which often occaſions the roots to decay.

With this management all theſe ſorts have multiplied greatly with me, and the common Ginger has produced roots which have weighed five or ſix ounces, but the others have been near a pound weight.

AMOMUM PLINII. See Solanum.

AMORIS POMUM. See Lycopersicon.

AMORPHA. Lin. Gen. Plant. 768. Baſtard Indigo.

The Characters are,

The flower hath a permanent empalement of one leaf, which is tubulous, cylindrical, and cut into five ſmall obtuſe parts at the brim. The flower is of the butterfly kind; the upper petal, or ſtandard, is ſmall, concave, and erect; this is inſerted between the two upper ſegments of the empalement. It hath ten ſtamina, joined at their baſe, of unequal lengths, and crowned with ſummits; in the center is ſituated a roundiſh germen, ſupporting an awl-ſhaped ſtyle, which is the length of the ſtamina, and crowned with a ſingle ſtigma; the germen afterward becomes a reflexed moon-ſhaped pod, having one cell, in which are lodged two kidney-ſhaped ſeeds.

This genus is by Dr. Linnæus ranged in his ſeventeenth claſs of plants, entitled Diadelphia Decandria; the flowers of this claſs have ten ſtamina, nine of which are joined, and one ſtands off.

We know but one Species of this genus, viz.

Amorpha (*Fruticoſa*). Hort. Cliff. 353. *Baſtard Indigo.* Barba Jovis Americana pſeudoacaciæ foliis floſculis purpureis minimis. Cat. Hort. Chelſ. 11.

This ſhrub grows naturally in Carolina, where formerly the inhabitants made a coarſe ſort of Indigo from the young ſhoots, which occaſioned their giving it the title of Baſtard Indigo.

It riſes with many irregular ſtems, to the height of twelve or fourteen feet, garniſhed with very long winged leaves, in ſhape like thoſe of the common Acacia. At the extremity of the ſame year's ſhoots, the flowers are produced in long ſlender ſpikes, which are ſmall, and of a deep purple colour; the ſtamina ſtand out beyond the petals, and are crowned with yellow ſummits; after the flowers are paſt, the germen turns to a ſhort pod, having two kidney-ſhaped ſeeds, but theſe do not ripen in England.

The ſeeds of this plant were ſent to England from Carolina, by Mr. Mark Cateſby, F. R. S. in 1724, from which many plants were raiſed in the gardens near London; theſe were of quick growth, and many of the plants produced flowers in three years. At preſent it is become very common in all the gardens and nurſeries, where it is propagated as a flowering ſhrub, for the ornament of the ſhrubbery. It is generally propagated by ſeeds, which are annually ſent to England from different parts of America; for it is found in many of the northern colonies there, and it may alſo be propagated by laying down of the young branches, which in one year will make good roots, and may then be taken off and planted either in the nurſery, or the places where they are deſigned to remain. If they are put into a nurſery, they ſhould not remain there more than one year; for as the plants make large ſhoots, they do not remove well when they have remained long in a place: they muſt have a ſheltered ſituation, otherwiſe their branches will be broken by the winds. As theſe ſhoots are large and ſoft, their upper parts are generally killed by froſt in winter, but they put out ſhoots again in plenty below the dead part the ſpring following.

AMPHITHEATRE [Ἀμφιθέατρον of ἀμφὶ, around, and θεάομαι, to view, *Gr.*] or temples of view erected on a double riſing, were eſteemed great ornaments to a large and noble garden. If this hill, or riſing ground, is of a ſemicircular figure, it will be ſtill the better.

Theſe amphitheatres are ſometimes formed of Evergreens, as Hollies, Phillyreas, Lauruſtinuſes, Bays, &c. obſerving to plant the ſhorteſt growing ſhrubs in the front, and the talleſt trees behind, as Pines, Firs, Cedars of Lebanon, &c.

They are alſo formed of ſlopes on the ſides of hills, and covered with turf, but are now generally excluded by all perſons of true taſte; for the natural eaſy ſlope of ſuch hills, is infinitely more beautiful than the ſtiff angular ſlopes into which theſe amphitheatres are commonly cut.

AMYGDALUS. Lin. Gen. Plant. 545. [Ἀμύγδαλος, *Gr.*] The Almond-tree.

The Characters are,

It hath a tubulous empalement of one leaf, which is cut at the brim into five obtuſe ſegments; the flower hath five oval, obtuſe, concave petals, which are inſerted in the empalement; in the center of the outer flower is ſituated a roundiſh hairy germen, ſupporting a ſingle ſtyle the length of the ſtamina, which is crowned by a round ſtigma; this is attended by a great number of ſlender erect ſtamina, which in many ſpecies are not ſo long as the petals of the flower, theſe are crowned with ſlender ſummits. After the flower is paſt, the germen becomes an oval, compreſſed, large fruit, with a thin, tough, hairy covering, having a longitudinal furrow; this opens and falls away, leaving an oval compreſſed nut, which is furrowed and netted, incloſing a ſingle ſeed of the ſame form.

Dr. Linnæus has joined to this genus the Perſica, or Peach-tree, making them only different ſpecies, ranging it in his twelfth claſs, entitled Icoſandria Monogynia; the flowers having from twenty to thirty ſtamina, which are inſerted to the empalement.

The Species are,

1. Amygdalus (*Communis*) foliis petiolatis ſerratis petalis florum emarginatis. *Almond-tree with ſawed leaves, having foot-ſtalks, and the petals of the flower indented.* Amygdalus ſativa. C. B. P. 441. *Common Almond-tree.*
2. Amygdalus (*Dulcis*) foliis petiolatis marginibus crenatis, corollis calyce vix longioribus. *Almond-tree with*

with crenated leaves, having foot-ſtalks, and the petals of the flowers no longer than the empalement. Amygdalus dulcis putamine molliori. C. B. P. 441. *Commonly called Jordan Almond.*

3. Amygdalus (*Sativus*) foliis lineari-lanceolatis acuminatis, marginibus crenatis. *Almond-tree with pointed, narrow, ſpear-ſhaped leaves, crenated on their edges.* Amygdalus ſativa flore albo.

4. Amygdalus (*Orientalis*) foliis lanceolatis integerrimis, argenteis perennantibus petiolo breviore. *Almond-tree with ſpear-ſhaped ſilvery leaves, which are entire, and continue all winter, and very ſhort foot-ſtalks.* Amygdalus Orientalis foliis argenteis ſplendentibus. Du Hamel.

5. Amygdalus (*Nana*) foliis petiolatis ſerratis baſi attenuatis. *Almond with ſawed leaves, which are narrowed at the foot-ſtalk.* Amygdalus Indica nana. Pluk. Alm. 28. tab. 11. *Dwarf Almond with ſingle flowers.*

The firſt is the common Almond, which is cultivated more for the beauty of its flowers, than for its fruit. There are two varieties of this, one with ſweet, the other bitter kernels, which often ariſe from the fruit of the ſame tree.

The ſecond ſort is commonly known by the title of Jordan Almonds; the nuts of this kind are frequently brought to England; theſe have a tender ſhell, and a large ſweet kernel. The leaves of this tree are broader, ſhorter, and grow much cloſer than thoſe of the common ſort, and their edges are crenated. The flowers are very ſmall, and of a pale colour, inclining to white. I have ſeveral times raiſed theſe trees from the Almonds which came from abroad, and always found the plants to maintain their difference from the common Almond.

The third ſort hath narrow ſharp-pointed leaves, which are ſawed on their edges; the flowers are much ſmaller than thoſe of the common Almond, and are white; the ſhoots of this tree are ſmaller, and the joints cloſer than thoſe of the common ſort, nor is the tree ſo hardy, therefore ſhould have the advantage of a warm ſituation, otherwiſe it will not thrive. This ſort flowers early in the ſpring, and rarely produces fruit in England. But from an old tree which grew againſt a ſouth-weſt aſpected wall, I have ſome years had the fruit ripe, which were well flavoured, but their kernels were ſmall.

The fourth ſort was found growing near Aleppo, from whence the fruit was ſent to the duke D'Ayen in France, who raiſed ſeveral of the plants in his curious garden at St. Germains, and was ſo good as to ſend me a ſhare of them, which are flouriſhing in the Chelſea garden, where they have endured the open air for ſome years, againſt a wall, without any covering. The leaves of this tree are ſilvery, and very like thoſe of the Sea Purſlane. Theſe continue moſt of the year; the flowers are very ſmall, and have not been ſucceeded by fruit yet in England. I can give no farther account of its difference from the other ſorts.

The fifth ſort is very common in the nurſeries about London, and is uſually ſold with other flowering ſhrubs to adorn gardens: this ſeldom riſes more than three feet high, ſending out many ſide branches. The roots of this are very ſubject to put out ſuckers, by which it may be increaſed in plenty, but if theſe are not annually taken away, they will ſtarve the old plants. As theſe ſuckers are very apt to creep at the root, and put out ſuckers again, thoſe plants which are propagated by layers are much preferable. This ſhrub flowers in April, at which time all the young ſhoots are covered with flowers, which are of a Peach bloſſom, and make a fine appearance when intermixed with ſhrubs of the ſame growth.

The common Almond is cultivated in all the nurſeries, and the trees are generally planted for the beauty of their flowers. Theſe often appear in February, when the ſpring is forward, but if froſt comes after, the flowers are ſoon deſtroyed, ſo that their beauty is of ſhort duration, and in ſuch ſeaſons there are few of the Almonds which bear fruit; whereas, when the trees do not flower till March, they ſeldom fail to bear plenty of fruit, many of which will be very ſweet, and fit for the table when green, but they will not keep long.

They are propagated by inoculating a bud of theſe trees into a Plumb, Almond, or Peach ſtock, in the month of July (the manner of this operation ſee under the article of Inoculation). The next ſpring, when the buds ſhoot, you may train them up either for ſtandards, or ſuffer them to grow for half ſtandards, according to your own fancy; though the uſual method is to bud them to the height the ſtems are intended to be; and the ſecond year after budding, they may be removed to the places where they are to remain. The beſt ſeaſon for tranſplanting theſe trees, if for dry ground, is in October, as ſoon as the leaves begin to decay; but for a wet ſoil, February is much preferable, and obſerve always to bud upon Plumb ſtocks for wet ground, and Almonds and Peaches for dry.

ALMOND, the Dwarf, with double flowers. See Persica.

AMYRIS. See Toxicodendron.

ANACAMPSEROS. See Sedum.

ANACARDIUM. Lin. Gen. Plant. 467. Acajou. Tourn. Inſt. R. H. 658. tab. 435. The Caſhew-nut, or Acajou.

The Characters are,

It hath an empalement of one leaf, which is erect, and cut into five acute ſegments at the brim. The flower is of one leaf, having a ſhort tube, cut into five parts at the top, which are reflexed, and are longer then the empalement; the flower hath ten ſlender ſtamina, which are as long as the petal, crowned with ſmall ſummits. In the center is placed a round germen, ſupporting an awl-ſhaped ſtyle, crowned with an acute ſtigma. The germen afterward becomes a large, oval, fleſhy fruit, having a large kidney-ſhaped nut growing to its apex.

This genus of plants is by Dr. Linnæus ranged in the firſt ſection of his tenth claſs, entitled Decandria Monogynia; the flowers of this having ten ſtamina and a ſingle ſtyle.

We have but one Species of this genus, viz.

Anacardium (*Occidentale*) Hort. Cliff. 161. *the occidental Anacardium, or Caſhew.* Acajou. Piſ. Hiſt. Braſ. 58.

This tree grows to the height of twenty feet or more, in its native country, which is both Indies, but in England the plants are with great difficulty preſerved; though by their firſt ſhoot from the ſeeds, they appear ſo ſtrong and vigorous, as to promiſe a much greater progreſs than they are ever ſeen to make.

They are eaſily raiſed from the nuts, which are annually brought from America in great plenty; each of theſe ſhould be planted in a ſmall pot filled with light ſandy earth, and plunged into a good hot-bed of tanners bark, being careful to prevent their having wet, till the plants come up, for the nuts frequently rot with moiſture. The reaſon of my adviſing the nuts to be each put into a ſeparate pot, is, becauſe the plants ſeldom live when they are tranſplanted. If the nuts are freſh, the plants will come up in about a month after planting, and in two months more they will be four or five inches high, with large leaves; from this quick growth, many perſons have been deceived by ſuppoſing them hardy, and that they would continue the like progreſs, whereas they ſeldom advance much farther the ſame year.

The plants muſt be conſtantly kept in the ſtove, for they are too tender to live abroad in England, in the warmeſt ſeaſon of the year, nor will they thrive in a common green-houſe in ſummer. As theſe plants abound with a milky acrid juice, they ſhould have but little water, even in ſummer; and in winter, if they are ſparingly watered once in a fortnight, it will be ſufficient, for their roots are tender and ſoon periſh with moiſture.

When theſe plants are tranſplanted, it will be the beſt method to break the pots, for the roots do not put out many fibres to hold the earth about them, ſo that in ſhaking them out of the pots, moſt of the earth will fall away from their roots, and when this happens, the plants ſeldom ſurvive it; therefore in breaking of the pots, the ſame caution muſt be had not to diſturb the earth more than can be avoided; then the plant, with the ball of earth to its roots, ſhould be put into a pot one ſize larger than that in which it had before grown, filling up the pot with light ſandy earth, and plunge the pots again into the hot-bed. Theſe plants ſhould not be removed oftener than once a year, nor ſhould they be put into large pots, for unleſs their roots are confined, they will not thrive.

With this management I have kept theſe plants ſeveral years, but they are of ſlow growth after the firſt ſeaſon, ſo that I have not raiſed any of them more than two feet and a half high, and it is very rare to ſee them in England more than half that height, though I have ſeen two of them in flower, one in the late Sir Charles Wager's garden at Parſons-green, and the other in Chelſea garden.

The pulpy fruit, to whoſe apex this nut grows, is as large as an Orange, and is full of an acid juice, which is frequently mixed in the making of punch in America. Many of theſe fruit have been brought to England, in caſks of rum for the ſame purpoſe.

The nut is of the ſize and ſhape of a hare's kidney, but is much larger at the end which is next the fruit, than at the other. The outer ſhell is of an Aſh colour, and very ſmooth; under this is another which covers the kernel, between theſe there is a thick black inflammable oil, which is very cauſtic; this will raiſe bliſters on the ſkin, and has often been very troubleſome to thoſe who have incautiouſly put the nuts into their mouths to break the ſhell.

The milky juice of this tree will ſtain linen of a deep black, which cannot be waſhed out again; but whether this has the ſame property with that of the eaſtern Anacardium, has not yet been fully experimented; for the inſpiſſated juice of that tree is the beſt ſort of lac, which is uſed for ſtaining of black in China and Japan.

Dr. Grew mentions the juice being uſed for ſtaining of cottons, but it is doubtful which of the ſpecies he means; though Sir Hans Sloane ſuppoſes it to be of the Acajou here mentioned. However, it may be very well worth the trial; if the inhabitants of the Britiſh iſlands in America would tap a few of the trees in the bleeding ſeaſon, and collect the juice in earthen pots, keeping it in a place free from duſt, or covering the pots over with a linen cloth, to prevent duſt from mixing with it, and when it is of a proper conſiſtence, ſome trials may be made with it, to ſee if it has the ſame property with the Japan lac, which if it has, may prove a valuable commodity.

ANACYCLUS. Lin. Gen. Plant. 869. Santolinoides. Vall. Acad. Scien.

The CHARACTERS are,

It hath compound flowers, conſiſting of female and hermaphrodite florets, included in one common ſcaly empalement; the rays or borders being formed of the female florets, which are tubulous, and ſtretched out in the form of a tongue beyond the empalement. The hermaphrodite florets which compoſe the diſk, are funnel-ſhaped, quinquefid, and ſpread open; theſe have each five ſlender ſtamina, which are crowned with cylindrical ſummits; in the center is placed an oblong compreſſed germen, ſupporting a ſlender ſtyle, crowned with bifid ſtigma. The female florets have an oblong membraneous germen, ſupporting a ſlender ſtyle, crowned with two ſlender reflexed ſtigma; the hermaphrodite florets are ſucceeded by one oblong compreſſed ſeed. The female florets are ſucceeded by a ſingle oblong ſeed with broad borders or wings, which are indented at the top; theſe are placed on a convex receptacle.

This genus of plants is ranged by Dr. Linnæus in the third ſection of his nineteenth claſs, entitled Syngeneſia Polygamia ſuperflua. The plants of this diviſion have female and hermaphrodite flowers included in the ſame common empalement.

The SPECIES are,

1. ANACYCLUS (*Creticus*) foliis decompoſitis linearibus laciniis diviſis planis. Hort. Cliff. 417. *Anacyclus with narrow decompounded leaves, whoſe diviſions are plain.* Cotula cretica minima chamæmeli folio capite inflexo. Tourn. Cor. 37.
2. ANACYCLUS (*Orientalis*) foliis compoſitis ſetaceis acutis rectis. Hort. Cliff. 417. *Anacyclus with compound, briſtly, upright, pointed leaves.* Chamæmelum Orientale foliis pinnatis. Tourn. Cor. 37.
3. ANACYCLUS (*Valentinus*) foliis decompoſitis linearibus laciniis diviſis tretiuſculis acutis floribus floſculoſis. Hort. Cliff. 417. *Anacyclus with decompounded narrow leaves, whoſe diviſions are taper and pointed, and floſcular flowers.* Chryſanthemum Valentinum. Cluſ. Hiſt. 1. p. 332.

The two firſt ſorts grow naturally in the iſlands of the Archipelago, from whence Dr. Tournefort ſent their ſeeds to the royal garden at Paris. I have alſo received the ſeeds of both theſe plants from Portugal, ſo that it may alſo grow naturally there, as do many of thoſe plants which were diſcovered by Tournefort in the Levant. Theſe are low plants, whoſe branches trail on the ground. The firſt ſort has fine cut leaves like thoſe of Chamomile; the flowers are ſmall, white, and grow ſingle, with their heads declining; theſe are like thoſe of the common Mayweed. The ſecond hath winged leaves like thoſe of the Ox-eye; the flowers are white, and like thoſe of Chamomile.

The third ſort grows naturally in Spain, from whence I have received the ſeeds. This grows a foot and half high, ſending out many ſide branches; the leaves are finely divided like thoſe of Chamomile, and are hairy: the flowers grow ſingle at the extremity of the branches, and are of a bright yellow colour, with a ſilvery ſcaly empalement. Theſe are as large as thoſe of the Ox-eye.

All theſe plants are annual: the ſeeds ſhould be ſown early in the ſpring in a border of light earth, where they are deſigned to remain, and require no other care but to keep them clean from weeds, and thin the plants where they are too cloſe. As theſe have no great beauty, a few plants only may be left for the ſake of variety. They flower in July and Auguſt, and their ſeeds ripen in September.

ANAGALLIS. Lin. Sp. Plant. 189. Pimpernel.

The CHARACTERS are,

The empalement is permanent, cut into five ſharp ſegments, which are hollow. The flower is of one leaf ſpread open, and cut into five parts at the brim; it hath five erect ſtamina which are ſhorter than the petals, and are crowned with ſingle ſummits. In the center is placed the globular germen, ſupporting a ſlender inclining ſtyle crowned with a blunt ſtigma. The germen afterward becomes a globular veſſel with one cell, opening horizontally, in which are lodged ſeveral angular ſeeds.

This genus of plants is by Dr. Linnæus ranged in the firſt diviſion of his fifth claſs, entitled Pentandria Monogynia, the flowers having five ſtamina and one ſtyle.

The SPECIES are,

1. ANAGALLIS (*Arvenſis*) foliis indiviſis caule procumbente. Lin. Gen. Plant. 148. *Pimpernel with undivided leaves and a trailing ſtalk.* Anagallis Phœnicio flore. C. B. P. 252.
2. ANAGALLIS (*Fœmina*) foliis indiviſis glaucis caule procumbente flore cæruleo. *Pimpernel with undivided glaucous leaves, a trailing ſtalk, and blue flower.* Anagallis cæruleo flore. C. B. P. 252.
3. ANAGALLIS (*Monelli*) foliis indiviſis caule erecto. Lin. Sp. Plant. 148. *Pimpernel with an undivided leaf and upright ſtalk.* Anagallis tenuifolia Monelli. Cluſ. App.
4. ANAGALLIS (*Latifolia*) foliis cordatis amplexicaulibus, caulibus compreſſis. Lin. Sp. Plant. 149. *Pimpernel with heart-ſhaped leaves, embracing the ſtalks which are compreſſed.* Anagallis Hiſpanica latifolio flore cæruleo. Horteg.

The firſt ſort is very common in fields, and other cultivated places, in moſt parts of England. The ſecond ſort is ſometimes found wild in the fields, but is leſs common than the firſt in England. This is ſuppoſed to be only a variety of the firſt, but from thirty years cultivating it, I can affirm it never alters; and the plants before they ſhew their flowers are ſo different, as to be eaſily diſtinguiſhed from the firſt. There is a variety of this with a deeper blue flower, whoſe ſeeds I received from Nice, and this hath retained its colour for three years, during which time I have ſown it in the Chelſea garden.

Theſe are all annual plants which ariſe from ſeeds, and, if ſuffered to remain till their ſeeds ſcatter, will become weeds in the place; ſo that they are never cultivated, except in botanic gardens for variety. The firſt and ſecond ſorts are directed by the College of Phyſicians for medicinal uſe.

The third ſort is a very beautiful, ſmall, perennial plant, producing great numbers of fine blue flowers, in April and May: this may be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe; for if they are kept till ſpring, they do not always ſucceed: this plant requires to be ſheltered from extreme cold, which will ſometimes deſtroy it in winter.

The fourth ſort was ſent me from Spain by Mr. Hortega, intendant of the royal gardens at Madrid. This is a trailing annual plant, with broad leaves and blue flowers. It will eaſily riſe from ſeeds, and requires no other care but to keep the plants clean from weeds.

There are two varieties of the firſt ſort, one with a white, and the other a fleſh-coloured flower; but as they are not conſtant, I have not inſerted them as different ſpecies. There is alſo another with a worn-out purple flower, which has ſeveral years continued the ſame in the Chelſea garden; but as there is little difference in the leaves of this and the firſt, I have not enumerated it.

ANAGYRIS, Stinking Bean-trefoil.

The Characters are,

It hath a bell-ſhaped empalement, which is cut into five parts at the brim, the upper ſegment being much deeper cut than the others. The flower is of the butterfly kind, the ſtandard is heart-ſhaped, upright, broad, and indented. This is much longer than the empalement; the wings are oblong, plain, and longer than the ſtandard; the keel is long and upright: it hath ten ſtamina, which riſe diſtinct, and are equal, crowned with ſingle ſummits. In the center is placed an oblong germen, ſupporting a ſingle ſtyle, having a hairy ſtigma. The germen afterward becomes a large oblong pod, which is reflexed at the point, in which is lodged ſeveral kidney-ſhaped ſeeds.

Dr. Linnæus ranges this genus in his tenth claſs of plants, entitled Decandria Monogynia, the flower having ten ſtamina, and one ſtyle.

The Species are,

1. Anagyris (*Fœtida*) foliis ovatis floribus lateralibus. *Stinking Bean-trefoil with oval leaves, and flowers proceeding from the wings of the ſtalks.* Anagyris fœtida. C. B. P. 391.
2. Anagyris (*Cretica*) foliis oblongis racemis longioribus. *Stinking Bean-trefoil with oblong leaves, and longer ſpikes of flowers.* Anagyris fœtida Cretica oblongis foliis luteis floribus. Barrel. Icon.

The firſt ſort grows wild in the ſouth of France, in Spain and Italy: this is a ſhrub which uſually riſes to the height of eight or ten feet, and produces its flowers in April and May, which are of a bright yellow colour, growing in ſpikes, ſomewhat like thoſe of the Laburnum: the ſeeds are never perfected in this country, which is the reaſon of its preſent ſcarcity in England.

The other ſort is a native of Candia, and ſome of the iſlands of the Archipelago, and at preſent very rare in the Engliſh gardens. This ſort hath longer leaves than the former, and flowers later in the ſummer, ſo that it never produces ſeeds.

Theſe may be both propagated by laying down their tender branches in the ſpring, obſerving to tongue them in the ſame manner as the layers of Carnations, being careful in dry weather to ſupply them with water; which if duly performed, the layers will have taken root by the following ſpring, when they ſhould be cut off from the old plants, a little time before they begin to put out their leaves, and planted in a warm ſituation; for if they are too much expoſed to cold winds, they will be in danger of being deſtroyed in a hard winter. This method of propagating theſe plants, is to ſupply their defect in not producing ripe ſeeds in this country; for the plants which are produced from ſeeds, will be much handſomer, and will riſe to a much greater height.

If you propagate theſe plants from ſeeds, you ſhould ſow them on a moderate hot-bed the beginning of March. If the ſeeds are good, the plants will appear in a month after the ſeeds are ſown; when they ſhould be inured by degrees to the open air, into which they ſhould be removed toward the end of May, placing them in a ſheltered ſituation; for this purpoſe the ſeeds ſhould be ſowed in pots, and plunged into a hot-bed, becauſe the plants do not bear tranſplanting well till the ſpring following: and as they are impatient of cold while young, ſo the two firſt winters it will be proper to ſhelter them under a common frame, where the glaſſes may be drawn off every day in mild weather, that the plants may enjoy the open air, which will prepare them for planting abroad when they have acquired proper ſtrength: it will be very proper to keep theſe plants in pots three years, in which time they will have advanced to be in proper condition for planting them into the places where they are intended to remain; the beſt time for this is about the beginning of April, juſt before the plants begin to put out new leaves: at which time they ſhould be turned out of the pots, preſerving good balls of earth to their roots, planting ſome of them againſt warm aſpected walls, where they will not be in danger of ſuffering by froſt; and the others may be planted in warm ſituations, where, if they are protected in ſevere winters, by covering the ſurface of the ground about their roots with tanners bark, and ſcreening their heads with mats, they may be preſerved ſeveral years. The fourth year from ſeeds theſe plants will begin to produce their flowers, and will continue flowering every year after, ſo will be very proper to intermix with other flowering ſhrubs of the ſame growth in warm ſituations.

ANANAS, the Pine-apple.

The Characters are,

The flower conſiſts of three oval petals, which are produced from the protuberances of the pyramidal fruit, and are ſtretched out beyond the empalement. Theſe have ſix awl-ſhaped ſtamina, which ſtand within the flower, crowned with ſpear-ſhaped ſummits: the germen is ſituated below the flower, ſupporting a ſlender ſtyle, crowned with a trifid ſtigma. The germen afterward becomes a cell, in which is lodged ſeveral angular ſeeds.

Dr. Linnæus has joined this to the Bromelia of father Plumier, to which he has alſo added the Karatas of the ſame author, ſuppoſing them to be of the ſame genus; which miſtake he may have been led into by Plumier's figures, for he has joined the fruit of the Caraguata to the flowers of the Karatas, and *vice verſa*. The other differences will be exhibited under the article Karatas.

The Varieties of this are,

1. Ananas (*Ovatus*) aculeatus, fructu ovato, carne albida. Plum. *Oval-ſhaped Pine-apple, with a whitiſh fleſh.*
2. Ananas (*Pyramidalis*) aculeatus, fructu pyramidato, carne aurea. Plum. *Pyramidal Pine-apple, with a yellowiſh fleſh, called the Sugar-loaf Pine.*
3. Ananas (*Glabra*) folio vix ſerrato. Boerh. Ind. Alt. 2. 83. *Pine-apple with ſmooth leaves.*
4. Ananas (*Lucidus*) lucide virens, folio vix ſerrato. Hort. Elth. *Pine-apple with ſhining green leaves, and ſcarce any ſpines on their edges.*
5. Ananas (*Serotinus*) fructu pyramidato olivæ colore, intus aureo. *Pyramidal Olive-coloured Pine-apple, with a yellow fleſh.*
6. Ananas (*Viridis*) aculeatus, fructu pyramidato ex viridi flaveſcente. *The green Pine-apple.*

There are ſeveral other varieties of this fruit, ſome of which may have been obtained from ſeeds; and I doubt not but if the ſeeds were ſown frequently, in the countries where they are in plenty, there may be as great variety of theſe fruit, as there are of Apples or Pears in Europe. And this I have found true by ſome trials which I have made by ſowing the ſeeds, which have always produced a variety of ſorts from thoſe of the ſame fruit.

This fruit (which is juſtly eſteemed for the richneſs of its flavour, as it ſurpaſſes all the known fruits in the world), is produced from an herbaceous plant, which hath leaves ſomewhat reſembling thoſe of Aloe, and are, for the moſt part, ſawed on their edges, but are much thinner, and not ſo juicy as the Aloe: the fruit reſembles the cones of the Pine-tree, from whence it is ſuppoſed to have its name.

Where this plant is a native, I believe is hard to determine; but it is probably an indigenous plant in Africa, where, I have been informed, they grow in uncultivated places in great plenty. They have been long cultivated in the hotteſt iſlands of the Weſt-Indies, where they are in great plenty, and extraordinary goodneſs; but they have not been many years in the European gardens, ſo as to produce fruit: the firſt perſon who ſucceeded in this affair, was Monſieur Le Cour of Leyden in Holland, who, after a great many trials, with little or no ſucceſs, did at length hit upon a proper degree of heat and management, ſo as to produce fruit equally good (though not ſo large) as thoſe which are produced in the Weſt-Indies, as hath been often affirmed by perſons who have lived many years there: and it is to this worthy cultivator of gardening, who did not ſpare any pains or expence to accompliſh it, that all the lovers thereof are obliged, for introducing this king of fruits amongſt them; and it was from him that our gardens in England were firſt ſupplied, though we have ſince had large quantities brought from America. I cannot here avoid taking notice of a common error which prevails amongſt many people, which is, that the plants brought from America are not ſo good as thoſe which came from M. Le Cour; which is a great miſtake, for were the people who ſend over theſe plants from America careful to ſend the beſt kinds, there would be found many better than thoſe cultivated by M. Le Cour, who had his from thence at firſt, as his gardener aſſured me; and I have ſeen as good fruit produced from American plants, as any I have yet ſeen, and ſome three times larger than any I ſaw in M. Le Cour's garden.

The firſt ſort is the moſt common in Europe; but the ſecond ſort is much preferable to it, the fruit of this being larger, and much better flavoured: the juice of this ſort is not ſo aſtringent as that of the firſt, ſo that this fruit may be eaten in greater quantity with leſs danger. This frequently produces ſuckers immediately under the fruit, whereby it may be increaſed much faſter than the common ſort; ſo that in a few years, it may be the moſt common ſort in England.

The third ſort is preſerved by ſome curious perſons for the ſake of variety, but the fruit is not worth any thing. The ſixth ſort is at preſent the moſt rare in Europe, there being very few of the plants at preſent. This has been eſteemed the beſt ſort known, by ſome of the moſt curious perſons in America, many of whom have thrown out all the other ſorts from their gardens, and cultivate only this kind. The plants of this ſort may be procured from Barbadoes and Montſerrat, in both which places it is cultivated.

The ſort with very ſmooth graſs-green leaves, was raiſed from ſeeds taken out of a rotten fruit, which came from the Weſt-Indies to the late Henry Heathcote, Eſq; from whom I received one plant, which hath produced large fruit: this, I am told, is what the people of America call the King Pine. I have ſince raiſed ſome plants of this kind from ſeeds, which were brought me from Jamaica.

Theſe plants are propagated by planting the crowns which grow on the fruit, or the ſuckers which are produced either from the ſides of the plants, or under the fruit, both which I have found to be equally good; although by ſome perſons the crown is thought preferable to the ſuckers, as ſuppoſing it will produce fruit ſooner than the ſuckers, which is certainly a miſtake; for by conſtant experience I find the ſuckers (if equally ſtrong) will fruit as ſoon, and produce as large fruit as the crowns.

The ſuckers and crowns muſt be laid to dry in a warm place for four or five days, or more (according to the moiſture of the part which adhered to the old fruit;) for if they are immediately planted, they will rot, eſpecially the crowns. The certain rule of judging when they are fit to plant, is by obſerving if the bottom is healed over and become hard; for if the ſuckers are drawn off carefully from the old plants, they will have a hard ſkin over the lower part, ſo need not lie ſo long as the crowns, or thoſe whoſe bottoms are moiſt. But whenever a crown is taken from the fruit, or the ſuckers from old plants, they ſhould be immediately diveſted of their bottom leaves, ſo high as to allow depth for their planting; ſo that they may be thoroughly dry and healed in every part, leſt when they receive heat and moiſture, they ſhould periſh, which often happens when this method is not obſerved. If theſe ſuckers or crowns are taken off late in the autumn, or during the winter, or early in the ſpring, they ſhould be laid in a dry place in the ſtove, for a fortnight or three weeks before they are planted, but in the ſummer ſeaſon they will be fit for planting in a few days.

As to the earth in which theſe ſhould be planted, if you have a rich good kitchen-garden mould, not too heavy, ſo as to detain the moiſture too long, nor over light and ſandy, it will be very proper for them without any mixture: but where this is wanting, you ſhould procure ſome freſh earth from a good paſture; which ſhould be mixed with about a third part of rotten neats dung, or the dung of an old Melon or Cucumber-bed, which is well conſumed. Theſe ſhould be mixed ſix or eight months at leaſt before they are uſed, but if it be a year, it will be the better; and ſhould be often turned, that their parts may be the better united, as alſo the clods well broken. This earth ſhould not be ſcreened very fine, for if you only clear it of the great ſtones, it will be better for the plants than when it is made too fine. You ſhould always avoid mixing any ſand with the earth, unleſs it be extremely ſtiff, and then it will be neceſſary to have it mixed at leaſt ſix months or a year before it is uſed; and it muſt be frequently turned, that the ſand may be incorporated in the earth, ſo as to divide its parts: but you ſhould not put more than a ſixth part of ſand, for too much ſand is very injurious to theſe plants.

In the ſummer ſeaſon, when the weather is warm, theſe plants muſt be frequently watered, but you ſhould not give them large quantities at a time: you muſt alſo be very careful, that the moiſture is not detained in the pots, by the holes being ſtopped, for that will ſoon deſtroy the plants. In very warm weather they ſhould be watered twice or three times a week; but in a cool ſeaſon, once a week will be often enough: and during the ſummer ſeaſon, you ſhould once a week water them gently all over their leaves, which will waſh the filth from off them, and thereby greatly promote the growth of the plants.

There are ſome perſons who frequently ſhift theſe plants from pot to pot, but this is by no means to be practiſed by thoſe who propoſe to have large well flavoured fruit; for unleſs the pots be filled with the roots, by the time the plants begin to ſhew their fruit, they commonly produce ſmall fruit, which have generally large crowns on them, therefore the plants will not require to be potted oftener than twice in a ſeaſon: the firſt time ſhould be about the end of April, when the ſuckers and crowns of the former year's fruit (which remained all the winter in thoſe pots in which they were firſt planted) ſhould be ſhifted into larger pots, i. e. thoſe which were in halfpenny, or three-farthing pots, ſhould be put into penny, or at moſt three-halfpenny pots, according to the ſize of the plants; for you muſt be very careful not to over-pot them, nothing being more prejudicial to theſe plants. The ſecond time for ſhifting of them is in the beginning of Auguſt, when you ſhould ſhift thoſe plants which are of a proper ſize for fruiting the following ſpring, into two-penny pots, which are full large enough for any of theſe plants. At each of theſe times of ſhifting the plants, the bark-bed ſhould be ſtirred up, and ſome new bark added, to raiſe the bed up to the height it was at firſt made; and when the pots are plunged again into the bark-bed, the plants ſhould be watered gently all over their leaves, to waſh off the filth, and to ſettle the earth to the roots of the plants. If the bark-bed be well ſtirred, and a quantity of good freſh bark added to the bed, at this latter ſhifting, it will be of great ſervice to the plants; and they may remain in the ſame tan until the beginning of November, or ſometimes later, according to the mildneſs of the ſeaſon, and will require but little fire before that time. During the winter ſeaſon theſe plants will not require to be watered oftener than once a week, according as you find the earth in the pots to dry: nor ſhould you give them too much at each time, for it is much better to give them a little water often, than to over-water them, eſpecially at this ſeaſon.

You muſt obſerve never to ſhift thoſe plants which ſhew their fruit, into other pots; for if they are removed after the fruit appears, it will ſtop their growth, and thereby cauſe the fruit to be ſmaller, and retard its ripening, ſo that many times it will be October or November before the fruit is ripe; therefore you ſhould be very careful to keep the plants in a vigorous growing ſtate, from the firſt appearance of the fruit, becauſe upon this depends the goodneſs and ſize of the fruit; for if they receive a check after this, the fruit is generally ſmall and ill taſted.

When you have cut off the fruit from the plants, whoſe kind you are deſirous to propagate, you ſhould trim the leaves, and plunge the pots into a moderate hot-bed, obſerving to refreſh them frequently with water, which will cauſe them to put out ſuckers in plenty; ſo that a perſon may be ſoon ſupplied with plants enough of any of the kinds, who will but obſerve to keep the plants in health.

There is not any thing which can happen to theſe plants of a more dangerous nature, than to have them attacked by ſmall white inſects, which appear at firſt like a white mildew, but ſoon after have the appearance of lice: theſe attack both root and leaves at the ſame time, and if they are not ſoon deſtroyed, will ſpread over a whole ſtove in a ſhort time; and in a few weeks will entirely ſtop the growth of the plants, by ſucking out the nutritious juice, ſo that the leaves will appear yellow and ſickly, and have generally a great number of yellow tranſparent ſpots all over them. Theſe inſects, after they are fully grown, appear like bugs, and adhere ſo cloſely to the leaves, as not to be eaſily waſhed off, and ſeem as if they had no life in them. They were originally brought from America upon the plants which were imported from thence, and I believe they are the ſame inſects which have deſtroyed the ſugar canes of late years in ſome of the Leeward iſlands. Since they have been in England, they have ſpread greatly in ſuch ſtoves, where there has not been more than ordinary care taken to deſtroy them. They have alſo attacked the Orange-trees in many gardens near London, and have done them incredible damage; but I do not find they will endure the cold of our climate in winter, ſo that they are never found on ſuch plants as live in the open air. The only method I have been yet able to diſcover for deſtroying theſe inſects, is by waſhing the leaves, branches, and ſtems, of ſuch plants as they attack, frequently with water, in which there has been a ſtrong infuſion of Tobacco-ſtalks, which I find will deſtroy the inſects, and not prejudice the plants. But this method cannot be practiſed on the Ananas plants, becauſe the inſects will faſten themſelves ſo low between the leaves, that it is impoſſible to come at them with a ſponge to waſh them off; ſo that if all thoſe which appear to ſight are cleared off, they will ſoon be ſucceeded by a freſh ſupply from below, and the roots will be alſo equally infeſted with them. Therefore, wherever theſe inſects appear on the plants, the ſafeſt method will be, to take the plants out of the pots, and clear the earth from the roots; then prepare a large tub, which ſhould be filled with water, in which there has been a ſtrong infuſion of Tobacco-ſtalks; into this tub you ſhould put the plants, placing ſome ſticks acroſs the tub, to keep the plants immerſed in water. In this water they ſhould remain twenty-four hours; then take them out, and with a ſponge waſh off all the inſects from the leaves and roots, which may be eaſily effected when the inſects are killed by the infuſion; then cut off all the ſmall fibres of the roots, and dip the plants into a tub of fair water, waſhing them therein, which is the moſt effectual way to clear them from the inſects. Then you ſhould pot them in freſh earth, and having ſtirred up the bark-bed, and added ſome new tan to give a freſh heat to the bed, the pots ſhould be plunged again, obſerving to water them all over the leaves (as was before directed) and this ſhould be repeated once a week during the ſummer ſeaſon; for I obſerve theſe inſects always multiply much faſter where the plants are kept dry, than in ſuch places where the plants are ſometimes ſprinkled over with water, and kept in a growing ſtate. And the ſame is alſo obſerved in America, for it is in long droughts that the inſects make ſuch deſtruction in the ſugar canes. And in thoſe iſlands where they have had ſeveral very dry ſeaſons of late, they have increaſed to ſuch a degree, as to deſtroy the greateſt part of the canes in the iſlands, rendering them not only unfit for ſugar, but poiſon the juice of the plant, ſo as to diſqualify it for making rum, whereby many planters have been ruined.

As theſe inſects are frequently brought over from America on the Ananas plants which come from thence, thoſe perſons who procure their plants from thence, ſhould look carefully over them when they receive them, to ſee they have none of theſe inſects on them; for if they have, they will ſoon be propagated over all the plants in the ſtove where they are placed: therefore, whenever they are obſerved, the plants ſhould be ſoaked (as was before directed) before they are planted into pots.

It was formerly the common practice of thoſe perſons, who cultivated this fruit in Europe, to build dry ſtoves, in which they kept their plants in winter, placing the pots on ſcaffolds (after the manner in which Orange-trees are placed in a green-houſe), and in the ſummer to place them in hot-beds of tanners bark under frames. This was the method practiſed in Holland for raiſing this fruit, which by Monſieur Le Cour's gardener was firſt taught thoſe perſons, whom his maſter was ſo kind as to ſend the plants. But as the culture of theſe plants have ſince become general in England, there has been great improvements made, not only in the contrivances of the ſtoves, but alſo in the culture of the plants. For by the former method, the plants were kept upon ſhelves at leaſt four or five months, whereby the extreme fibres of their roots became dry and hard; for if the plants were too often watered, it occaſioned their rotting; ſo that during the winter ſeaſon, when the plants ſhould be preparing their fruit for the next ſummer, they were at a ſtand, making little or no progreſs, whereby the fruit did not appear early enough in the ſpring to ripen in ſummer, nor were the fruit ſo large.

Therefore, to remedy this inconvenience, it is now the practice of thoſe perſons who are deſirous to propagate the fruit, to erect low ſtoves, with pits therein for the hot-bed, in the manner hereafter deſcribed and figured; theſe are built in different ways, according to the fancy of the contriver. Some perſons build them with upright glaſſes in front, about four feet high, ſo that there is juſt height enough for perſons to walk upright on the back-ſide of the bark-bed. Others make but one ſlope of glaſſes, from the top of the ſtove down to the plate, which lies about ſix or eight inches above the bark-pit, ſo that in the front of this ſtove, there is no walk made between the bark-pit and the glaſſes; but the inconveniency of watering the plants, as alſo of coming near thoſe plants which are placed in the front of the ſtove to clean them, has, in ſome meaſure, brought them into diſeſteem, ſo that few perſons now build them, tho' the expence is much leſs than of the other kind of ſtoves; but of both theſe ſtoves the figures and deſcriptions which are hereafter exhibited under the article of ſtove, will be ſufficient for any perſon to build either of the ſorts. One of theſe ſtoves about thirty-five feet long in the clear, with the pit or the tan reaching from end to end, and ſix feet and a half wide, will contain about fourſcoure fruiting plants; ſo that whoever is deſirous to have this fruit, may eaſily proportion their ſtove to the quantity of fruit which they are willing to have.

But it will be alſo neceſſary to have a bark-pit under a deep frame, in order to raiſe the young plants; in which you ſhould plunge the ſuckers, when they are taken from the old plants, as alſo the crowns which come from the fruit, ſo that this frame will be as a nurſery to raiſe the young plants to ſupply the ſtove: but theſe plants ſhould not remain in theſe frames longer than till the beginning of November, unleſs the frame is built with brick-work with flues in it to warm the air (in the manner hereafter deſcribed and figured), which are very uſeful, as nurſeries, to keep the young plants till they are of a proper ſize to produce fruit; ſo that you may keep theſe either warmer or cooler than the ſtove, according as the plants may require, ſo that the ſtove may be every autumn filled only with bearing plants, whereby a much greater quantity of fruit may be annually produced, than can be where young and old plants muſt be crowded into the ſame ſtove. But where there are no conveniencies of this kind, the young plants, about the middle or latter end of October, muſt be removed into the ſtove, and being ſmall, may be crowded in among the larger plants; for as they will not grow much during the winter ſeaſon, they may be placed very cloſe together.

The beginning of March, where there is no nurſery for the young plants, they muſt be removed out into the hot-bed again, which ſhould be prepared a fortnight before, that the tan may have acquired a proper heat: but you ſhould be careful that the tan be not too hot, for that might ſcald the fibres of the plants, if they are ſuddenly plunged therein. Therefore if you find the bark too hot, you ſhould not plunge the pots above two or three inches into the tan, letting them remain ſo until the heat of the tan is a little abated, when you ſhould plunge the pots down to their rims in the bed. If the nights ſhould continue cold after theſe plants are removed into the bed, you muſt carefully cover the glaſſes with mats; otherwiſe by coming out of a warm ſtove, they may receive a ſudden check, which will greatly retard their growth, therefore muſt be carefully avoided; becauſe the ſooner the plants are ſet growing in the ſpring, the more time they will have to gain ſtrength, in order to produce large fruit the following ſeaſon.

You ſhould not plunge the pots too cloſe together in this frame, but allow them a proper diſtance, that the lower part of the plants may increaſe in bulk, for it is on this that the magnitude of the fruit depends; becauſe when the plants are placed too cloſe, they draw up very tall, but do not obtain ſtrength; ſo that when they are taken out of the bed, the leaves are not able to ſupport themſelves; but all the outward long leaves will fall down, leaving the ſmaller middle leaves naked, and this ſometimes will cauſe them to rot in the center. You muſt alſo obſerve, when the ſun is very warm, to raiſe the glaſſes of the hot-bed, in order to let out the ſteam of the bed, and to admit freſh air; for one neglect of this kind, in a very hot day, may deſtroy all the plants, or at leaſt ſo ſcald them, that they will not get over it in ſeveral months. It will be alſo very proper, in extreme hot weather, to ſhade the glaſſes in the middle of the day with mats; for the glaſſes, lying ſo near to the leaves of the plants, will occaſion a prodigious heat at ſuch times.

During the ſummer ſeaſon theſe plants muſt be frequently watered, giving them but little each time; and in hot weather, they muſt have free air admitted to them every day, from ten o'clock till four; for if they are kept too cloſe, or have too much wet, they will receive a check in their growth, when the inſects will immediately ſpread over them; for there are generally ſome of theſe inſects on all theſe plants, which do not much injury to them while they are in a growing ſtate; but whenever they are unhealthy, the inſects multiply greatly, and contribute to their decay. There are ſome perſons who regulate the heat of their ſtoves by thermometers in ſummer, but at that ſeaſon this is unneceſſary, for the outward air in hot weather is frequently greater than the Ananas heat marked on the thermometers, ſo that the heat of the ſtoves at that ſeaſon will be much greater. The uſe of the thermometer is only in the winter, during the time the fires are continued, by which it is eaſy to judge when to increaſe or diminiſh the fires; for at that ſeaſon, the ſtoves ſhould not be kept to a greater warmth than five or ſix diviſions above Ananas, nor ſuffered to be more than as many diviſions below it.

In winter the plants muſt have leſs water, but they will require to have it repeated once a week, giving them but little each time: when the plants are placed into the tan for the winter ſeaſon (which ſhould be done about the beginning of October) the tan-bed ſhould be renewed, adding two thirds of new tan, to one third of the old. If this be well mixed, and the new tan is good, the bed will maintain a proper degree of warmth till February, at which time it will be proper to ſtir up the bed, and add a load or two of new tan, ſo as to raiſe the bed as much as it ſunk ſince the autumn; this will give a freſh heat to the bed, and keep the plants growing; and as the fruit will now begin to appear, it will be abſolutely neceſſary to keep the plants in a growing ſtate, otherwiſe the fruit will not be large.

In April it will be proper to ſtir up the tan again, and if the bed has ſunk ſince the laſt ſtirring, it will be proper to add ſome freſh tan to it; this will renew the warmth of the bed, and forward the fruit. At this time it will be proper to ſhift the young plants, which are deſigned to produce fruit the following year; the tan-bed into which theſe are plunged muſt be renewed, in order to forward their growth, that they may have ſtrength enough in autumn to produce good fruit, for in this is the principal care required.

Thoſe plants which ſhew their fruit early in February, will ripen about June; ſome ſorts are at leaſt a month or five weeks longer in ripening their fruit than others, from the time of the appearance of the fruit: but the ſeaſon in which the fruit is in greateſt perfection, is from the beginning of July, to the end of September; though in March, April, and October, I have frequently eaten this fruit in pretty good perfection; but then the plants have been in perfect health, otherwiſe they ſeldom are well flavoured.

The method of judging when the fruit is ripe, is by the ſmell, and from obſervation; for as the ſeveral ſorts differ from each other in the colour of their fruit, that will not be any direction when to cut them; nor ſhould they remain ſo long as to become ſoft to the touch before they are cut, for then they become flat and dead, as they do alſo when they are cut long before they are eaten, therefore the ſureſt way to have this fruit in perfection, is to cut it the ſame day it is eaten; but it muſt be cut early in the morning, before the ſun has heated the fruit, otherwiſe it will be hot, obſerving to cut the ſtalk as long to the fruit as poſſible, and lay it in a cool, but dry place, preſerving the ſtalk and crown unto it, until it is eaten.

That ſort with green fruit, if ſuffered to ripen well, is of an Olive colour; but there are ſome perſons who cut them before they are ripe, when they are not fit to be eaten, for no other reaſon but to have them green: and although many perſons have much recommended this ſort for its excellent flavour, yet I think the Sugar-loaf ſort is much to be preferred to it.

This Sugar-loaf ſort is eaſily diſtinguiſhed from all the other, by its leaves having purple ſtripes on their inſide the whole length. The fruit is of a paler colour than the others when ripe, inclining to a ſtraw colour. This ſort was brought from Braſil to Jamaica, where it is eſteemed far beyond the other kinds.

The next in goodneſs to this, is what the inhabitants of the iſlands in America call the Montſerrat Pine; the leaves of this are of a dark brown, inclining to purple on their inſide; the protuberances of the fruit are longer and flatter than thoſe of the common ſort. I raiſed ſeveral plants of this ſort from ſeeds which I received from the iſland of St. Thomas, where this fruit is in greater perfection than in any of the Britiſh iſlands.

As ſome of the fruit produce ſeeds in England, when the greater number have no appearance of any, I doubt not whether there are not ſome with male, and others with hermaphrodite flowers; becauſe thoſe fruit which have ſeeds, are remarkably different from the others, when cut through the cells in which the ſeeds are lodged, lying nearer to the center of the fruit than the abortive cells, which are chiefly cloſe to the rind; but not having diſtinguiſhed this difference till the fruit was cut, I had no opportunity of examining their flowers.

I have continued this title of Ananas to the genus, being the moſt generally known and uſed, leſt by altering it, the practical gardeners ſhould be rather confuſed than inſtructed: and I was the rather inclined to this, as Dr. Linnæus has miſtaken the characters of the three genera, which he has joined in one. The different varieties are alſo enumerated, for the ſake of thoſe who cultivate the fruit, though they are not diſtinct ſpecies, but vary in their ſhape, colour, and flavour, the ſame as other fruits. Therefore, as this work is intended to inſtruct the practical gardener, the mentioning theſe varieties is more excuſable here, than in thoſe books which are only intended for the improvement of botany.

ANAPODOPHYLLON. See PODOPHYLLUM.

ANASTATICA, Roſe of Jericho.

The CHARACTERS are,

It hath a four leaved empalement, which falls off; the flower has four petals placed croſſwiſe, which ſpread open, whoſe tails are the length of the tube of the empalement, and ſix awl-ſhaped ſtamina, two of which are ſhorter than the other four, crowned with roundiſh ſummits, and a ſmall bifid germen, ſupporting an awl-ſhaped ſtyle the length of the ſtamina, and is permanent, crowned by a headed ſummit. The germen afterward becomes a ſhort bilocular pod, having an awl-ſhaped partition placed obliquely to the pod, and is longer.

We have but one SPECIES of this genus in the Engliſh gardens, viz.

ANASTATICA (*Hierocuntica*) foliis obtuſis, ſpicis axillaribus breviſſimis, ſiliculis ungulatis ſpinoſis. Lin. Sp. 895. *Roſe of Jericho with obtuſe leaves, ſhort ſpikes of flowers at the wings of the ſtalks, and prickly pods.*

This plant grows naturally in Paleſtine and Cairo, in ſandy places near the ſea. The ſtalks are ligneous though the plant is annual; it riſes five or ſix inches high, dividing into many irregular branches; the flowers which are ſmall and white, are diſpoſed in ſhort ſpikes at the wings of the ſtalks, and have little beauty; theſe are ſucceeded by ſhort prickly pods, having two cells, in each of which are two ſeeds.

It is preſerved in botanic gardens for the variety, and in ſome curious gardens for the oddneſs of the plant, which, if taken up before it is withered, and preſerved entire in a dry room, may be long preſerved; and after being many years kept in this ſituation, if the root is placed in a glaſs of water a few hours, the buds of flowers will ſwell, open, and appear, as if newly taken out of the ground, to the great ſurpriſe of moſt people.

The plant is annual, ſo can only be propagated by ſeeds, which rarely ripen in England, unleſs the ſeeds are ſown upon a hot-bed in the ſpring, and the plants afterward put into pots, which ſhould be plunged into another hot-bed to bring them forward; for although the ſeeds will come up in the full ground where the ſoil is dry, yet the plants rarely riſe to any ſize, nor do they perfect ſeeds unleſs the ſummer is very hot and dry: but if the plants are kept in a frame, giving them free air in warm weather, they will flower in June, and the ſeeds will ripen in September.

ANATOMY ['Ανατομία, of 'Ανατέμνω, *Gr.* to diſſect], a diſſection.

Anatomy of plants is a cutting, dividing, or ſeparating the parts or members of plants, in order to diſcover the ſize, form, ſtructure, and uſes of their ſeveral veſſels, for the better promoting their culture.

Anatomiſts have obſerved a great ſimilitude betwixt the mechanic frame of plants and animals: the parts of plants ſeeming to bear a conſtant analogy to thoſe of animals; and the œconomy, both vegetable and animal, ſeem to be formed on the ſame model.

The parts of a plant are the root, the wood, the bark, and the pith.

1. The roots of the plants are ſpongeous bodies, whoſe parts are diſpoſed for the eaſy admittance of certain humid particles, which are prepared in the ground. The quality of the root is found much to depend upon the ſize of its veſſels and pores.

Monſieur Renaume ſuppoſes the root of a plant to do the office of all the parts in the abdomen of animals, which ſerve to nutrition, as the ſtomach, inteſtines, &c.

Dr. Boerhaave conſiders the roots of plants to be compoſed of a number of abſorbent veſſels, which are analogous to the lacteals in animals.

The root, according to Dr. Van Royen, is that part of the plant by which the nutriment is taken in, or that by which the aliment is attracted, as Theophraſtus has defined it: but it is not all that part, which is committed to the earth, to be nouriſhed by the matter which is about it, which is properly to be called the trunk of the root; this is to be referred rather to the ſtalk or ſtem, than to the root, in that it conſiſts of the ſame implicated kinds of veſſels; but that part which is by its ſurface contiguous to the exterior matrix, which, being perforated with infinite little mouths, promotes the received moiſtures, that they may be afterwards carried, by veſſels not unlike to lacteal ones, into the very body of the plant; this is properly to be called the root.

Which definition, although it may ſeem too ſtrict, is the moſt general, and applicable to all plants; for it agrees as well with them which have no root, as the vulgar opinion is, as to thoſe which have a manifeſt root; of the former kind there are but very few plants, but of the latter a great many.

As to thoſe that want a manifeſt root, the ſuperficies of them is found to be perforated on all ſides with very ſmall holes, by which they take in their nutriment, as in the Pomo Aurantio, called Neptuni, or Pila Marina by fiſhermen, and many other ſubmarine plants; and in theſe the whole ſuperficies ſerves for roots, as is plainly ſeen in ſome ſtony plants that grow under the ſea, and may be in ſome ſort proved to be deduced from the analogy of animals; for theſe being become *ſui generis*, take in aliment, not only by the mouth, but alſo the whole ſurface, expoſed to the moiſt air, ſeems to ſerve to the ſame deſign. But although theſe ſubmarine bodies have, by moſt naturaliſts, been ranged with vegetables; yet, by later diſcoveries, many of them have been found to conſiſt of beds of inſects, incloſed in ſmall cavities of theſe incruſted bodies, therefore ſhould rather be ranged with minerals.

But thoſe plants that are endued with a conſpicuous root, and more obvious to the ſenſes, differ among themſelves very much in this part: for ſome are bulbous, ſome are ſquamous, or tuberous, others grumous, others fibrous, and laſtly, others nodous; which, as it will be ſufficient to have taken notice of the primary differences of roots, I ſhall omit their particular definition in this place, and refer them to their ſeveral heads, where each of them ſhall be particularly deſcribed.

The firſt part of the root, which is called the Epidermis, or cuticle, is, for the moſt part, of a brown or duſky colour, very thin, and eaſily peeled off from the under ſkin (if it be firſt ſoaked in warm water); which being viewed by a microſcope, ſhews its moſt tender ſtructure much like a net pierced through with many ſmall holes. And theſe little orifices of the epidermis being dilated, and filled with the received moiſture, reſembling veſicles, which, being exhauſted yearly by the mutation of the air, become conſolidated, and periſh; to wit, this being driven out by a new cuticle growing under it, after the ſame manner as ſquammigerous animals annually caſt the old epidermis, a new cuticle coming under it; ſo that theſe little veſſels, fibrils, or by what name ſoever they are called, may not unfitly be compared to the veins of animals.

But the other part, which on the outſide conſtitutes the cortex, or outer bark, and on the inſide the liber, or inner bark, is called cutis; in which there are parts to be conſidered of a four-fold kind.

1. Certain ſtrong fibres, cohering and elaſtic, ſtretched out vertically with the lateral fibres communicating among themſelves, and compacting, or thruſting in the former, they form a hollow cylinder, or zone, under the epidermis; and this hath another under it, which alſo includes a third; and ſo of the reſt, to the moſt inward of all, which luxuriates near the wood, and is by a peculiar name called liber, or inward bark. And theſe zones, or girdles, although they are moſt innumerable, may all be peeled off as the lamellæ of bulbs, when the ſap flows through them; and inaſmuch as thoſe fibres in the harder roots of trees are almoſt of a bony nature, they procure a firmneſs to the cortex or outward bark; and theſe fibres are in all plants, and appear as well in graſs as in the Cedar tree, although they are more compact in trees, than in plants of a tenderer ſtructure, which are more eaſily ſuſtained.

2. In the areas, or ſpaces, which are between the fibres and their anaſtomoſes, there are every where membranaceous veſſels full of moiſture, or little utricles, which, in the areæ, or intercepted ſpaces that are of a different figure, are found to be various, and accommodated to all the ſpaces; but all theſe utricles communicate among themſelves, as is beſt ſeen in the greater celandine, when we ſqueeze out that golden coloured liquor with which it is filled; and the middle ſpaces betwixt theſe zones have like utricles, and all the fibres conſtitute hollow canals; but the utricles have receptacles communicating among themſelves.

3. Aereal veſſels, or tracheæ, are open from the lower to the upper part of the plant, and are twiſted or curled after an admirable manner, and diſpoſed round about with fibres and utricles in form almoſt of a ſpiral line, which in their cavities contain an elaſtic air; which being affected by the external air, firſt expanded, and afterwards condenſed, will be changed after a like manner, and feel the ſame viciſſitudes of cold and heat, and will undergo a reciprocal motion of cold and heat. This action is exerted in the veſſels filled with moiſture, which when they cannot be condenſed, give place, and are driven to thoſe that are higher, and are moved forward.

4. Laſtly, beſides fibres, utricles, and tracheæ, a peculiar kind of veſſels appear, containing the moiſtures, as it ſeems ſecreted by the organical diſpoſition of the plant itſelf, which water, or moiſten not only the cortex, but the wood, and the reſt of the parts of vegetables, and are turgid with a concocted juice, which ſeems far more elaborate than is the moiſture contained in the fibres or utricles; and the mouths of theſe veſſels being of a different figure, pour forth ſometimes a various liquor, according to its peculiar nature, chiefly near the outward region of the cortex; ſo the Tithymalus and Cichory commonly diſtil a milky humour, and the Cypreſs, Fir, and Pine, a certain ſpecies of turpentine.

And by how much theſe circles are more outward, by ſo much the middle ſpaces between the two zones are greater; and are leſſened always towards the more inward in a certain proportion, which ſeems to depend on this, viz. the outward air acting on all ſides with an equal preſſure, and by a certain power preſſes the ſecond; and this alſo by this means, is preſſed by its own condenſed air, and preſſes together thoſe which are more inward, becauſe it cannot exert its force upon the external air; therefore the ſecond circle is neceſſarily more compreſſed than the firſt, and the third more than the ſecond, and ſo of the reſt. And the utricles placed between the circles are preſſed by the ſame proportion; which, by degrees, are more and more exhauſted; thence the inner circle loſes moſt of all the compreſſed and condenſated utricles, and by degrees grows ſolid.

And this is properly called Liber (the inward bark), and is that circle, which, being middlemoſt by place and nature, between the cortex, or outward bark, and the wood, comes neareſt to the nature of the wood, and in time paſſes into it; for the cortex loſes every year one ſuch circle, and becomes wood, which may be diſtinguiſhed from the former circles of the root, ſtock, or trunk; and if they are cut horizontally, will ſhew the number of ſuch circles, and how many years the tree is old.

And this ſucceſſive mutation of the cortex into liber, and of liber into wood, is like to that we obſerve in the human body in the beginning of a callus; for a callus conſiſts of ſkin, but ſo compreſſed, that all the veſſels are loſt; and that ſkin, being become ſolid, is increaſed, and grows to a greater bulk.

But beſides theſe hitherto deſcribed, there occur certain peculiar veſſels (of which mention has been made in deſcribing the cortex), which are found full of turpentine, gum, or a certain concreted juice proper to them; the conſtant progreſs of which is not very conſpicuous in all of them, by reaſon of the tranſparency of the moiſture.

5. The fifth and laſt part is the moſt inward, the medulla or pith, diſpoſed in the middle center of the root; and as it ſeems different from the former, ſeeing this is ſometimes waſted, and that never, this appears more fungous, that more durable.

As to the manner of the root's performing its function, it may be obſerved, that the root having imbibed the ſaline and aqueous juices of the earth, and ſaturated itſelf with them, for the nouriſhment of the tree, thoſe juices are put into motion by heat; which having entered the mouths of the arterial veſſels from the root, they mount to the top with a force anſwerable to what ſets them in motion; and, by this means, they gradually open the minute veſſels rolled up, and expand them into leaves.

2. The wood; this is conſidered as conſiſting of capillary tubes, running parallel from the root throughout the ſtalk. Some call the capillary tubes arterial veſſels, becauſe the ſap riſes from the root through theſe. The aperture of theſe tubes are, for the moſt part, too minute to be perceived by the bare eye, unleſs in a piece of charcoal, cane, or the like.

Wood, ſays Dr. Grew, by microſcopical obſervations, appears to be only an aſſemblage of infinitely minute canals, or hollow fibres, ſome of which ariſe from the root upwards, and are diſpoſed in form of a circle; and the others, which are called inſertions, tend horizontally from the ſurface to the center, ſo that they croſs each other, and are interwoven like the threads of a weaver's web.

Beſides the capillary tubes, &c. before-mentioned, there are other larger veſſels, which ſome call venal veſſels, which are diſpoſed on the outſide of the arterial veſſels, between the wood and the inner bark, and lead down to the covering of the inward root. Theſe veſſels are ſuppoſed to contain the liquid ſap found in plants in the ſpring, &c.

The Rev. Dr. Hales tells us in his excellent treatiſe on Vegetable Statics, that, in order to find whether there was any lateral communication of the ſap and ſap-veſſels, as there is of the blood in animals, by means of the ramifications and lateral communications of their veſſels; he took a young oak-branch, ſeven or eight inches diameter, at its tranſverſe cut, ſix feet high, and full of leaves; and having cut a large gap to the pith, ſeven inches from the bottom, and of an equal depth the whole length, and alſo cut another gap four inches above that on the oppoſite ſide, he ſet the end of the ſtem in water, and in two nights and two days time it imbibed and perſpired thirteen ounces; while another like oak-branch, ſomewhat bigger than that, but with no notches cut in its ſtem, imbibed twenty-five ounces.

From this and many other experiments he there mentions, he ſays, we ſee a moſt free lateral communication of the ſap and ſap-veſſels, thoſe great quantities of liquor having paſſed laterally by the gaps; in that, by ſeveral experiments on cylinders of wood, little evaporated by the gaps.

The bark is the exterior part of trees, ſerving them for a ſkin or covering: it is generally of a ſpongy texture, and communicates with the pith by a multiplicity of ſmall fibres paſſing through the capillary tubes, of which the wood conſiſts: ſo that the roots having imbibed the proper nutriment of the tree, it is carried up by the warmth of the ſun, through the fine arterial veſſel of the tree, to the top of it; and being there condenſed by the cold, it does, by its own gravity, return down by the veſſels which lie between the wood and the inner bark, which perform the office of veins; and as it paſſes by, leaves ſuch parts of its juice as the texture of the bark will receive, and requires for its ſupport.

Some are of opinion, that that ſoft whitiſh rind, or ſubſtance, which lies between the inner bark and the wood, does the office of veins: and ſome call this a third bark, and ſuppoſe it to differ from the other in nothing but having cloſer fibres, and that it contains the liquid ſap, gums, &c. which are found in the plants in the ſpring and ſummer months, which hardens by degrees, by means of the ſap it tranſmits, and is imperceptibly conveyed into the woody part of the tree.

The bark ſerves for divers purpoſes; for it not only tranſmits the nutritious juices of the plants, but alſo contains divers fat oily humours, to defend the inner parts from the injuries of the weather. As animals are furniſhed with a panniculus adipoſus, uſually replete with fat, which inveſts and covers all the fleſhy parts, and ſcreens them from external cold; ſo are plants encompaſſed with a bark, replete with fat juices, by means whereof the cold is kept out, and, in winter-time, the ſpiculæ of ice prevented from fixing and freezing the juices in their veſſels; whence it is, that ſome ſorts of trees remain ever-green throughout the year, by reaſon their barks are more compact, and contain a larger quantity of oil than can be ſpent and exhaled by the ſun.

The pith is the inward central part of a tree or plant, anſwering to the medulla, or marrow of an animal. As for its ſubſtance, it conſiſts of little tranſparent globules, chained or linked together, ſomewhat like the bubbles that compoſe the froth of liquor.

Some ſuppoſe, that the circulation of the ſap is effected by means of the pith, others by the bark, and others by the wood.

Borelli, in his book De Motu Animalium, ſuppoſes the tender growing ſhoot to be diſtended like ſoft wax, by the expanſion of the moiſture in the ſpongy pith; which dilating moiſture, he concludes, is hindered from returning back, while it expands by the ſpongineſs of the pith without the help of valves.

And the Rev. Dr. Hales is of opinion, that it is very probable, that the particles of water that immediately adhere to, and are ſtrongly imbibed into, and attracted by, every fibre of the ſpongy pith, will ſuffer ſome degree of expanſion before they can be detached by the warmth of the ſun from each attracting fibre; and, conſequently, the maſs of ſpongy fibres, of which the pith conſiſts, muſt therefore be extended.

And that the pith may be the more ſerviceable for this purpoſe, nature has provided in moſt ſhoots a ſtrong partition at every knot, which partitions ſerve not only as plinths or abutments for the dilating pith to exert its force on, but alſo to prevent the too free retreat of the rarefied ſap from the pith.

But a dilating ſpongy ſubſtance, by equally expanding itſelf every way, would not produce an oblong ſhoot, but rather a globous one, like an apple; to prevent which inconvenience it is obſervable, that nature has provided ſeveral diaphragms, beſides thoſe at each knot, which are placed at ſmall diſtances acroſs the pith, thereby preventing its too great lateral dilatation.

Theſe are very plain to be ſeen in the ſhoots of the Walnut-tree, and the ſame may be obſerved in the pith of the branches of the Sun-flower, and ſeveral other plants, where thoſe diaphragms are not to be diſtinguiſhed while the pith is full and replete with moiſture; yet when it dries up, they are often plain to be ſeen. And it is farther to be obſerved, that where the pith conſiſts of diſtinct veſicles, the fibres of thoſe veſicles are often found to run horizontally, whereby they can the better reſiſt the too great lateral relaxation of the root.

The trunk and branches of a tree, bear a reſemblance to the exterior members and limbs of an animal, which it may ſubſiſt without, though the rotting and mortification of them oftentimes occaſion a total deſtruction of it. Accordingly the like effects are found from the wounding or lopping of a tree, as from the wounding or cutting off a limb, an extravaſation, callus, or the like.

A leaf is part of a plant extended into length and breadth in ſuch a manner, as to have one ſide diſtinguiſhable from the other. The leaves, according to Malpighius, conſiſt of ſo many interwoven utricles, as to be not much unlike a pulmonary net, and ſerve inſtead of lungs to the plant. As the perſpiration and reſpiration are chiefly performed thereby, thoſe veſſels are very conſpicuous when the leaves are diſſected. In the day-time, when the heat hath rarefied the mounting juices, ſo as to become ſpecifically lighter than the air, they flow out through the pores of the leaves, and evaporate, which is the occaſion of the leaves becoming ſo flaccid in very hot weather; but in the night, when by the cold the juices are more condenſed, then the leaves are erected again, and draw in a great ſhare of nouriſhment from the air. Theſe leaves we may obſerve to be of different textures on each ſide, the upper ſurface being for the moſt part ſmooth, the better to ſhoot off the redundant moiſture, while the under ſurface is many times of a rough and cottony texture, by which it is capable of retaining the moiſture; for which reaſon we find, if by bad management, &c. the ſhoots of trees are nailed to a wall, &c. ſo as to turn the ſurfaces of the leaves the wrong ſide upwards, the ſhoots will be at a ſtand, until the leaves have obtained their proper diſpoſition. Theſe leaves, as the learned Dr. Hales obſerves, are carefully diſtributed at ſmall diſtances throughout the whole length of the ſhoots, and ſerve as ſo many jointly-acting powers, placed at different ſtations, thereby with more eaſe to draw plenty of ſap to the extending root.

A flower is the more tender part of a plant, remarkable for its colour, or form, or both, cohering with the rudiment of the fruit, and contains the organs of generation; ſome of theſe flowers contain the male organs, as the ſtamina and apices, which are loaded with the farina fœcundans, which, when ripe, is ſcattered into thoſe flowers which are female, and conſiſt only of the ovarium, with the ſtyle and ſtigma, which are ſurrounded with the petals. Other flowers there are, which have both ſexes contained in the ſame flower; theſe are called hermaphrodite flowers.

A fruit, Καρπὸς, is not that part of a plant which is eatable, but rather the ſeeds, with their covering, ſhould be called the fruit. This covering cheriſhes the ſeeds until they come to maturity, and defends them from the injuries of the weather, as that they are not hurt thereby; and alſo prepares the juices deſigned for their nouriſhment, that it may with eaſe enter their ſmall bodies in a juſt proportion.

The motion of the nutritious juices of plants is produced much like that of the blood in animals, by the action of the air; and, in effect, there ſeems to be ſomething equivalent to reſpiration throughout the whole plant.

Malpighius was the firſt who obſerved, that vegetables conſiſted of two ſeries, or orders, of veſſels.

1. Thoſe which have been treated of before, which receive and convey the alimental juices, and which anſwer to the arteries, lacteal veſſels, veins, &c. of animals; and,

2. The tracheæ, or air-veſſels, which are long hollow pipes, in which the air is continually received and expelled, i. e. inſpired and expired, within which tracheæ all the former veſſels are contained.

Hence it follows, that the heat of the year, nay, of a ſingle day, hour, or minute, muſt have an effect on the air included in theſe tracheæ, i. e. it muſt rarefy it, and, of conſequence, dilate the tracheæ; and hence alſo a perpetual ſpring or ſource of action muſt ariſe, to promote the motion of the ſap in plants.

For when the tracheæ are expanded, the veſſels which contain the juices, are, by that expanſion, preſſed; and, by that means, the juice contained is continually propelled and accelerated; and, by this propulſion, the juice is continually comminuted, and rendered more and more ſubtil, and adapted to enter into veſſels ſtill finer and finer; the thickeſt part of it being at the ſame time ſecreted, and depoſited into the lateral cells, or loculi of the bark, to defend the plant from cold, and other external injuries.

The veſſels, or containing parts of plants, conſiſt of mere earth, bound or connected together by oil, as a gluten, or glue; which being exhauſted by fire, air, age, or the like, the plant moulders, or returns again into its earth or duſt.

Thus vegetables being burnt by the moſt intenſe fire, the matter of the veſſels is left entire and indiſſoluble, notwithſtanding its utmoſt force; and, of conſequence, is neither water, nor air, nor ſalt, nor ſulphur, but earth alone.

Juice is a liquid ſubſtance, which makes part of the compoſition of plants, and communicates itſelf to all the other parts, and ſerves to feed and increaſe them; and is that to plants that blood is to animals. Theſe juices are of divers ſorts; aqueous, grumous, bituminous, oleaginous, reſinous, vinous; of all taſtes and colours.

This juice or ſap of plants, is a humour furniſhed by the earth, and changed in the plant; it conſiſts of ſome foſſil, or other parts, which are derived from the air or rain; and others, from putrefied animals, plants, &c. ſo that, conſequently, in vegetables are contained all kinds of ſalts, oil, water, earth, and, probably, all kinds of metals too, inaſmuch as the aſhes of vegetables always yield ſomewhat which is attracted by the load-ſtone.

The juice enters plants in the form of a fine ſubtil water, which by how much the nearer it is to the root, ſo much the more it retains of its proper nature; and the farther it is from the root, the more action it has undergone, and approaches the nearer to the nature of the vegetable; and, of conſequence, when the juice enters the root, the bark of which is furniſhed with excretory veſſels, fitted to diſcharge the excrementitious part, it is earthy, watry, poor, acid, and ſcarce oily at all.

It is further prepared in the trunk and branches, though it continue acid ſtill; as is perceived by the tapping or perforating of a tree in the month of February, when it diſtils a watry juice that is ſenſibly acid.

The juice being carried hence to the germs, or buds, is more connected; and when it has here unfolded the leaves, theſe come to ſerve as lungs for the circulation and further preparation of the juice; for when thoſe tender leaves are expoſed to the alternate action of heat and cold, moiſt nights, and hot ſcorching days, they are expanded and contracted alternately; and the more, by reaſon of their net-like texture.

By ſuch means, the juice is farther altered and digeſted, as it is farther yet in the petala, or leaves of the flowers, which tranſmit the juice now brought to a further ſubtilty to the ſtamina; the ſtamina communicate it to the farina, or that duſt which appears on the apices, where it undergoes a further maturation, and ſheds into the piſtil; and there acquiring its laſt perfection, it becomes the original of a new fruit or plant.

ANCHUSA. Lin. Gen. 167. Bugloſſum. Tourn. Inſt. R. H. 133. tab. 53.

The CHARACTERS are,

The empalement is oblong, taper, and permanent, cut into five acute ſegments which are erect. The flower is of one leaf, having a cylindrical tube the length of the empalement; at the brim it is cut into five upright ſegments, which ſpread open, but the chaps are cloſed, and have five prominent little ſcales. There are five ſhort ſtamina in the chaps of the flower, which are crowned with oblong ſummits. In the bottom of the flower are ſituated four germen, having a ſlender ſtyle, crowned with an obtuſe ſtigma. The germen afterward becomes four oblong blunt ſeeds ſhut up in the empalement.

Dr. Linnæus ranges this genus of plants in the firſt ſection of his fifth claſs of plants, entitled Pentandria Monogynia, the flowers having five ſtamina and a ſingle ſtyle.

The SPECIES are,

1. ANCHUSA (*Officinalis*) foliis lanceolatis ſpicis imbricatis ſecundis. Hort. Cliff. 46. *Alkanet with ſpear-ſhaped leaves, and fruitful imbricated ſpikes, or greater Garden Bugloſs.* Blugoſſum anguſtifolium majus. C. B. P. 256.
2. ANCHUSA (*Anguſtifolia*) racemis ſubnudis conjugatis. Prod. Leyd. 408. *Alkanet with conjugated half naked ſpikes.* Borago ſylveſtris perennis flore rufo kermeſino. Zan. Hiſt. 49.
3. ANCHUSA (*Undulata*) ſtrigoſa foliis linearibus dentatis pedicellis bracteâ minoribus calycibus fructiferis inflatis. Læfl. Lin. Sp. Plant. 133. *Alkanet with narrow indented leaves, ſmall foot-ſtalks to the branches, and a ſwelling empalement over the ſeeds.* Bugloſſum Luſitanicum echii folio undulato. Tourn. Inſt. 134.
4. ANCHUSA (*Orientalis*) villoſa-tomentoſa, ramis floribuſque alternis axillaribus, bracteis ovatis. Lin. Sp. 191. *Alkanet with branches and flowers growing alternately from the wings of the ſtalks, and oval bractea or floral leaves.* Bugloſſum Orientale flore luteo. Tourn. Cor. 6.
5. ANCHUSA (*Virginiana*) floribus ſparſis caule glabro. Lin. Sp. Plant. 133. *Alkanet with flowers growing thinly, and a ſmooth ſtalk.* Anchuſa minor lutea Virginiana Puccoon indigens dicta quâ ſe pingunt Americani. Pluk. Alm. 30. *Called by the inhabitants of Virginia, Puccoon.*
6. ANCHUSA (*Sempervirens*) pedunculis diphyllis capitatis. Lin. Sp. Plant. 134. *Alkanet with foot-ſtalks having two leaves.* Bugloſſum latifolium ſerpervirens. C. B. P.
7. ANCHUSA (*Cretica*) foliis lanceolatis verrucoſis ſemiamplexicaulibus, floribus capitatis, caule procumbente. *Alkanet with warted and ſpear-ſhaped leaves embracing the ſtalk half round, flowers growing in a head, and a trailing ſtalk.* Bugloſſum Creticum verrucoſum perlatum quibuſdam. H. R. Par.

8. ANCHUSA (*Tinctoria*) tomentoſa, foliis lanceolatis obtuſis, ſtaminibus corolla brevioribus. Lin. Sp. 192. *Anchuſa with woolly, ſpear-ſhaped, blunt leaves, and the ſtamina of the flower ſhorter than the corolla; or true Alkanet of the ſhops.*

9. ANCHUSA (*Azurea*) foliis longis hirſutis, floribus capitatis reflexis, pedunculis longiſſimis. *Alkanet with long hairy leaves, and flowers collected into heads which are reflexed, and very long foot-ſtalks.* Borago ſylveſtre Cretica flore azureo. Zan. Hiſt. 51.

The firſt ſort is the Bugloſs, whoſe flowers are ordered to be uſed in medicine. This ſends up ſtalks about two feet high, having oblong rough leaves, placed alternately, at the extremity of the ſhoots. The flowers are produced in cluſters, which are of a fine blue colour; theſe come out with foot-ſtalks from the wings of the leaves, and are collected into ſmall heads. The flowers are of one leaf, having a long tube, ſpread open at the top in ſhape of a funnel. After the flower is paſt, it is ſucceeded by four naked ſeeds, ſituated at the bottom of the empalement, which drop out as they ripen.

The roots of this ſort ſeldom continue longer than two years, eſpecially in good ground, for they are ſubject to rot in winter, unleſs when they happen to grow in rubbiſh, or out of an old wall, where they will live ſeveral years; for in ſuch places the plants are ſtinted in their growth, ſo their branches are firmer and not ſo full of juice as thoſe which grow in better ſoil. The plants may be eaſily propagated by ſeeds, which may be ſown in the autumn, upon a bed of light ſandy earth; and in the ſpring, when the plants are ſtrong enough to remove, they ſhould be planted in beds at two feet diſtance, obſerving, if the ſeaſon proves dry, to water them till they have taken root, after which they will require no farther care but to keep them clean from weeds. If the ſeeds of this plant are permitted to ſcatter, the plants will riſe in plenty, which may be managed in the manner before directed. There is a variety of this with white flowers, but this will not retain its difference from ſeeds.

The ſecond ſort grows to the height of two feet when cultivated in gardens, but in the places where it grows wild, is rarely more than a foot. The leaves of this are narrow, and leſs hairy than thoſe of the firſt; the ſpikes of flowers come out double, and have no leaves about them; the flowers are ſmall, and of a red colour. The roots will continue three or four years in poor land.

The third ſort is a biennial plant, which periſhes ſoon after the ſeeds are ripe. This grows two feet high, and ſends out many lateral branches, which are garniſhed with long, narrow, rough leaves, which are waved on their edges: the flowers are of a bright blue colour, and grow in an imbricated ſpike; and after theſe fall, the empalement turns to a ſwollen veſſel incloſing the ſeeds.

The fourth ſort is a perennial plant, with long trailing branches which lie on the ground; the under leaves are long, broad, and hairy, but theſe diminiſh as they are nearer the top, and thoſe which come out on the ſpikes between the flowers are ſhort and roundiſh. The flowers are yellow, and about the ſize of thoſe of the common Bugloſs; there is a ſucceſſion of theſe on the ſame plants great part of the year, which renders them more valuable. This, though a native of the Levant, is hardy enough to live in the open air in England, if it hath a dry ſandy ſoil. It may be propagated by ſeeds in the ſame manner as the firſt ſort, and if the ſeeds are permitted to ſcatter, the plants will riſe without care.

The fifth ſort is a native of North America, where it grows naturally in the woods, and being an early plant, generally flowers before the new leaves come out on the trees; ſo that in ſome of the woods, where this plant abounds, the ſurface of the ground ſeems covered with bright yellow flowers. It is known in that country by the title Puccoon. It is a perennial plant which ſeldom riſes a foot high in good ground, but not above half that height, where the ſoil is poor; the flowers grow in looſe ſpikes, upon a ſmooth ſtalk. This is propagated by ſeeds, which, if ſown in the ſpring, ſeldom grow the firſt year.

The ſixth ſort is a very hardy perennial plant, with weak trailing branches, garniſhed with broad, rough, deep green leaves; the flowers are blue, and come out between the leaves on the ſpike, like the fourth ſort; the plants frequently grow out of the joints of old walls, in thoſe places where any of the plants have been near; for when the ſeeds are permitted to ſcatter, there will be an abundant ſupply of the plants. Theſe flower great part of the year.

The ſeventh ſort is a low, trailing, annual plant, whoſe branches ſeldom extend more than ſix inches; theſe lie on the ſurface of the ground, and are thinly ſet with ſpear-ſhaped, ſmall, warted leaves, which half ſurround the ſtalk at their baſe. The flowers are ſmall, of a bright blue colour, and are collected into ſmall bunches at the extremity of the branches. The plants periſh ſoon after their ſeeds are ripe, which if permitted to ſcatter, the plants will come up better than when they are ſown. Theſe do not bear tranſplanting, ſo ſhould remain in the places where they come up.

The eighth ſort riſes near as high as the firſt, to which it bears great reſemblance in its leaves and branches; but the leaves and branches are more woolly, and the ſtamina of the flowers are ſhorter than the corolla; the root alſo is red. This plant grows naturally in the ſouth of France and Spain, but is equally hardy with the firſt ſpecies, and may be cultivated in the ſame manner.

The ninth ſort is a perennial plant, with broad rough leaves, like thoſe of the ſixth; the branches grow more erect, and the flowers which are of a bright azure colour, are collected into ſpikes, coming out ſingly from between the leaves. This is a hardy plant, and may be propagated in the ſame manner as the former.

ANDRACHNE, Baſtard Orpine.

The CHARACTERS are,

It hath male and female flowers on the ſame plant. The male flower hath a five-leaved empalement, which is equal and withers. The flower is compoſed of five ſlender leaves indented at the top, which are ſhorter than the empalement. At the bottom of each petal is ſituated an herbaceous nectarium, to which the five ſlender ſtamina are joined; theſe are crowned with ſingle ſummits. The female flowers come out from the wings of the ſtalk near the male. Theſe have a permanent five-leaved empalement, but no petals; there are five nectariums as in the male, and a globular germen ſupporting three ſlender ſtyles which are bifid, crowned with a round ſtigma. The germen afterward turns to a three cornered globular capſule, having three cells, in each of which are lodged two triangular obtuſe ſeeds.

The SPECIES are,

1. ANDRACHNE (*Telephioides*) procumbens herbacea. Lin. Sp. Plant. 1014. *Herbaceous trailing Andrachne.* Telephioides Græcum humifuſum flore albo. Tourn. Cor. 50.
2. ANDRACHNE (*Fruticoſa*) erecta arborea. Oſb. It. 228. *Shrubby tree-like Baſtard Orpine.*
3. ANDRACHNE (*Arborea*) foliis ovatis obtuſis, ſubtus incanis, caule arboreo. *Baſtard Orpine with oval blunt leaves, hoary on their under ſide, and a tree-like ſtalk.*

The firſt ſort is a low plant, whoſe branches trail upon the ground. The leaves are ſmall, of an oval ſhape, ſmooth, and of a ſea-green colour. It is found wild in ſome parts of Italy, and in the Archipelago, from whence Dr. Tournefort ſent the ſeeds to the royal garden at Paris: but being a plant of no great beauty, it is ſeldom cultivated, except in botanic gardens for variety. If the ſeeds of this plant are ſown on a moderate hot-bed in March, the plants will ariſe in about a month after, when they may be tranſplanted each into a ſmall pot, and plunged into another very moderate hot-bed to bring the plants forward, but in mild weather they ſhould have plenty of air admitted to them, and often refreſhed with water: in June they will produce flowers, and the ſeeds will ripen in

Auguſt and September, ſoon after which the plants will decay.

The ſecond ſort grows naturally in China, and alſo at La Vera Cruz in New Spain, where it riſes twelve or fourteen feet high; the branches are garniſhed with ſpear-ſhaped, pointed, ſmooth leaves, under which the foot-ſtalk of the flowers are produced; theſe are pretty long and hang downward: the flowers are ſmall, of an herbaceous white colour, ſome of which are male, and others female, but when the latter are ſituated at too great diſtance from the former, there is rarely any ſeeds within their covers; though they ſeem very fair to ſight, yet upon being opened there will no ſeeds be found in them; whereby ſeveral perſons have been deceived, who have ſown them, without raiſing a ſingle plant.

The third ſort was diſcovered by the late Dr. William Houſton, growing naturally at Campeachy; this has a ſtrong woody ſtem, which riſes more than twenty feet high, ſending out branches on every ſide, which are garniſhed with oval blunt leaves, hoary on their under-ſide, and having pretty deep furrows on their upper, placed alternately on the branches: the flowers I have not ſeen, for the plant which roſe from the ſeeds in the phyſic garden did not produce any, tho' it grew upward of fourteen feet high; nor were there any flowers upon the trees at Campeachy, at the time Dr. Houſton was there, the ſeeds being then ripe; of theſe the doctor ſent many to Europe which appeared very fair, but on being opened, no kernels were found within them, ſo that but one plant was raiſed from all the ſeeds.

Theſe two ſorts are very tender plants, ſo that when good ſeeds can be obtained, they ſhould be planted in pots, plunging them into a hot-bed of tanners bark, obſerving to water them as the earth becomes dry in the pots; and when the plants come up, and are fit to remove, they ſhould be each planted in a ſmall pot, plunged into a tan-bed, ſhading them until they have taken freſh root, after which they ſhould have free air admitted to them in warm weather, but muſt be conſtantly kept in the bark-ſtove.

There is alſo another ſort which I have raiſed from ſeeds, ſent me from Jamaica; the whole form of the ſeeds agree with thoſe of the third ſort, as do alſo the plants, but the leaves are ſomewhat like thoſe of the Laurel, but are much larger; this hath not as yet flowered in Europe.

ANDROMEDA. Lin. Gen. Plant. 485. We have no Engliſh name for this plant.

The CHARACTERS are,

The empalement is cut into five ſmall acute ſegments; this is coloured and permanent. The flower is of one leaf, oval, bell-ſhaped, and divided into five parts at the brim, which are reflexed. It hath ten awl-ſhaped ſtamina, which are ſhorter than the petals to which they are fixed; theſe are crowned with nodding ſummits having two horns. In the center of the flower is ſituated a round germen, ſupporting a cylindrical ſtyle, which is longer than the ſtamina, and crowned with a blunt ſtigma. The germen afterward turns to a round pentagonal veſſel having five cells, which are filled with ſmall round ſeeds.

This genus of plants is ranged by Dr. Linnæus in the firſt diviſion of his tenth claſs, entitled Decandria Monogynia, the flowers having ten ſtamina and one germen.

The SPECIES are,

1. ANDROMEDA (*Polifolia*) pedunculis aggregatis, corollis ovatis, foliis alternis lanceolatis revolutis. Lin. Sp. Plant. 393. *Andromeda with aggregate foot-ſtalks, oval petals, and ſpear-ſhaped leaves growing alternately.* Polifolia. Buxb. Act. 2. p. 345.
2. ANDROMEDA (*Mariana*) pedunculis aggregatis corollis cylindricis foliis alternis ovatis integerrimis. Lin. Sp. Plant. 393. *Andromeda with aggregate foot-ſtalks, cylindrical flowers, and oval entire leaves placed alternately.*
3. ANDROMEDA (*Paniculata*) racemis ſecundis nudis paniculatis, corollis ſubcylindricis foliis alternis oblongis crenulatis. Lin. Sp. Plant. 394. *Andromeda with naked, fruitful, looſe ſpikes, cylindrical flowers, and oblong crenated leaves placed alternately.* Vitis idæa Americana, longiori mucronato & crenato folio, floribus urceolatis racemoſis. Pluk. Alm. 391.
4. ANDROMEDA (*Arborea*) racemis ſecundis nudis, corollis rotundo-ovatis. Lin. Sp. Plant. 394. *Andromeda with naked fruitful ſpikes, and oval roundiſh flowers.* Frutex foliis oblongis acuminatis floribus ſpicatis uno verſu diſpoſitis. Cateſb. Carolin. 1. p. 71. *commonly called Sorrel-tree in Carolina.*
5. ANDROMEDA (*Caliculata*) racemis ſecundis foliaceis corollis ſubcylindricis, foliis alternis lanceolatis obtuſis punctatis. Lin. Sp. Plant. 394. *Andromeda with leafy fruitful ſpikes, cylindrical flowers, and obtuſe ſpear-ſhaped leaves, with punctures placed alternately.* Chamædaphne. Buxb. Act. 1. p. 241.

The firſt ſort is a low plant which grows naturally on bogs in the northern countries, but is with difficulty preſerved in gardens; and having little beauty, is ſeldom cultivated except in botanic gardens. I received the ſeeds from Peterſburgh, which came up in the Chelſea garden, but did not continue more than one year.

The ſecond ſort grows naturally in North America: this is a low ſhrub, which ſends out many woody ſtalks from the root, garniſhed with oval leaves placed alternately; the flowers are collected in ſmall bunches: theſe are ſhaped like thoſe of the Strawberry-tree, and are of an herbaceous colour. They appear in June and July, and ſometimes are ſucceeded by fruit, which ſeldom ripen in England.

The third ſort is alſo a native of North America. This ſhrub grows about four feet high, ſending out ſeveral branches, which are clothed with oblong leaves placed alternately; the flowers grow in looſe ſpikes from the ends of the branches; they are of the pitcher ſhape, like thoſe of the Arbutus, but are a little longer, and appear in July, but do not produce ſeeds in this country.

The fourth ſort grows naturally in Virginia and Carolina; in the latter it is much larger than in the former, the climate being warmer; ſo many of the trees and ſhrubs grow to a much greater height there. In Virginia, it is a ſhrub growing ten or twelve feet high, but in Carolina it riſes twenty feet. The branches are very ſlender, bending downward; theſe are garniſhed with leaves placed alternately, which are oblong and pointed: the flowers grow in long naked ſpikes, coming out from the ſides of the branches, which are of an herbaceous colour, and are ranged on one ſide of the ſtalk; they are oval, and ſhaped like a pitcher.

The fifth ſort grows naturally in Siberia, and alſo in North America; it is a low ſhrub which grows on moſſy land, ſo is very difficult to keep in gardens. The leaves are ſhaped like thoſe of the Box-tree, and are of the like conſiſtence, having ſeveral ſmall punctures on them; the flowers grow in ſhort ſpikes from the extremity of the branches: theſe are produced ſingle between two leaves, they are white and of a cylindrical pitcher ſhape.

All the ſorts, except the fourth, are very hardy plants, which delight in moiſt ground; they increaſe by their creeping roots, which put up ſuckers at a diſtance, and may be taken off with roots, and tranſplanted where they are deſigned to remain, for they do not bear to be often removed.

The fourth ſort requires to be ſheltered from hard froſt in winter, but in the ſummer ſhould be frequently watered. It is a difficult plant to keep in gardens, as it grows naturally on boggy places, and requires a greater heat than that of this climate. It may be propagated by ſeeds, which ſhould be procured from America, where it is known by the name of Sorrel-tree.

ANDROSACE. We have no Engliſh name for this plant.

The CHARACTERS are,

The flowers grow in an umbel; they have a many-leaved general involucrum. Each flower hath a five-cornered em-

palement of one leaf, ſlightly indented at the top in five acute points, this is permanent: the flower is of one leaf, having an oval tube, incloſed by the empalement, but is plain at the brim, where it is divided into five parts. It hath five ſmall ſtamina within the tube, which are crowned with oblong erect ſummits. In the center is ſituated a round germen, ſupporting a ſhort ſlender ſtyle, crowned by a globular ſtigma; the empalement afterward becomes a round capſule of one cell opening in five parts, which is full of round ſeeds.

Dr. Linnæus ranges this genus of plants in the firſt ſection of his fifth claſs, entitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Androsace (*Maxima*) perianthiis fructuum maximis. Hort. Upſal. 36. *Androſace with the largeſt empalement to the fruit.* Androſace vulgaris latifolia annua. Tourn. Inſt. R. H. 123.
2. Androsace (*Septentrionalis*) foliis lanceolatis dentatis glabris perianthiis angulatis corollâ brevioribus. Flor. Suec. 160. *Androſace with ſmooth, indented, ſpear-ſhaped leaves, and an angular empalement ſhorter than the petals.* Alſine verna Androſaces capitulis. C. B. P. 251.
3. Androsace (*Villoſa*) foliis piloſis perianthiis hirſutis. Lin. Sp. Plant. 142. *Androſace with hairy leaves and empalement.* Sedum Alpinum hirſutum lacteo flore. C. B. P. 284.
4. Androsace (*Carnea*) foliis ſubulatis glabris, umbella involucrum æquante. Lin. Sp. 204. *Androſace with ſmooth awl-ſhaped leaves, and the umbel of flowers equal to the involucrum.*
5. Androsace (*Lactea*) foliis linearibus glabris, umbellâ involucris multoties longiore. Lin. Sp. Plant. 142. *Androſace with narrow ſmooth leaves, and the umbel much longer than the involucrum.* Androſace Alpina perennis anguſtifolia glabra flore ſingulari. Tourn. Inſt. R. H.

The firſt ſort grows naturally in Auſtria and Bohemia amongſt the corn: this hath broad leaves which ſpread near the ground, from the center of theſe the foot-ſtalks ariſe, which are terminated by the umbel of flowers, like thoſe of the Auricula; under the umbel of flowers is a large empalement, which is permanent; the flowers are compoſed of five ſmall white petals; theſe appear in April and May, the ſeeds ripen in June, and the plants ſoon after periſh.

The other ſorts are much ſmaller than this, ſome of them ſeldom growing more than three inches high, having very ſmall flowers, ſo make little appearance. They grow naturally on the Alps and Helvetian mountains, as alſo in Siberia, from whence I have received the ſeeds of three or four ſpecies. Theſe are only preſerved in botanic gardens for the ſake of variety, and all the ſorts except the firſt ſhould have a ſhady ſituation.

The ſeeds of all the ſorts ſhould be ſown ſoon after they are ripe, otherwiſe they ſeldom grow the ſame year. They flower uſually the beginning of April, and their ſeeds are ripe the end of May; which, if permitted to ſcatter, will come up, and often ſucceed better than thoſe which are ſown. The annual ſorts periſh as ſoon as the ſeeds are ripe, but the others will live in an open border for ſeveral years, and require no other care, but to keep them clean from weeds.

ANDROSÆMUM. See Hypericum.

ANDRYALA. Lin. Gen. Plant. 820. Downy Sowthiſtle.

The Characters are,

It hath a ſhort, round, hairy empalement, cut into many equal ſegments; the flowers are compoſed of many hermaphrodite florets of one leaf, which are uniform, and lie over each other, ſtretched out like a tongue on one ſide. There are five ſtamina in the flowers; theſe are crowned by cylindrical ſummits, which are tubulous. The germen is ſituated at the bottom of each floret, with a ſlender ſtyle, crowned by two reflexed ſtigma. The germen afterward becomes a ſingle oval ſeed, crowned with down.

This genus of plants is by Dr. Linnæus ranged in the firſt ſection of his nineteenth claſs, entitled Syngeneſia Polygamia equalis, there being many hermaphrodite flowers included in one common empalement.

The Species are,

1. Andryala (*Integrifolia*) foliis integris ovato oblongis tomentoſis. Guett. Stamp. 2. p. 384. *Downy Sowthiſtle with oval, oblong, entire, downy leaves.* Sonchus lanatus. Dalech. Hiſt. 1116.
2. Andryala (*Raguſina*) foliis lanceolatis indiviſis denticulatis acutis tomentoſis, floribus ſolitariis. Lin. Sp. Plant. 1136. *Downy Sowthiſtle with indented, ſpear-ſhaped, woolly leaves.* Sonchus villoſus luteus minor. C. B. P. 124.
3. Andryala (*Sinuata*) foliis runcinatis. Lin. Sp. 1137. *Downy Sowthiſtle with plain-ſhaped leaves.*
4. Andryala (*Lanata*) foliis oblongo-ovatis ſubdentatis lanatis, pedunculis ramoſis. Amœn. Acad. 4. p. 288. *Downy Sowthiſtle with woolly, oblong, oval leaves, and branching foot-ſtalks.* Hieracium montanium tomentoſum. Hort. Elth. tab. 150.

The firſt is an annual plant, which grows naturally in the ſouth of France, Spain, and Italy, and is preſerved in botanic gardens for the ſake of variety. This grows a foot and a half high, with woolly branching ſtalks, having leaves ſcatteringly ſet on them, which are oblong and downy. The flowers are produced in ſmall cluſters at the top of the ſtalks, which are yellow, and like thoſe of the Sowthiſtle, ſo do not make any great appearance. It is eaſily raiſed by ſeeds, which ſhould be ſown in the ſpring, in the place where the plants are to remain, and will require no other culture but to thin them where they are too cloſe, and keep them clean from weeds. It flowers in July, and the ſeeds ripen in September.

The ſecond is a perennial plant, which grows naturally in Spain, from whence I received the ſeeds, as I have alſo from the Cape of Good Hope. The leaves of this plant are extremely white, and are much indented on their edges; the flower-ſtalks grow about a foot high, having ſmall cluſters of yellow flowers, which appear in July; the ſeeds ſometimes ripen in England, but not every year. The roots creep, by which the plants may be propagated. They love a light dry ſoil, in which they will live in the open air in this country.

The third ſort grows naturally in Sicily, and alſo near Montpelier; the lower leaves of this ſort are indented and woolly, but thoſe upon the ſtalks are entire; this ſeldom riſes more than a foot high, ſupporting a few yellow flowers at the top.

The fourth ſort grows in Spain and Portugal; the leaves of this are broader, longer, and more downy, than either of the other ſorts, the flower-ſtalks riſe more than a foot high, branching into ſeveral foot-ſtalks, each ſuſtaining one large yellow flower, ſhaped like thoſe of Hawkweed, which are ſucceeded by oblong black ſeeds crowned with down.

Theſe two plants are propagated by ſeeds, in the ſame manner as the former, which ſhould be ſown in autumn, for when they are ſown in the ſpring, the plants ſeldom riſe the ſame year.

ANEMONE [Ανεμώνη, of ἄνεμος, *Gr.* the wind; ſo called, becauſe the flower is ſuppoſed not to open, except the wind blows.] Wind-flower.

The Characters are,

The flower is naked having no empalement, and conſiſts of two or three orders of leaves or petals, which are oblong, and diſpoſed in three ſeries over each other. It hath a great number of ſlender ſtamina which are ſhorter than the petals, and are crowned by double ſummits which are erect; between theſe are ſituated many germen, which are collected into a head, ſupporting a pointed ſtyle crowned with a blunt ſtigma. The germen afterward become ſo many ſeeds incloſed with a down which adheres to the foot-ſtalk, and forms an obtuſe cone.

Dr. Linnæus ranges this genus of plants in the ſixth ſection of his thirteenth claſs, entitled Polyandria Polygynia, from the flowers having many ſtamina and germen.

The Species are,

1. Anemone (*Sylveſtris*) pedunculo nudo ſeminibus ſubrotundis hirſutis. Lin. Sp. Plant. 540. *Anemone with a naked ſtalk and a round head of hairy ſeeds.* Anemone ſylveſtris alba major. C. B. P. 176.
2. Anemone (*Nemoroſa*) ſeminibus acutis foliolis inciſis caule unifloro. Hort. Cliff. 224. *Anemone with pointed ſeeds, cut leaves, and a ſingle flower.* Anemone nemoroſa flore majore. C. B. P. 176.
3. Anemone (*Apennina*) ſeminibus acutis foliolis inciſis petalis lanceolatis numeroſis. Lin. Sp. Plant. 541. *Anemone with pointed ſeeds, cut leaves, and many ſpear-ſhaped flower leaves.* Ranunculus nemoroſus flore purpureo-cæruleo. Park. Theat. 325.
4. Anemone (*Virginiana*) pedunculis alternis longiſſimis fructibus cylindricis ſeminibus hirſutis muticis. Lin. Sp. Plant. 540. *Anemone with very long alternate foot-ſtalks, and cylindrical ſpikes of chaffy ſeeds.* Anemone Virginiana tertiæ Matthioli ſimilis flore parvo. H. L. 645.
5. Anemone (*Coronaria*) foliis radicalibus ternato-decompoſitis, involucro folioſo. Lin. Sp. Plant. 539. *Anemone with lower leaves decompounded, and a leafy involucrum.* Anemone tenuifolia ſimplici flore. C. B. P. 174.
6. Anemone (*Hortenſis*) foliis digitatis. Lin. Sp. Plant. 540. *Anemone with hand-ſhaped leaves.* Anemone hortenſis latifolia. 3 Cluſ. Hiſt. 1. p. 249.
7. Anemome (*Dichotoma*) caule dichotoma, foliis ſeſſilibus oppoſitis amplexicaulibus trifidis inciſis. Amæn. Acad. 1. p. 155. *Anemone with a forked ſtalk, and trifid cut leaves growing oppoſite, which embrace the ſtalks.*
8. Anemone (*Thalictroides*) foliis caulinis ſimplicibus verticillatis, radicalibus duplicato ternatis. Lin. Sp. 763. *Anemone with ſimple leaves on the ſtalk, growing in whorles, and thoſe at the root double ternate.*

The firſt ſort grows naturally in many parts of Germany; this approaches near to our Wood Anemone, but the ſeeds of it are round and hairy; the flower is large and white, but having little beauty, is ſeldom planted in gardens.

The ſecond ſort grows wild in the woods in many parts of England, where it flowers in April and May, making a pretty appearance in thoſe places where they are in plenty. The roots of this may be taken up when their leaves decay, and tranſplanted in wilderneſſes, where they will thrive and increaſe greatly, if they are not diſturbed; and in the ſpring, before the trees are covered with leaves, they will have a very good effect, in covering of the ground and making a pleaſing variety at that ſeaſon.

The third ſort is found growing naturally in ſome parts of England, but particularly at Wimbledon in Surry, in a wood near the manſion-houſe, in great plenty; but it is not certain that they were not originally planted there, as they are not found in any other place in that neighbourhood. This ſort flowers at the ſame time with the former, and when intermixed with them, make a fine variety. This may be tranſplanted from the woods as the former.

There are of theſe two ſorts, ſome with double flowers, which have been obtained from ſeeds. Theſe make a finer appearance, and continue longer in flower than the ſingle, but are only to be procured from the gardens, where they are cultivated. As theſe are only ſeminal varieties, I have not enumerated them with the others.

The fourth ſort grows naturally in North America, from whence the ſeeds are frequently ſent to England. This is a very hardy plant, and produces plenty of ſeeds in England, but having little beauty, ſcarce deſerves a place in gardens, unleſs for the ſake of variety.

The fifth and ſixth ſorts are natives of the eaſt, from whence their roots were brought originally; but have been ſo greatly improved by culture, as to render them ſome of the chief ornaments to our gardens in the ſpring. The principal colours of theſe flowers are red, white, purple, and blue, and ſome are finely variegated with red, white, and purple. There are many intermediate ſhades of theſe colours; the flowers are large and very double, and, when properly managed, are extremely beautiful. I ſhall therefore proceed to give ample directions for their culture, which, if duly obſerved, every perſon may have theſe flowers in perfection.

Take a quantity of freſh untried earth (from a common, or ſome other paſture land) that is of a light ſandy loam, or hazel mould, obſerving not to take it above ten inches deep below the ſurface; and if the turf be taken with it the better, provided it hath time to rot thoroughly before it is uſed: mix this with a third part of rotten cow dung, and lay it in a heap, keeping it turned over at leaſt once a month for eight or ten months, the better to mix it, and rot the dung and turf, and to let it have the advantages of the free air: in doing this be careful to rake out all great ſtones, and break the clods (but by no means ſift or ſcreen the earth, which is found very hurtful to many ſorts of roots); for when the earth is made very fine, upon the firſt great rains of winter or ſpring, the ſmall particles thereof join cloſely together, and form one ſolid maſs, ſo that the roots often periſh for want of ſome ſmall ſtones to keep the particles aſunder, and make way for the tender fibres to draw nouriſhment for the ſupport of the root.

This earth ſhould be mixed twelve months before it is uſed, if poſſible; but if you are conſtrained to uſe it ſooner, you muſt turn it over the oftener, to mellow and break the clods; and obſerve to rake out all the parts of the green ſward, that are not quite rotten, before you uſe it, which would be prejudicial to your roots, if ſuffered to remain. The beginning of September is a proper ſeaſon to prepare the beds for planting (which, if in a wet ſoil, ſhould be raiſed with this ſort of earth ſix or eight inches above the ſurface of the ground, laying at the bottom ſome of the rakings of your heap to drain off the moiſture; but in a dry ſoil, three inches above the ſurface will be ſufficient): this compoſt ſhould be laid at leaſt two feet and a half thick, and in the bottom there ſhould be about four or five inches of rotten neats dung, or the rotten dung of an old Melon or Cucumber-bed, ſo that you muſt take out the former ſoil of the beds to make room for it.

And obſerve in preparing your beds, to lay them (if in a wet ſoil) a little round, to ſhoot off the water; but in a dry one, let it be nearer to a level; in wet land, where the beds are raiſed above the ſurface, it will be proper to fill up the paths between them in winter, either with rotten tan or dung, to prevent the froſt from penetrating into the ſides of the beds, which often deſtroy their roots. The earth ſhould be laid in the beds at leaſt a fortnight or three weeks before you plant the roots, that it may ſettle; and when you plant them, ſtir the upper part of the ſoil about ſix inches deep, with a ſpade; then rake it even and ſmooth, and with a ſtick draw lines each way of the bed at ſix inches diſtance, ſo that the whole may be in ſquares, that the roots may be planted regularly: then with your three fingers make a hole in the center of each ſquare, about three inches deep, laying therein a root with the eye uppermoſt; and when you have finiſhed your bed, with the head of a rake draw the earth ſmooth, ſo as to cover the crown of the roots about two inches.

The beſt ſeaſon for planting theſe roots, if for forward flowers, is about the latter end of September; and for thoſe of a middle ſeaſon, any time in October; but obſerve to perform this work, if poſſible, at or near the time of ſome gentle ſhowers; for if the roots are planted when the ground is perfectly dry, and there ſhould no rain fall for three weeks or a month after, they will be very apt to grow mouldy upon the crown, and if they once get this diſtemper, they ſeldom come to good after.

You may alſo reſerve ſome of your Anemone roots till after Chriſtmas, before you plant them, leſt by the ſeverity of the winter your early planted roots ſhould be deſtroyed, which ſometimes happens in very hard winters, eſpecially in thoſe places where they are not covered to protect them from froſt: theſe late planted roots will flower a fortnight or three weeks after thoſe which were planted in autumn, and many times blow equally as fair, eſpecially if it prove a moiſt ſpring, or that care be taken to refreſh them gently with water.

But then the increaſe of theſe roots will not be near ſo great as thoſe of your firſt planting, provided they were not hurt in winter; and it is for this reaſon all thoſe who make ſale of theſe roots, are forward in planting; for although it may happen, by ſharp pinching froſts in the ſpring, that their flowers are not ſo double and fair as thoſe planted a little later, yet if they can preſerve the green leaves of the plants from being injured, the roots will greatly increaſe in bulk; but in ſuch gardens where theſe flowers are preſerved with care, there is always proviſion made to cover them from the injuries of the weather, by arching the beds over with hoops, or frames of wood, and covering them with garden-mats or cloths, in froſty nights, and bad weather, eſpecially in the ſpring of the year, when their buds begin to appear; for otherwiſe, if you plant the beſt and moſt double flowers, the black froſts and cutting winds in March will cauſe them to blow ſingle, by deſtroying the thrum that is in the middle of the flower; and this many times hath occaſioned many people who have bought the roots, to think they were cheated in the purchaſe of them, when it was wholly owing to their neglect of covering them, that their flowers were ſingle.

In the beginning of April your firſt planted roots will begin to flower, which will continue for three weeks or more, according to the heat of the weather, or the care taken in covering them, during the heat of the day, with mats or cloths: after theſe are paſt flowering, the ſecond planted ſorts will come to ſucceed them, and theſe will be followed by thoſe planted in the ſpring; ſo that you may have theſe beauties continued for near two months together, or ſometimes longer, if the ſeaſon prove favourable, or proper care is taken to ſhade them in the heat of the day.

The beginning of June, the leaves of your firſt blown roots will begin to decay; ſoon after which time you muſt take them out of the ground, clearing them from decayed ſtalks, and waſhing them, to take the earth clean from the root; then ſpread them on a mat in a dry ſhady place till they are perfectly dried, when you may put them up in bags, and hang them out of the reach of mice, or other vermin, which will deſtroy many of the roots if they can come at them.

Obſerve alſo to take up the latter planted roots as ſoon as their leaves decay; for if they are ſuffered to remain long after in the ground, and there ſhould fall ſome ſhowers of rain, they would ſoon put forth freſh fibres, and make new ſhoots, when it would be too late to remove them: at the time when you take up the roots, is the proper ſeaſon for breaking or parting them, which may be done by ſeparating thoſe that you would chooſe to make all poſſible increaſe from, into as many parts as you can conveniently, provided each one of them have a good eye or bud; but thoſe you intend to blow ſtrong, ſhould by no means be parted too ſmall, which greatly weakens their flowering.

The principal colours in Anemonies are, white, red, blue, and purple; and theſe in ſome of them, are curiouſly intermixed; but the moſt prevailing colours amongſt our Engliſh raiſed Anemonies, are white and red; though of late we have received from France great varieties of blues and purples, which are exceeding fine flowers, and being intermixed with the Engliſh flowers, make a fine variety: we ſhould therefore obſerve, in planting the roots, to diſtribute the different colours, ſo as to make an agreeable mixture of each in every bed, which will greatly add to their beauty.

But ſince all the fine varieties of theſe flowers were firſt obtained from ſeeds, no good floriſt, that hath garden room, ſhould neglect to ſow them: in order to which, we ſhould provide ourſelves with a quantity of good ſingle (or what the gardeners call Poppy Anemonies) of the beſt colours, and ſuch as have more leaves than common, and have other good properties; theſe ſhould be planted early, that they may have ſtrength to produce good ſeeds, which will be ripe in three weeks or a month's time, after the flowers are paſt; when you muſt carefully gather it, otherwiſe it will be blown away in a ſhort time, it being incloſed in a downy ſubſtance. You muſt preſerve this ſeed till the beginning of Auguſt, when you may either ſow it in pots, tubs, or a well prepared bed of light earth: in the doing of it you muſt be careful not to let your ſeeds be in heaps, to avoid which is a thing little underſtood, and is what I have been informed of by the late Mr. Obadiah Lowe, gardener at Batterſea, who for ſeveral years raiſed large quantities of theſe flowers from ſeeds. His manner was thus:

After having levelled his bed of earth, in which he intended to ſow his ſeeds, he rubbed the ſeeds well between his hands, with a little dry ſand, in order to make them ſeparate the better; then he ſowed them as regularly as poſſible over the bed; but as theſe ſeeds will ſtill adhere cloſely together by their down, he took a ſtrong hair bruſh, with which he gently ſwept over the whole bed, obſerving not to bruſh off the ſeeds; this bruſh will ſo ſeparate the ſeeds, if carefully managed, as not to leave any entire lumps; then gently ſift ſome light earth, about a quarter of an inch thick over the ſeeds; and, if it ſhould prove hot dry weather, it will be adviſable to lay ſome mats hollow upon the bed in the heat of the day, and now and then give them a little water; but this muſt be given gently, leſt by haſtily watering you waſh the ſeeds out of the ground; but be ſure to uncover the bed at all times when there are gentle ſhowers, and every night, that the ſeeds may have the benefit of the dews; and as the heat of the weather decreaſes, you may begin to uncover your bed in the day time alſo.

In about ten weeks after ſowing, the plants will begin to appear, if the ſeaſon has proved favourable, or your care in management hath not been wanting, otherwiſe they many times remain a whole year in the ground. The firſt winter after their appearing above ground, they are ſubject to injuries from hard froſts, or too much wet, againſt both of which you muſt equally defend them; for the froſt is very apt to looſen the earth, ſo that the young plants are often turned out of the ground, after which a ſmall froſt will deſtroy them; and too much wet often rots their tender roots, ſo that all your former trouble may be loſt in a ſhort time for want of care in this particular; nor do I know of any thing more deſtructive to theſe tender plants, than the cold black froſts and winds of February and March, from which you muſt be careful to defend them, by placing a low reed fence on the north and eaſt ſides of the bed, which may be moveable, and only faſtened to a few ſtakes to ſupport it for the preſent, and may be taken quite away as the ſeaſon advances, or removed to the ſouth and weſt ſides of the bed, to ſcreen it from the violence of the ſun, which often impairs theſe plants when young.

As the ſpring advances, if the weather ſhould prove dry, you muſt gently refreſh them with water, which will greatly ſtrengthen your roots; and when the green leaves are decayed, if your roots are not too thick to remain in the ſame bed another year, you muſt clear off all the weeds and decayed leaves from the bed, and ſift a little more of the ſame prepared good earth, about a quarter of an inch thick over the ſurface, and obſerve to keep them clear from weeds during the ſummer ſeaſon, and at Michaelmas repeat the ſame earthing; but as theſe roots ſo left in the ground, will come up early in the autumn, the beds ſhould be carefully covered in froſty weather, otherwiſe their leaves will be injured, whereby the roots will be weakened, if not deſtroyed. If your roots ſucceed well, many of them will flower the ſecond year, when you may ſelect all ſuch as you like, by marking them with a ſtick; but you ſhould not deſtroy any of them until after the third year, when you have ſeen them blow ſtrong, at which time you will be capable to judge of their goodneſs; for until the roots have acquired ſtrength, the flowers will not ſhew themſelves to advantage.

By this time your roots will be too thick in the ſeed-bed to remain, therefore you muſt, as ſoon as their green leaves are decayed, ſift the earth of your bed through a very fine ſieve, in order to get out the roots, which can be no otherwiſe found, as being ſmall, and ſo nearly the colour of the ground; but in doing this, obſerve not to diſturb the ground too deep, ſo as to endanger the burying any of the roots; for, notwithſtanding all your care, many ſmall roots will be left behind, therefore as ſoon as you have ſifted your whole bed, and taken out all the roots you can find, you muſt level the earth of your bed again, and let it remain till next year, when you will find a plentiful crop of roots come up again; the young roots which you take up muſt be dried, as was directed for the old ones, but ſhould be planted again three weeks before them, that they may increaſe in ſtrength, ſo as to flower ſtrongly the ſucceeding year.

The ſingle (or Poppy) Anemonies will flower moſt part of the winter and ſpring, when the ſeaſons are favourable, if they are planted in a warm ſituation, at which time they make a fine appearance, therefore deſerve a place in every flower-garden, eſpecially as they require little culture; for if theſe roots are taken up every other year, it will be often enough; and when they are taken up, they ſhould be planted again very early in the autumn, otherwiſe they will not flower till the ſpring. There are ſome fine blue colours amongſt theſe ſingle Anemonies, which, with the Scarlets and Reds, make a beautiful mixture of colours; and as theſe begin flowering in January or February, when the weather is cold, they will continue a long time in beauty, provided the froſt is not too ſevere. The ſeeds of theſe are ripe by the middle or end of May, and muſt be gathered daily as it ripens, otherwiſe it will ſoon be blown away by the winds.

The Anemone grows naturally in the Levant, particularly in the iſlands of the Archipelago, where the borders of the fields are covered with them of all the colours, but the flowers are ſingle, and have been greatly improved by culture. In France they were long cultivated before they were much known in Holland or England. Tournefort mentions two French gentlemen, Meſſrs. Malaval and Bachelier, who contributed greatly to the improvement of theſe flowers; and of the latter he relates a pleaſant ſtory, as follows: There was a certain lawyer to whom Mr. Bachelier had refuſed to communicate the ſeeds of his fine Anemonies, and finding he could not obtain any either by friendſhip or money, a fancy came into his head, to make a viſit to Mr. Bachelier, with ſome of his friends who were in the ſecret; he ordered his lacquey who ſupported the train of his gown, to let it drop on a bed where the Anemonies grew, which he wanted, whoſe ſeeds were then ripe. They walked a conſiderable time talking on various ſubjects, and when they came to the ſpot where the Anemonies grew, a merry gentleman of the company began a ſtory, which engaged the attention of Mr. Bachelier; at which time the lacquey, who was no fool, let fall his maſter's train over the bed, and the ſeeds having a downy covering, ſtuck to the gown, which the boy afterwards took up again, and the company went forward. The virtuoſo took leave of Mr. Bachelier, and went directly home, where he carefully picked off the ſeeds which had ſtuck to his robes, and ſowed them, which produced very beautiful flowers.

The ſeventh ſort grows naturally in Canada and Siberia; the roots of this creep and multiply greatly in the ground, the lower leaves are deeply cut; the ſtalks riſe two feet high, garniſhed with leaves placed oppoſite, which embrace the ſtalks, and the flowers are produced from the forks of the ſtalks upon ſlender foot-ſtalks; theſe flowers are white, and being ſmall, make little appearance, ſo the plant is rarely preſerved, except in botanic gardens for variety: it is a very hardy plant, and multiplies very faſt where it is allowed to have a place.

The eighth ſort is a very humble plant, ſeldom riſing more than ſix inches high. This grows naturally in the woods of North America, where it flowers early in the ſpring, when it makes a pretty appearance, eſpecially if many of the plants grow in cluſters: ſome of theſe flowers are double, which make a better appearance than the ſingle, and continue longer in beauty. The leaves of this plant are very like thoſe of Meadow Rue; the ſtalks have leaves growing in whorles, and are terminated by a ſingle flower: this ſort ſhould be planted under the ſhelter of trees, and if the ſurface of the ground is covered with rotten tanners bark in winter, it will greatly preſerve the plants.

ANEMONOIDES. See Anemone.

ANEMONOSPERMOS. See Arctotis.

ANETHUM, Dill, from ἄνω and θέειν, to run up, becauſe it is quick of growth.

The Characters are,

It is an umbelliferous plant, having many umbels, which have no involucrum. The umbels are uniform, and compoſed of many ſmaller ones. The flowers have five ſpear-ſhaped petals, each of theſe have five ſlender ſtamina, crowned with blunt ſummits; under the flower is ſituated the germen, ſupporting two ſmall ſtyles crowned with blunt ſtigma; the germen afterward becomes two compreſſed ſeeds having borders.

This genus of plants is ranged in the ſecond ſection of the fifth claſs of Linnæus's genera, which is entitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

We have but one Species of this genus, viz.

Anethum (*Graveolens*) fructibus compreſſis. Hort. Cliff. 106. *Dill with compreſſed ſeeds.* Anethum hortenſe. C. B. P. 147. *Common Dill.*

There are two other varieties which are mentioned as diſtinct ſpecies by the botaniſts, but I have frequently ſown them, and have always found them prove to be only varieties ariſing from the ſame ſeeds.

This plant is propagated by ſowing the ſeeds, which ſhould be done in autumn ſoon after they are ripe; for if they are kept out of the ground till ſpring, they frequently miſcarry; or if any of the plants come up, they often decay before they have perfected their ſeeds. They love a light ſoil, and will not bear to be tranſplanted, but muſt be ſown where they are to remain, and ſhould be allowed eight or ten inches room to grow, otherwiſe they will draw up very weak, and produce few lateral branches, whereby their leaves will decay, and be rendered uſeleſs, nor will they produce ſo good ſeeds; therefore the beſt way is, when the plants are come up, to hoe them out, as is practiſed for Onions, Carrots, &c. leaving the plants about eight or ten inches aſunder every way, obſerving to keep them clear from weeds; and when the ſeeds begin to be formed, you ſhould cut up thoſe that are intended to be put into the pickle for Cucumbers, leaving thoſe that are intended for the uſe of the ſeeds until they are ripe; at which time it ſhould be cut, and ſpread upon a cloth to dry, and then beat out for uſe: if you let the ſeeds fall upon the ground, the plants will riſe the next ſpring without any care, ſo that the trouble of ſowing their ſeeds may be ſpared.

ANGELICA [of *Angelus*, ſo called, as ſome quacks, &c. pretend, from the angels, on account of its excellent qualities.]

The Characters are,

It is an umbelliferous plant, the greater umbel being compoſed of many ſmall ones; the involucrum, or cover of the large umbel, is compoſed of five ſmall leaves, and thoſe of the ſmaller of eight, and the empalement of the flowers are indented in five parts. The flowers of the whole umbel are uniform, each of them conſiſt of five petals which fall away; theſe have five ſtamina, which are longer than the petals, and are crowned with ſingle ſummits. The *germen is ſituated below the flower, ſupporting two reflexed ſtyles, crowned with obtuſe ſtigma; the germen afterward becomes a roundiſh fruit ſplitting into two, and compoſed of two ſeeds, which are plain on one ſide, convex on the other, and are bordered.*

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, entitled Pentandria Digynia, from the flowers having five ſtamina and two ſtyles.

The Species are,

1. Angelica (*Sativa*) foliorum impari lobato. Flor. Lapp. 101. *Angelica with leaves compoſed of an unequal number of lobes.* Angelica ſativa. C. B. P. 155. *Garden Angelica.*
2. Angelica (*Archangelica*) altiſſima foliorum lobatis maximis ſerratis. *Talleſt Angelica with leaves compoſed of large ſerrated lobes.* Angelica ſcandiaca Archangelica. Tabern. Icon. 82.
3. Angelica (*Sylveſtris*) foliis æqualibus ovato-lanceolatis ſerratis. Hort. Cliff. 97. *Angelica with equal leaves, compoſed of oval ſpear-ſhaped lobes which are ſawed.* Angelica ſylveſtris major. C. B. P. 155.
4. Angelica (*Atropurpurea*) extimo foliorum pari coadunato folio terminali petiolato. Prod. Leyd. 103. *Angelica with the extreme pair of leaves joined, and terminated with a foot-ſtalk.* Angelica Canadenſis atropurpurea. Cornut. Canad. 198.
5. Angelica (*Lucida*) foliis æqualibus ovatis inciſo-ſerratis. Hort. Cliff. 97. *Angelica with equal leaves and oval lobes, which are cut and ſawed.* Angelica lucida Canadenſis. Cornut. Canad. 196.

The firſt ſort is the common Angelica, which is cultivated in the gardens for medicinal uſe, as alſo for making a ſweetmeat, which is by ſome greatly eſteemed. This grows naturally by the ſide of rivers in northern countries.

The ſecond ſort grows naturally in Hungary, and ſome parts of Germany. This hath been ſuppoſed to be only a variety of the firſt by many modern botaniſts; but from many years experience in the culture of this plant, I could never obſerve any alteration in it; for all the plants which I raiſed from ſeeds, proved exactly the ſame as the parent plant, and when planted in the ſame ſoil with the common ſort, they were twice their ſize. The leaves were alſo much larger, and deeper ſawed on their edges, the umbels much larger, and the flowers were yellow. This ſort ſeldom continues longer than two or three years, ſo that young plants ſhould be raiſed to preſerve the ſpecies. The ſeeds ſhould be ſown in autumn, for thoſe which are ſown in the ſpring ſeldom ſucceed.

The third ſort grows naturally in moiſt meadows, and by the ſides of rivers in many parts of England, ſo is ſeldom admitted into gardens.

The fourth and fifth ſorts grow naturally in North America, from whence their ſeeds were ſent to Europe, where the plants are preſerved in gardens for the ſake of variety; but as they have no uſe and but little beauty, they are not admitted into many gardens. They are both very hardy plants, and may be eaſily propagated by ſeeds, which ſhould be ſown in autumn, and when the plants are large enough to remove, they muſt be tranſplanted into a moiſt ſoil, and have a ſhady ſituation, allowing them two feet room on every ſide. They grow four or five feet high, and put out many ſhoots from the root, eſpecially the ſecond year from ſeed, when they will flower in June, and the ſeeds ripen in September. The roots of theſe ſorts ſeldom continue longer than two or three years. The common Angelica delights to grow in a very moiſt ſoil; the ſeeds of this plant ſhould be ſown ſoon after they are ripe, for if they are kept until the ſpring, ſeldom one ſeed in forty will grow. When the plants are come up about ſix inches high, they ſhould be tranſplanted at a large diſtance, for their leaves extend very wide; the beſt place for this plant is upon the ſides of ditches, or pools of water; where being planted about three feet aſunder, they will thrive exceedingly. The ſecond year after ſowing, they will ſhoot up to flower; therefore if you have a mind to continue their roots, you ſhould cut down theſe ſtems in May, which will occaſion their putting out heads from the ſides of the roots, whereby they may be continued for three or four years; whereas, if they had been permitted to ſeed, their roots would periſh ſoon after.

The gardeners near London, who have ditches of water running through their gardens, propagate great quantities of this plant, for which they have a great demand from the confectioners, who make a ſweetmeat with the tender ſtalks of it cut in May.

This plant is alſo uſed in medicine, as are alſo the ſeeds; therefore where it is cultivated for the ſeeds, there ſhould be new plantations annually made to ſupply the places of thoſe which die, for when they are permitted to ſeed, they laſt but two years.

ANGUINA. See Tricosanthes.

ANGURIA, the Water Melon, or Citrul.

The Characters are,

It hath male and female flowers growing at ſeparate diſtances on the ſame plant; the flowers of both ſexes are of the open bell-ſhaped kind, of one leaf, and have empalements of the ſame form. The male flowers have three ſhort ſtamina, which are joined together at the top; theſe are crowned by ſlender ſummits. The female flowers reſt upon an oval germen, ſupporting a cylindrical ſtyle, crowned by three large ſtigma, which are gibbous; the germen afterward becomes an oblong fleſhy fruit, having five cells filled with compreſſed ſeeds, which are rounded at their extremity.

Dr. Linnæus joins this genus to the Gourd, but whoever will allow the fruit to be a characteriſtic in determining the genera, muſt keep them ſeparate; for the Gourd hath but three cells, whereas the Anguria has five.

This genus is ranged in the tenth ſection of Linnæus's twenty-firſt claſs of plants, entitled Monœcia Syngeneſia, from the flowers being male and female in the ſame plant, and the ſtamina and ſummits growing together.

We have but one Species of this genus, viz.

Anguria foliis multipartitis. *Water Melon with leaves cut into many parts.* Anguria Citrullus dicta. C. B. P. 312. Of this there are ſeveral varieties which differ in the form and colour of their fruit; but as theſe vary annually from ſeeds, it is needleſs to enumerate them here.

This fruit is cultivated in Spain, Portugal, Italy, and moſt other warm countries in Europe; as alſo in Africa, Aſia, and America, and is by the inhabitants of thoſe countries greatly eſteemed for their wholſome cooling quality; but in England the fruit is not ſo univerſally eſteemed, though ſome few perſons are very fond of them. I ſhall therefore give full directions for raiſing them, ſo that ſuch perſons as are willing to be at the expence and trouble of it, may not be at a loſs for inſtructions.

Firſt provide ſome ſeeds, which ſhould be three or four years old; for new ſeeds are apt to produce vigorous plants, which are ſeldom ſo fruitful as thoſe of a moderate ſtrength. The beſt ſorts to cultivate in England, are thoſe with ſmall round fruit, which come from Aſtracan, thoſe with very large fruit, ſeldom ripen well in this climate. Having provided good ſeed, you ſhould prepare a heap of new dung the beginning of February, which ſhould be thrown in a heap for about twelve days to heat, turning it over twice, mixing it well; then you ſhould make a hot-bed, in which theſe ſeeds, as alſo Cucumber-ſeeds and Muſk Melons may be ſown. The dung ſhould be well wrought in making the bed, and muſt be beaten down pretty cloſe with a dung-fork, that the heat may not be too violent, and of longer continuance. When the dung is thus laid, you ſhould cover it about four inches thick with good light earth, and having ſpread it very even, you ſhould put the frame and glaſs over it, leaving it to warm four or five days before you put the ſeeds into it, obſerving, if the ſteam riſes pretty much, to raiſe up the glaſs to let it paſs off: then, if you find your bed in proper temper, you may ſow your ſeeds therein in drills, covering them over with earth about half an inch. After this, if you find your bed very warm, you muſt give air in the day-time by raiſing the glaſſes; but if the bed is cool, you muſt cover it well with mats every night, as alſo in bad weather. In four or five days after, you muſt prepare another hot-bed to receive theſe plants, which will be fit to tranſplant in ten days, or a fortnight at moſt, after the ſeeds are ſown; this bed need not be very large, for a few of theſe plants will fill a large quantity of frames, when they are planted out for good, and while the plants are young, there may be a great quantity kept in one light; ſo that thoſe perſons who raiſe early Cucumbers and Muſk Melons, may alſo raiſe theſe plants in the ſame bed; for two or three lights will be ſufficient to raiſe plants of all three kinds, to ſupply the largeſt families, until they are planted out for good. In the management of theſe plants while young, there is little difference from the directions given for raiſing Muſk Melons, therefore I need not repeat it here. The chief thing to be obſerved, is, to let them have a large ſhare of air whenever the weather will permit, otherwiſe the plants will draw up weak, and be good for little. As theſe plants will require two or three hot-beds to bring the fruit to perfection, it will be the better way to put the plants into baſkets, when they have gotten four leaves, as is directed for raiſing early Cucumbers; but you ſhould not plant more than two plants in each baſket, for if one of them lives it will be ſufficient; therefore when both the plants ſucceed, you ſhould draw out the weakeſt and moſt unpromiſing of them, before they begin to put out their ſide ſhoots, otherwiſe they will entangle and render it difficult to be performed, without greatly injuring the remaining plant.

The baſkets in which theſe plants are to be planted, need not be more than a foot diameter; ſo that one light will contain eight of them, which will be ſufficient for twenty-four lights, when they are planted out for good; for where the plants are vigorous, one ſingle plant will ſpread ſo far as to fill three lights; and if they have not room, they ſeldom ſet their fruit well.

Theſe baſkets may remain in the nurſery-beds until the plants have ſpread, and put out many runners; for when the heat of this bed declines, it is ſoon revived by adding a proper lining of warm dung to the ſides of the bed quite round; ſo that when they are taken out of this bed, and placed in the ridges where they are to remain, the heat of the beds will laſt ſo long as to ſet their fruit, which is of great conſequence; for when the plants are ridged out very young, the beds are generally made of great thickneſs in dung, in order to continue their heat; ſo that for ſome time after they are made, they are ſo extreme hot, as to endanger the ſcalding of the plants; and by the time the fruit begins to appear, there is little heat left in the beds, which often occaſions the fruit to drop off, and come to nothing.

After theſe plants are placed in the beds where they are to remain, you muſt carefully lead the ſhoots as they are produced, ſo as to fill each part of the frame, but not to croud each other; and be careful to keep them clear from weeds, as alſo to admit freſh air whenever the weather will permit; they muſt alſo be frequently watered, but do not give it them in great quantities. In ſhort, there is little difference to be obſerved in the management of theſe, from that of Muſk Melons, but only to give them more room, and to keep the beds to a good temperature of heat, and when the fruit appears, to admit air freely to the plants, in order to ſet their fruit; but when the nights are cold, the glaſſes muſt be covered with mats to keep the beds warm, without which this fruit will ſeldom come to good in this country.

ANIL. See Indigophera.

ANISUM, or ANISE. See Pimpinella.

ANNONA. Lin. Gen. Plant. 613. Guanabanus. Plum. Nov. Gen. 10. *The Cuſtard Apple, &c.*

The Characters are,

The empalement is compoſed of three ſmall heart-ſhaped leaves, which are concave and pointed. The flower hath ſix petals, three large and three alternately ſmaller. The ſtamina is ſcarce diſcernible, but there are many ſummits on each ſide the germen, which is ſituated at the bottom of the flower, having no ſtyle, but an obtuſe ſtigma. The germen afterward becomes an oval, or oblong fruit, having a ſcaly rind, and one cell, in which are lodged many oval ſmooth ſeeds.

This genus of plants is ranged in the ſeventh ſection of Linnæus's thirteenth claſs, entitled Polyandria Polyginia, the flowers of this diviſion having many ſtamina and ſeveral germen.

The Species are,

1. Annona (*Reticulata*) foliis lanceolatis fructibus ovatis reticulato-areolatis. Lin. Sp. Plant. 537. *Annona with ſpear-ſhaped leaves, and oval fruit which are netted, or wrought in ſquares.* Guanabanus fructu aureo & molliter aculeato. Plum. Nov. Gen. 43. *The Cuſtard Apple.*
2. Annona (*Muricatis*) foliis ovali-lanceolatis glabris nitidis planis pomis muricatis. Hort. Cliff. 222. *Annona with plain, ſmooth, ſhining, oval, ſpear-ſhaped leaves, and a prickly fruit.* Guanabanus fructu è viridi luteſcente molliter aculeato. Plum. Nov. Gen. 43. *The Sour Sop.*
3. Annona (*Squamoſa*) foliis oblongis fructibus obtusè ſubſquamatis. Lin. Sp. Plant. 537. *Annona with oblong leaves, and obtuſe ſcaly fruit.* Guanabanus foliis odoratis fructu ſubrotundo ſquamoſo. Plum. Nov. Gen. 43. *The Sweet Sop.*
4. Annona (*Paluſtris*) foliis oblongis obtuſis glabris, fructu rotundo, cortice glabro. *Annona with oblong, blunt, ſmooth leaves, and round fruit, with a ſmooth ſkin.* Guanabanus paluſtris fructu lævi viridi. Plum. Nov. *The Water Apple.*
5. Annona (*Cherimola*) foliis latiſſimis glabris, fructu oblongo ſquamato, ſeminibus nitidiſſimis. *Annona with very broad ſmooth leaves, oblong ſcaly fruit, and very ſhining ſeeds.*
6. Annona (*Africana*) foliis ovato-lanceolatis pubeſcentibus fructu glabro ſubcæruleo. *Annona with oval, ſpear-ſhaped, downy leaves, and ſmooth bluiſh fruit.* Guanabanus fructu ſubcæruleo. Plum. Nov. Gen. 43. *The Sweet Apple.*
7. Annona (*Aſiatica*) foliis lanceolatis glabris nitidis ſecundum nervos ſulcatis. Hort. Cliff. 222. *Annona with neat ſpear-ſhaped leaves, with nervous furrows.* Guanabanus fructu purpureo. Plum. Nov. Gen. 43. *The Purple Apple.*
8. Annona (*Triloba*) foliis lanceolatis fructibus trifidis. Lin. Sp. Plant. 537. *Annona with ſpear-ſhaped leaves, and trifid fruit.* Annona fructu luteſcente lævi ſerotum arietis referente. Cateſb. Car. 2. 85. *The North American Annona, called by the inhabitants Papaw.*

The firſt ſort uſually grows to the height of twenty-five feet, or upwards, in the Weſt-Indies, and is well furniſhed with branches on every ſide; the bark is ſmooth, and of an Aſh colour; the leaves are oblong, of a light green colour, and have ſeveral deep tranſverſe ribs or veins, ending in acute points; the fruit is of a conical form, as large as a tennis-ball, of an Orange colour when ripe, having a ſoft, ſweet, yellowiſh pulp, of the conſiſtence of a cuſtard, from whence the title of Cuſtard Apple was given to it.

The ſecond ſort is not ſo large as the firſt, rarely riſing above twenty feet high, and not ſo well furniſhed with branches; the leaves are broader than thoſe, have a ſmooth ſurface without any furrows, and are of a ſhining green colour; the fruit is large, of an oval ſhape, irregular, and pointed at the top, being of a greeniſh yellow colour, and full of ſmall knobs on the outſide; the pulp is ſoft, white, and of a ſour and ſweet taſte intermixed, having many oblong dark-coloured ſeeds.

The third ſort is a tree of humbler growth, ſeldom riſing more than fifteen feet high, and is well furniſhed with branches on every ſide; the leaves of this ſort have an agreeable ſcent when rubbed; the fruit is roundiſh and ſcaly, and when ripe turns of a purple colour, and hath a ſweet pulp.

The fourth ſort commonly grows from thirty to forty feet in the Weſt-Indies. This hath oblong pointed leaves, which have ſome ſlender furrows, and when rubbed have a ſtrong ſcent; the fruit of this ſort is ſeldom eaten but by the negroes; the tree grows in moiſt places in all the iſlands of the Weſt-Indies.

The fifth ſort is much cultivated in Peru for the fruit, and from thence the ſeeds have been brought to England, and many plants have been raiſed. This grows to be a very large tree in the natural country of its growth, and is well furniſhed with branches, which are garniſhed with leaves of a bright green colour, which are much larger than thoſe of any of the other ſorts. The fruit is oblong and ſcaly on the outſide, and of a dark purple colour when ripe; the fleſh is ſoft and ſweet, has many brown ſeeds intermixed, which are very ſmooth and ſhining; the fruit is eſteemed by the Peruvians as one of their moſt delicate ſorts. This has produced flowers in England, but no fruit.

The ſixth and ſeventh ſorts grow in ſome of the French iſlands, as alſo in Cuba, in great plenty; theſe grow to the height of thirty feet or more; their fruit are eſteemed by the inhabitants of thoſe iſlands, who frequently give them to ſick perſons, as they reckon them very cooling and wholeſome.

The eighth ſort grows plentifully in the Bahama iſlands, where it ſeldom riſes to more than ten feet high, having ſeveral ſtems; the fruit of this ſort are ſhaped like a Pear inverted. This is ſeldom eaten but by the negroes, and is the food of guanas, and other animals.

This ſort will thrive in the open air in England, if it is planted in a warm ſheltered ſituation; but the plants ſhould be trained up in pots, and ſheltered in winter for two or three years, until they have acquired ſome ſtrength; then they may be turned out of the pots in the ſpring, and planted in the full ground, where they are to remain. This ſort has produced flowers in the curious garden of his grace the duke of Argyle, at Whitton, near Hounſlow, where it has been growing in the open air for ſome years, as alſo in the nurſery of the late Mr. Gray, near Fulham. The ſeeds of this ſort are frequently brought to England from North America, which are much larger than thoſe of the other ſpecies, and many plants have been lately raiſed in the gardens near London. The ſhape of the leaves is alſo different; this caſts its leaves in autumn, whereas all the others retain their leaves, never caſting them until the ſpring, when the leaves come out. The fruit is very different from thoſe of the other ſpecies, two or three growing together at their foot-ſtalks. When the ſeeds of this ſort are ſown, they frequently remain a whole year in the ground; therefore the earth in the pots ſhould not be diſturbed, where they are ſown, if the plants do not come up the firſt year; and the pots ſhould be ſheltered in winter, and the following ſpring if they are plunged into a new hot-bed, the plants will come up much ſooner than thoſe which are ſown in the open air, ſo will have more time to get ſtrength before the winter.

All the other ſorts which are natives of the warm parts of America, are to otender to live in this country, if they are not preſerved in warm ſtoves; they come up very eaſily from the ſeeds which are brought from America, if they are freſh; but theſe ſeeds muſt be ſown on a good hot-bed, or in pots of light earth, and plunged into a hot-bed of tanners bark in February, which is by much the beſt time; becauſe when the plants come up early, they will have time to get ſtrength before the cold weather comes on in the autumn.

Theſe plants ſhould be kept in the bark-ſtove, and carefully managed, with which they will make great progreſs; but in warm weather they ſhould have plenty of freſh air admitted to them, for when the air is excluded from them too much, they are apt to grow ſickly, and are often attacked by vermin, which will multiply and ſpread over the whole ſurface of the leaves, and cauſe them to decay; but when carefully managed, their leaves will continue green all the winter, and make a very good appearance in the ſtove at that ſeaſon.

As theſe plants advance in their growth, they ſhould be ſhifted into larger pots; but this muſt be done with caution, for nothing is more prejudicial to them than over-potting them. They muſt alſo conſtantly remain in the tan-bed, otherwiſe they will make but little progreſs; for although they will live in a dry ſtove, yet they will make little progreſs, nor will their leaves appear ſo fine, as when they are preſerved in a vigorous growing ſtate; and it is more for the beauty of their leaves, than any hopes of their producing fruit in this country, that they are preſerved in ſtoves: for though there has been ſome of the ſorts which have produced flowers in England, yet none have ever ſhewn their fruit here.

Some of theſe plants are twelve or fourteen feet high in our gardens, and a few years ago there were plants of the fifth ſort in the garden at Chelſea, which were more than twenty feet high, and produced flowers two or three years. The ſtove in which theſe plants are placed, ſhould, during the winter ſeaſon, be kept to the Ananas heat, marked on the botanical thermometers. The earth ſhould be light and rich in which they are planted, and the tan-bed ſhould be frequently turned over and refreſhed. Their waterings muſt be frequent in ſummer, but not in too great quantity. In the winter they muſt have it but ſeldom, a little once a week in open weather, and, in froſt, once in a fortnight or three weeks, will be ſufficient.

ANTHEMIS. Lin. Gen. Plant. 870. Chamomile.

The Characters are,

It is a plant with a compound flower, whoſe common empalement is hemiſpherical, compoſed of many ſcales which are equal. The border, or rays of the flower, is compoſed of many female florets, whoſe petals are ſtretched out like tongues on one ſide, and are indented in three parts at their extremity. The middle, or diſk of the flower, is compoſed of many hermaphrodite florets, which are funnel-ſhaped, erect, and cut into five parts at the top. Theſe have five ſhort narrow ſtamina, which are crowned by cylindrical hollow ſummits. The germen is ſituated at the bottom, ſupporting a ſlender ſtyle, crowned by two reflexed ſtigma, which afterward becomes an oblong naked ſeed. The female florets have no ſtamina, but an oblong germen in the center, ſupporting two inflexed ſtyles.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, entitled Syngeneſia Polygamia ſuperflua, the flowers of this ſection being compoſed of many florets, which are female and hermaphrodite, whoſe ſtamina are joined at the top.

The Species are,

1. Anthemis (*Nobilis*) foliis pinnato-compoſitis linearibus acutis ſubvilloſis. Lin. Sp. Plant. 894. *Chamomile with winged leaves, compoſed of many very narrow-pointed hoary ſegments.* Chamæmelum nobile ſive Leucanthemum odoratius. C. B. P. 135. *Common, or noble Chamomile.*
2. Anthemis (*Arvenſis*) receptaculis conicis paleis ſetaceis ſeminibus coronato-marginatis. Flor. Suec. 704. *Chamomile with a conical receptacle of briſtly chaff, and bordered ſeeds.* Chamæmelum inodorum. C. B. P. 136. *May Weed.*
3. Anthemis (*Cotula*) receptaculis conicis paleis ſetaceis ſeminibus nudis. Lin. Sp. Plant. 894. *Chamomile with a conicle receptacle, briſtly chaff, and naked ſeeds.* Chamæmelum fœtidum. C. B. P. 135. *May Weed.*
4. Anthemis (*Cota*) florum paleis rigidis pungentibus. Flor. Leyd. 172. *Chamomile with ſtiff pungent chaff between the florets.* Chamæmelum annuum ramoſum cotulæ fœtidæ floribus amplioribus capitulis ſpinoſis. Mor. Hiſt. 3. p. 36.
5. Anthemis (*Altiſſima*) erecta foliorum apicibus ſubſpinoſis. Lin. Sp. Plant. 893. *Upright Chamomile with leaves ending with ſpines.* Chamæmelum Leucanthemum Hiſpanicum magno flore. C. B. P. 135.
6. Anthemis (*Maritima*) foliis pinnatis dentatis carnoſis nudis punctatis caule proſtrato, calycibus ſubtomentoſis.

mentoſis. Lin. Sp. Plant. 893. *Chamomile with fleſhy pinnated leaves, and a branching trailing ſtalk.* Chamæmelum maritimum. C. B. P. 134.

7. Anthemis (*Tomentoſa*) foliis pinnatifidis obtuſis planis, pedunculis hirſutis, folioſis calycibus tomentoſis. Hort. Cliff. 415. *Chamomile with plain blunt leaves, winged at their extremity, hairy foot-ſtalks, and a leafy woolly empalement.* Chamæmelum maritimum incanum folio abſinthii craſſo. Boerh. Ind. 1. p. 110.

8. Anthemis (*Mixta*) foliis ſimplicibus dentato-laciniatis. Lin. Sp. Plant. 894. *Chamomile with ſingle, indented, cut leaves.* Chamæmelum Luſitanicum latifolium ſive Coronopi folio. Breyn. Cent. 1. 49.

9. Anthemis (*Pyrethrum*) caulibus unifloris decumbentibus foliis pinnato-multifidis. Lin. Hort. Cliff. 414. *Chamomile with ſingle flowers on the ſtalks lying on the ground, and winged leaves.* Pyrethrum flore bellidis. C. B. P. 148. *Pellitory of Spain.*

10. Anthemis (*Valentina*) caule ramoſo foliis pubeſcentibus tripinnatis, calycibus villoſis pedunculatis. Hort. Cliff. 414. *Chamomile with a branching ſtalk, multifid hairy leaves, and hairy foot-ſtalks.* Buphthalmum cotulæ folio. C. B. P.

11. Anthemis (*Tinctoria*) foliis bipinnatis ſerratis ſubtus tomentoſis, caule corymboſo. Lin. Sp. 1263. *Chamomile with ſawed winged leaves, woolly underneath, and flowers in a corymbus.* Buphthalmum Tanaceti minoris foliis. C. B. P. 134.

12. Anthemis (*Arabica*) caule decompoſito calycibus ramiferis. Hort. Cliff. 413. *Chamomile with a decompound ſtalk, and a branching empalement.* Aſteriſcus annuus trianthophorus Craſſas Arabicus dictus. Shaw. Afr. 58.

The firſt ſort is the common Chamomile, which grows in plenty upon commons and other waſte land. It is a trailing perennial plant, which puts out roots from the branches as they lie on the ground, whereby it ſpreads and multiplies greatly; ſo that whoever is willing to cultivate this plant, need only procure a few of the ſlips in the ſpring, and plant them a foot aſunder, that they may have room to ſpread, and they will ſoon cover the ground. Formerly this plant was uſed for planting of walks, which, when mowed and rolled, looked well for ſome time, but as it was very ſubject to decay in large patches, the walks became unſightly, for which reaſon this was diſuſed. The flowers of this ſort are ordered for medicinal uſe, but the market people generally ſell the double flowers, which are much larger, but not ſo ſtrong as the ſingle. The double ſort is equally hardy, and may be propagated in the ſame manner.

The ſecond ſort is a common annual weed, which grows among corn; it flowers in May, ſo was called May Weed, though ſome have applied that title improperly to the Cotula fœtida, which rarely flowers till late in June.

The fourth, fifth, and eighth ſorts are annual plants, which grow naturally in Spain, Portugal, Italy, and the ſouth of France, from whence their ſeeds have been brought to England, where the plants are preſerved in botanic gardens for the ſake of variety. They riſe eaſily from ſeeds ſown in the ſpring, and require no other culture but to thin the plants where they are too cloſe, allowing them a foot and a half room each way, and clean them from the weeds. They flower in July, and their ſeeds ripen in September.

The ſixth and ſeventh ſorts are perennial plants, which grow naturally in Spain, Portugal, and Greece, from whence their ſeeds have been brought to England, and the plants are preſerved in ſome curious gardens for the ſake of variety. They are hardy and may be propagated by ſeeds, which ſhould be ſown in the ſpring upon poor land, where the plants will continue much longer than in good ground, and will require no other care but to keep them clean from weeds. Theſe plants do not grow tall, but are buſhy, ſo ſhould be allowed room to grow. Their flowers are white, and continue from July to October, and the ſeeds ripen in autumn.

The ninth ſort is the Pellitory of Spain, the roots of which are uſed for the tooth-ach, being extremely warm; when they are applied to the part affected, they draw out the cold rheum, and are often ſerviceable in this particular. This is a perennial plant, with a long taper root like that of a Carrot, which grows naturally in Spain and Portugal, from whence the roots are brought to England. The branches of this trail upon the ground, and ſpread a foot or more each way; theſe are garniſhed with fine winged leaves, like thoſe of the common Chamomile; at the extremity of each branch is produced one large ſingle flower, like Chamomile, but much larger, the rays of which are of a pure white within, but purple on their outſide. After the flowers are paſt, the receptacle ſwells to a large ſcaly cone; between theſe ſcales are lodged the ſeeds. It flowers in June and July, and the ſeeds are ripe in September; but unleſs the ſeaſon is dry, the ſeeds do not ripen in England, for the wet falls between the ſcales, and rots the ſeeds in embryo.

The eleventh ſort is a perennial plant, which is propagated by ſeeds; theſe may be ſown on a bed of common earth in the ſpring, and when the plants are ſtrong enough to remove, ſhould be tranſplanted into large open borders, near ſhrubs, where they may have room to grow, for they ſpread very wide, therefore require three feet diſtance from other plants; in theſe large open ſpots they will make a pretty variety from June to November, during which time they continue in flower: ſome of theſe are white, others are of a ſulphur, and ſome have yellow flowers, but theſe vary from ſeed; the eaſtern ſorts grow taller, and the flowers are larger than the common, but in other particulars they are the ſame, though many have ſuppoſed them different ſpecies.

The ſeeds of the twelfth ſort were brought from Africa by the late Dr. Shaw, which were diſtributed to many curious botaniſts in Italy, France, and England, where ſome of the plants were raiſed. This grows near two feet high, with an upright ſtem, having a ſingle flower at the top, from whoſe empalement there are two or three foot-ſtalks put out horizontally, about two inches long, each having a ſingle flower ſmaller than the firſt, like the Childing Marigold, or Hen and Chicken Daiſy. The ſeeds of this ſhould be ſown in autumn, and treated in the ſame manner as is before directed for ſome other ſorts, otherwiſe the ſeeds are ſeldom perfected in England.

ANTHERICUM. Lin. Gen. Plant. 380. Spiderwort.

The Characters are,

The flower hath no empalement, and is compoſed of ſix oblong blunt petals, which ſpread open. It hath ſix upright awl-ſhaped ſtamina, which are crowned by ſmall ſummits, having four furrows. The germen which is ſituated in the center is three-cornered, ſupporting a ſingle ſtyle which is as long as the ſtamina, crowned by a three-cornered blunt ſtigma. The germen afterward becomes an oval ſmooth capſule, having three furrows, opening in three cells, which are filled with angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, entitled Hexandria Monogynia, from their flowers having ſix ſtamina and but one ſtyle.

The Species are,

1. Anthericum (*Revolutum*) foliis planis ſcapo ramoſo corollis revolutis. Lin. Sp. Plant. 310. *Anthericum with plain leaves, a branching ſtalk, whoſe petals turn backward.* Aſphodelus foliis compreſſis aſperis caule patulo. Tourn. Inſt. R. H. 343.

2. Anthericum (*Ramoſum*) foliis planis ſcapo ramoſo corollis planis piſtillo recto. Lin. Sp. Plant. 310. *Anthericum with plain leaves, a branching ſtalk, and plain reflexed petals.* Phalangium parvo flore ramoſum. C. B. P. 29.

3. Anthericum (*Liliago*) foliis planis ſcapo ſimpliciſſimo corollis planis, piſtillo declinato. Hort. Upſal. 83. *Anthericum with plain leaves, a ſingle ſtalk, and declining pointals.* Phalangium parvo flore non ramoſum. C. B. P. 29.

4. **Anthericum** (*Fruteſcens*) foliis carnoſis teretibus caule fruticoſo. Lin. Sp. Plant. 310. *Anthericum with fleſhy taper leaves, and a ſhrubby ſtalk.* Phalangium capenſe cauleſcens foliis cepitiis ſuccoſis. H. Elth. 310.

5. **Anthericum** (*Aloeides*) foliis carnoſis ſubulatis planiuſculis. Hort. Upſal. 83. *Anthericum with fleſhy, plain, awl-ſhaped leaves.* Phalangium capenſe ſeſſile foliis aloeformibus pulpoſis. Hort. Elth. 123.

6. **Anthericum** (*Aſphodeloides*) foliis carnoſis ſubulatis ſemiteretibus ſtrictis. Hort. Upſal. 83. *Anthericum with awl-ſhaped, fleſhy, half taper leaves, growing cloſe.* Bulbine acaulis foliis ſubulatis. Prod. Leyd. 33.

7. **Anthericum** (*Annuum*) foliis carnoſis ſubulatis teretibus ſcapo ſubramoſo. Hort. Upſal. 83. *Anthericum with awl-ſhaped, fleſhy, taper leaves, and a branching ſtalk.* Aſphodelus Africanus anguſtifolius luteus minor. Tourn. Inſt. 343.

8. **Anthericum** (*Altiſſimum*) acaule foliis carnoſis teretibus ſpicis florum longiſſimis laxis. Fig. Plant. pl. 39. *Tall African Spiderwort with taper fleſhy leaves, and very long looſe ſpikes of flowers.*

9. **Anthericum** (*Oſſifragum*) foliis enſiformibus filamentis lanatis. Flor. Suec. 268. *Anthericum with ſword-ſhaped leaves, and downy ſtamina.* Aſphodelus luteus paluſtris. Dod. Pempt. 208.

10. **Anthericum** (*Calyculatum*) foliis enſiformibus perianthiis trilobis filamentis glabris piſtillis trigynis. Flor. Suec. 269. *Anthericum with ſword-ſhaped leaves, an empalement with three lobes, ſmooth ſtamina, and three ſtyles.* Phalangium alpinum paluſtre, Iridis folio. Segu.

The firſt ſort grows naturally at the Cape of Good Hope; the roots of this are fleſhy, and compoſed of tubers joined at the crown like thoſe of the Aſphodel; the ſtalk riſes near two feet high, and branches out on each ſide, each branch being terminated by a looſe ſpike of flowers, which are white, and the petals are turned backward to their foot-ſtalk. The leaves of this ſort are flat, and the root is perennial, but the ſpikes decay in autumn.

The ſecond ſort hath a perennial root; the ſtalks of this riſe about the ſame height as the former, ſending out many lateral branches in like manner, which are terminated by looſe ſpikes of flowers, which are white, but the petals are plain, and do not turn back as in the other ſort.

The third ſort hath plain leaves and an unbranching ſtalk, in which it chiefly differs from the former. The root of this is perennial.

The two next ſorts grow naturally in Spain, Portugal, and other warm countries, and were more common ſome years ago in the Engliſh gardens than at preſent; for the ſevere winter in 1740, killed moſt of their roots. Theſe flower in June and July, and their ſeeds are ripe in September. They are propagated by ſeeds, which ſhould be ſown in autumn; for thoſe which are ſown in the ſpring, never come up the ſame year, but remain in the ground till the following ſpring, or often miſcarry. Theſe ſhould be ſown in a bed of light ſandy earth, in a warm ſituation, and when the plants come up, they muſt be kept clean from weeds during the ſummer; and in autumn, when their leaves decay, they ſhould be carefully taken up, and tranſplanted into a bed of light earth, at a foot diſtance from each other. If the winter ſhould prove ſevere, the bed ſhould be covered with ſtraw, Peaſe-haulm, or ſuch light covering, to keep out the froſt; or if ſome old tan from a hot-bed is ſpread over the ground, it will prevent the froſt from penetrating the ground, and will preſerve the roots. In this bed they may remain one year, by which time they will be ſtrong enough to flower; therefore the following autumn they ſhould be carefully taken up, ſo as not to break their roots, and planted in the borders of the flower-garden, where they will laſt ſeveral years, if they are not killed by froſt; to prevent which, ſome rotten tan ſhould be laid over the roots in winter, which will always ſecure them.

The fourth ſort has been long preſerved in many gardens near London, and was formerly known among the gardeners by the title of Onion-leaved Aloe. This plant produces many ligneous branches from the root, each ſupporting a plant with long taper leaves, in ſhape of thoſe of the Onion, which are full of a yellow pulp very juicy. Theſe plants ſend out roots, which run down and faſten themſelves into the earth, by which they multiply greatly. The flowers are produced on long looſe ſpikes, are yellow, and appear at different times, ſo that the plants are not long deſtitute of flowers. Theſe are ſucceeded by round ſmooth ſeed-veſſels, which have three cells, filled with triangular ſeeds; but as the plant multiplies ſo faſt by offſets, the ſeeds are little regarded. It grows naturally at the Cape of Good Hope, and requires a little ſhelter in winter; but in ſome mild ſeaſons I have had plants live without any cover, which were planted cloſe to a warm wall.

The fifth and ſixth ſorts grow cloſe to the ground, never riſing with any ſtalk. The fifth hath broad, flat, pulpy leaves, reſembling thoſe of ſome ſorts of Aloe, ſo was formerly by gardeners called Aloe with flowers of Spiderwort. The leaves ſpread open; the flowers are produced on looſe ſpikes, like the former, but are ſhorter: the flowers are yellow, and appear at different ſeaſons. This is produced by offſets, which are put out in plenty, and muſt be planted in pots filled with light ſandy earth, and in winter placed in the green-houſe, and treated as other hardy ſucculent plants, which come from the Cape of Good Hope, where this plant grows naturally. It muſt be kept pretty dry in winter, and if it is ſcreened from froſt, it will require no artificial warmth.

The ſixth ſort hath long, narrow, pulpy leaves, which are almoſt taper, but flatted on their upper ſide; this ſends out many offſets, by which it may be increaſed plentifully. The flowers are yellow, and grow on long looſe ſpikes, as the former; theſe appear at different ſeaſons; thoſe of the ſpring and ſummer are ſucceeded by ſeeds in great plenty, ſo may be eaſily propagated thereby, which ripen very well. It muſt be treated in the ſame manner as the former.

The ſeventh ſort is annual: this is a low plant growing cloſe to the ground, having pretty long ſucculent leaves which are taper, but flatted on their upper ſide; the flowers grow in looſe ſpikes, which are ſhorter than either of the other ſorts. They are yellow, and ſucceeded by round ſeed-veſſels, like thoſe of the former ſorts; the plants periſh ſoon after their ſeeds ripen. The ſeeds of this ſort ſhould be ſown on a warm border of light earth in April, where they are to remain; and when the plants come up, they will require no other care but to keep them clean from weeds, and to thin them where they are too cloſe. This ſort flowers in July, and the ſeeds ripen in October.

The eighth ſort never riſes to a ſtalk, but the leaves come out cloſe to the ground. Theſe are long, taper, ſucculent, and of a ſea-green colour, growing erect; the flower-ſtems riſe between the leaves, and are near three feet long; the upper half being thinly garniſhed with yellow flowers, ſhaped like thoſe of the other ſpecies. Theſe appear at different ſeaſons, ſo that the plants are ſeldom long deſtitute of flowers. This ſort doth not ſend out offſets ſo freely as ſome of the others; but as it produces ſeeds annually, it may be had in plenty. It muſt be treated in the ſame manner as the fourth, fifth, and ſixth ſorts.

The ninth and tenth ſorts grow naturally on bogs in moſt of the northern countries; the tenth is common in many parts of England, but particularly in Lancaſhire, from whence it had the title of Lancaſhire Aſphodel; it alſo grows on a bog upon Putney-heath. The other grows naturally in Denmark, Sweden, and Lapland. Theſe are both low plants, having narrow leaves, which grow cloſe to the ground; the flower-ſtems riſe about ſix inches high, being terminated by a looſe ſpike of ſmall yellow flowers. Theſe differ from each other, the ſtamina of the tenth being woolly, whereas thoſe of the other are ſmooth. Theſe plants, growing naturally upon bogs, are with difficulty preſerved in gardens.

ANTHERÆ [from 'Ανθηρὸς flowery,] are the ſummits or little tops in the middle of a flower, ſupported by the ſtamina.

ANTHOLOGY [of Ἄνθος, a flower, and λόγος, *Gr.* a word,] a diſcourſe or treatiſe of flowers.

ANTHOLYZA. We have no Engliſh name for this plant.

The Characters are,

It hath an imbricated ſheath growing alternate, which is permanent; the flower is of one leaf, tubulous, and opens above with compreſſed jaws. The upper lip is ſlender, long, erect, and waved; the two jaws are ſhort, and joined at their baſe; the under lip is trifid, ſhort, and the middle ſegment turns downward; it hath three long ſlender ſtamina, two of which are under the upper lip, and the other lies in the under lip; theſe are crowned by pointed ſummits. Under the flower is ſituated the germen, ſupporting a ſlender ſtyle the length of the ſtamina, which is crowned by a ſlender, trifid, reflexed ſtigma. The germen afterward becomes a roundiſh three-cornered veſſel having three cells, in which are lodged many triangular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, entitled Triandria Monogynia, the flowers having three ſtamina and one ſtyle.

The Species are,

1. Antholyza (*Ringens*) corolla labiis divaricatis fauce compreſſo. Lin. Sp. Plant. 54. *Antholyza whoſe flower-lips ſpread aſunder.* Gladiolus floribus rictum referens coccineus ſuprema lacinia erecta & fiſtuloſa. Breyn. 21.
2. Antholyza (*Spicata*) foliis linearibus ſulcatis floribus albis uno verſu diſpoſitis. Fig. Plant. pl. 40. *Antholyza with narrow furrowed leaves, and white flowers ranged on one ſide of the ſtalk.*

The firſt ſort hath round, red, bulbous roots, from which ariſe ſeveral rough furrowed leaves, near a foot long, and half an inch broad; between theſe comes out the flower-ſtem immediately from the root, which riſes two feet high, is hairy, and hath ſeveral flowers coming out on each ſide. Theſe are of one leaf, cut into ſix unequal parts at the top: one of theſe ſegments is ſtretched out much beyond the other, ſtanding erect; the margins are waved and cloſed together, wrapping up the three ſtamina. The flowers are red, and appear in June, and the ſeeds ripen in September.

The roots of the ſecond ſort are in ſhape and ſize like thoſe of the Vernal Crocus, but the outer ſkin is thin and white; from this ariſes five or ſix long narrow leaves, which are deeply furrowed. Between theſe ariſe the flower-ſtem, which is a foot and a half high, bending on one ſide toward the top, where the flowers come out, ranged on one ſide, ſtanding erect. Theſe have each a ſpatha or ſheath, of one leaf, divided into two, ending in points, which are permanent. The flower is of one leaf, having a long tube, but is divided into ſix unequal ſegments at the top, which ſpread open, their margins being waved and turned inward. The three ſtamina riſe under the upper ſegment, which is larger than the others, and below is ſituated the trifid ſtyle, crowned with purple ſtigma. After the flower is paſt, the germen becomes a three-cornered ſeed-veſſel, opening in three cells, which are filled with triangular ſeeds. The flowers of this ſort are white, appear in May, and the ſeeds ripen in Auguſt.

Theſe plants are natives of Africa, from whence their ſeeds have been obtained, and were firſt raiſed in the Dutch gardens, where one of the ſorts has long been an ornament in the curious gardens of that country.

They are propagated by offſets, which the bulbous roots ſend forth in pretty great plenty; or by ſeeds, which are ſometimes perfected in Europe. Theſe ſeeds ſhould be ſown ſoon after they are ripe; for if they are kept out of the ground till the following ſpring, they often miſcarry, or at leaſt remain a year in the ground before they grow. If the ſeeds are ſown in pots of light earth, and plunged into an old bed of tan which has loſt its heat, and ſhaded in the middle of the day in hot weather, the ſeeds will come up the following winter; therefore they muſt be kept covered with glaſſes to ſcreen them from cold, otherwiſe the young plants will be deſtroyed. Theſe may remain in the pots two years, if the plants are not too cloſe, by which time they will have ſtrength enough to be planted each into a ſeparate ſmall pot filled with light earth. The time for tranſplanting of theſe roots is in July or Auguſt, when their leaves are decayed. In ſummer the pots may be placed in the open air, but in winter they muſt be removed, and placed under a hot-bed frame, for they are not very tender; but where any damp ariſes, it is very apt to occaſion a mouldineſs upon their leaves. The roots ſhoot up in autumn, and the flowers begin to appear in May; the ſeeds ripen in Auguſt, and ſoon after their leaves and ſtalks decay; when the roots may be taken up, and kept ſix weeks or two months out of the ground, ſo may be eaſily tranſported from one country to another at that time. Theſe flowers are ornamental when they appear, and they are plants which require but little culture, ſo deſerve a place in every good garden.

ANTHOSPERMUM, Amber-tree, vulgò.

The Characters are,

It is male and female in different plants; the male flowers have no petals, but a coloured empalement of one leaf, which is cut into four parts almoſt to the bottom. Out of the bottom ariſes four ſlender ſtamina, crowned with oblong ſquare ſummits, having a deep furrow through their middle. The female flowers have the ſame ſtructure as the male, but have no ſtamina; inſtead of which, there is an oval germen, ſituated in the bottom, ſupporting two recurved ſtyles crowned with a ſlender ſtigma. The germen afterward becomes a roundiſh capſule having four cells, which contain ſeveral angular ſeeds.

Dr. Linnæus has ranged this genus in his twentieth claſs of plants, but it properly belongs to his twenty-ſecond, becauſe the plants are male and female in different plants; whereas thoſe of his twenty-third, have male, female, and hermaphrodite flowers on the ſame plant.

Anthospermum (*Æthiopicum*) foliis lævibus. Hort. Cliff. 455. *Amber-tree with ſmooth leaves.*

This plant has been long known in the curious gardens, under the title of Frutex Africanus, ambram ſpirans, or *Amber-tree.*

It is preſerved in moſt curious gardens which have collections of tender plants, and is eaſily propagated by planting cuttings during any of the ſummer months, in a border of light earth; which will take root in ſix weeks time, provided they are watered and ſhaded as the ſeaſon may require: or if theſe cuttings are planted in pots, and plunged into a very moderate hot-bed, they will take root ſooner, and there will be a greater certainty of their growing. Afterward they ſhould be taken up, with a ball of earth to their roots, and planted into pots filled with light ſandy earth, and may be expoſed to the open air until October; at which time they ſhould be removed into the conſervatory, where they ſhould be placed as free as poſſible from being over-hung with other plants; and, during the winter ſeaſon, they muſt be refreſhed with water, but ſhould not have too much given them each time; and ſhould have as much air admitted to them as the weather will permit, for if they are kept too cloſe, they will be ſubject to grow mouldy, and generally decay ſoon after; ſo that if the green-houſe is damp, it will be difficult to preſerve theſe plants through the winter.

The beauty of this ſhrub is in its ſmall ever-green leaves, which grow as cloſe as heath; which being bruiſed between the fingers, emit a very fragrant odour. Theſe plants muſt be frequently renewed by cuttings, for the old plants are very ſubject to decay, ſeldom continuing above three or four years.

It is but of late years there have been any of the female plants in the gardens, for all thoſe which were formerly in the gardens, were the male, which being propagated by cuttings had been continued, ſo that no ſeeds were ever produced in England till within a few years paſt, when I received ſome ſeeds from the Cape of Good Hope, from which I raiſed many plants of both ſexes, and a few among them with hermaphrodite flowers, which have produced ſeeds, from which many plants have been raiſed.

ANTHYLLIS. Lin. Gen. Plant. 773. Vulneraria. Tourn. Barba Jovis. Tourn. *Ladies Finger, or Kidney Vetch.*

The Characters are,

It hath a ſwelling, hairy, permanent empalement of one leaf, which is divided at the top into five equal parts. The flower is of the butterfly kind, having a long ſtandard reflexed on both ſides beyond the empalement; the two wings are ſhort; the keel is of the ſame length, and compreſſed. There are ten ſtamina, which riſe together, and are crowned by ſingle ſummits. In the center is ſituated an oblong germen, ſupporting a ſingle ſtyle, crowned by a blunt ſtigma: the germen afterward becomes a ſmall roundiſh pod incloſed by the empalement, having one or two ſeeds.

This genus is ranged in Linnæus's ſeventeenth claſs of plants, entitled Diadelphia Decandria, the flowers having ten ſtamina joined in two bodies.

The Species are,

1. Anthyllis (*Tetraphylla*) herbacea foliis quaternopinnatis floribus lateralibus. Hort. Upſal. 221. *Herbaceous Kidney Vetch with winged leaves, having four lobes, and flowers growing from the ſide of the ſtalks.* Vulneraria pentaphyllos. Tourn. Inſt.
2. Anthyllis (*Vulneraria*) herbacea foliis pinnatis inæqualibus capitulo duplicato. Lin. Sp. Plant. 719. *Kidney Vetch with unequal winged leaves and double heads.* Vulneraria ſupina flore coccineo. Raii Syn. Ed. 3. p. 325.
3. Anthyllis (*Ruſtica*) herbacea foliis pinnatis inæqualibus foliolis caulinis lineari lanceolatis floribus capitatis ſimplicibus. *Herbaceous Kidney Vetch with unequal winged leaves, whoſe lobes are narrow, ſpear-ſhaped, and ſingle heads of flowers, called Ladies Fingers.* Vulneraria ruſtica. J. B. 11. p. 362.
4. Anthyllis (*Montana*) herbacea foliis pinnatis æqualibus capitulo terminali ſecundo, floribus obliquatis. Lin. Sp. Plant. 719. *Herbaceous Woundwort with equal winged leaves, terminated by the head of flowers, which are oblique.* Aſtragalus purpureus. Dalechampii 1347. *Purple Milk Vetch.*
5. Anthyllis (*Cornicina*) herbacea foliis pinnatis inæqualibus capitulis ſolitaris. Lin. Sp. Plant. 719. *Herbaceous Woundwort, with unequal winged leaves, and a ſingle head of flowers.*
6. Anthyllis (*Barba Jovis*) fruticoſa foliis pinnatis æqualibus floribus capitatis. Hort. Cliff. 371. *Shrubby Woundwort, with leaves equally winged, and flowers collected in a head.* Barba Jovis pulchrè lucens. J. B. 1. p. 385. *Jupiter's Beard, or Silver Buſh.*
7. Anthyllis (*Cytiſoides*) fruticoſa foliis ternatis inæqualibus calycibus lanatis lateralibus. Lin. Sp. Plant. 720. *Shrubby Woundwort, with three unequal leaves, and a downy flower-cup growing from the ſides.* Cytiſus incanus folio medio longiore. C. B. P. 390.
8. Anthyllis (*Erinacea*) fruticoſa ſpinoſa foliis ſimplicibus. Lin. Sp. Plant. 720. *Shrubby prickly Woundwort, with ſingle leaves.* Geniſta Spartium ſpinoſum foliis lenticulæ floribus ex cæruleo purpuraſcentibus. C. B. P. 394.
9. Anthyllis (*Hermanniæ*) fruticoſa, foliis ternatis ſubpedunculatis, calycibus nudis. Lin. Sp. Plant. 1014. *Shrubby Woundwort of Crete, with ternate leaves, and naked flower-cups.* Barba Jovis Cretica, linariæ folio, flore luteo parvo. Tourn. Cor. 44.
10. Anthyllis (*Heterophylla*) fruticoſa, foliis pinnatis, floralibus ternatis. Lin. Sp. Plant. 1013. *Shrubby Woundwort of Portugal, with winged leaves, but thoſe near the flowers ternate.* Barba Jovis minor Luſitanica, flore minimo variegato. Tourn. Inſt. 651.

The firſt ſort grows naturally in Spain, Italy, and Sicily. This is an annual plant, with trailing branches, which ſpread flat on the ground; the leaves grow by fours at each joint, and the flowers come out in cluſters on the ſides of the ſtalks, having large ſwelling empalements, out of which the extreme parts of the petals do but juſt appear; theſe are of a yellow colour, and are ſucceeded by ſhort pods incloſed in the empalement. It flowers in June and July, and the ſeeds ripen in September. The ſeeds of this ſort ſhould be ſown on a bed of light earth in April, where the plants are to remain, and will require no other care, but to thin them to the diſtance of two feet, and keep them clean from weeds.

The ſecond ſort grows naturally in Spain and Portugal, from both which countries I have received the ſeeds; it alſo grows wild in Wales, and the iſle of Man. This is a biennial plant, having ſingle leaves at bottom, which are oval and hairy; but thoſe which grow out of the ſtalks are winged, each being compoſed of two or three pair of lobes terminated by an odd one: the flowers grow collected into heads at the top of the ſtalks, theſe are of a bright ſcarlet colour, ſo make a pretty appearance: it flowers in June and July, and the ſeeds ripen in October. When the plants of this ſort grow on poor land, they will ſometimes continue three years, but in gardens they ſeldom laſt longer than two.

The third ſort grows naturally upon chalky grounds in many parts of England, ſo is rarely admitted into gardens. Dr. Linnæus ſuppoſes this and the former ſort to be the ſame, but from having cultivated theſe for many years, I can affirm they are different ſpecies, never altering from ſeed. The leaves of this ſort are much narrower than thoſe of the former, and have generally one or two pair of lobes more in each. The heads of flowers in this ſpecies are ſingle, whereas the other has generally double heads; add to theſe, the root being perennial, which makes an eſſential difference between them.

The fourth ſort is a perennial plant with trailing branches, garniſhed with winged leaves, which have an equal number of hairy lobes at the extremity of the branches; the flowers are produced in heads, theſe are of a purple colour, and globular form. This ſort grows naturally on mountains in the ſouth of France and Italy, from whence I have received the ſeeds. It is propagated by ſeeds, which may be ſown either in the autumn or ſpring: thoſe which are ſown in the autumn, will riſe the following ſpring, and more certainly grow, than thoſe which are ſown in the ſpring, which ſeldom grow the ſame year. When the plants come up, they muſt be kept clean from weeds; and where they are too cloſe together, they muſt be thinned. The following autumn, they ſhould be tranſplanted to the places where they are to remain, and will require no particular management afterward. This ſort flowers in June and July, and the ſeeds ripen in October.

The fifth ſort approaches near to the third, but the leaves are hoary, and the flowers are produced on the ſide of the branches; theſe are yellow, and collected into ſmall heads. It is an annual, or at moſt a biennial plant; for when it flowers early in the ſummer, it commonly decays ſoon after the ſeeds are ripe; whereas thoſe plants which flower later in the ſeaſon, and do not perfect ſeeds, will abide another year. This may be propagated by ſeeds, in the ſame manner as the former.

The ſixth ſort is the Barba Jovis, or Jupiter's Beard, by many called Silver Buſh, from the whiteneſs of its leaves. This is a ſhrub which often grows ten or twelve feet high, and divides into many lateral branches, garniſhed with winged leaves, compoſed of an equal number of narrow lobes, which are very white and hairy; the flowers are produced at the extremity of the branches, collected into ſmall heads; theſe are of a bright yellow colour, and appear in June; ſometimes they are ſucceeded by ſhort woolly pods, containing two or three kidney-ſhaped ſeeds; but unleſs the ſeaſon proves warm, they do not ripen in this country. It is propagated either by ſeeds or cuttings; if by ſeeds, they ſhould be ſown in the autumn, in pots filled with light earth, and placed under a frame in winter to protect them from froſt. The following ſpring the plants will riſe, and when they are ſtrong enough to remove, they ſhould be each planted in a ſmall pot filled with light earth, and placed in the ſhade till they have taken new root; after which, they may be placed with other hardy exotic plants, in a ſheltered ſituation, where they may remain till October, when they muſt be removed into ſhelter. Theſe plants are always houſed in winter, yet I have had ſome of them live abroad three or four years, which were planted againſt a ſouth-weſt aſpected wall. It may alſo be propagated by cuttings, which may be planted during any of the ſummer months, obſerving to water and ſhade them until they have taken root. When the cuttings have taken good root, they ſhould be planted in pots, and treated in the ſame manner as the former.

The ſeventh ſort is a low ſhrub, ſeldom riſing above two feet high, but ſends out many ſlender branches, garniſhed with hoary leaves, which are ſometimes ſingle, but generally have three oval lobes, the middle being longer than the other two; the flowers are yellow, and come out from the ſide of the branches, three or four joined together, having woolly empalements, but theſe are rarely ſucceeded by ſeeds in England. It may be propagated by cuttings or ſeeds, in the ſame manner as the former ſort, and treated as hath been directed for that. This has been an old inhabitant in the Engliſh gardens.

The eighth ſort grows naturally in Spain and Portugal, from whence I have received the ſeeds. This is a ſhrub which grows nine or ten feet high, having the appearance of one ſort of Gorſe or Whin, but it hath round leaves growing ſingle. It will live in the open air in mild winters, but hard froſt will deſtroy it. It is propagated by ſeeds only.

The ninth ſort grows naturally in Crete, and alſo in Paleſtine; this was formerly in ſome of the Engliſh gardens, but the ſevere winter of $17\frac{39}{40}$, deſtroyed moſt (if not all the plants) in this country, ſince which time I have not ſeen it. This ſhrub grows five or ſix feet high, the branches are garniſhed with oblong ternate leaves; the flowers, which are yellow, are produced in ſmall cluſters on the ſide of the branches; theſe appear in July and Auguſt, but are not ſucceeded by ſeeds in this country.

This is propagated by cuttings, which ſhould be planted the beginning of June, and if they are cloſely covered with a bell-glaſs, and properly ſhaded, they will put out roots by the end of Auguſt, when they ſhould be carefully taken up, and each planted in a ſmall pot, filled with light earth, and placed in the ſhade until they have taken new root; when they may be placed in the open air till October, and then ſhould be removed into ſhelter, and treated in the ſame way as other hardy green-houſe plants.

The tenth ſort grows naturally in Portugal and Spain: this is a very low ſhrubby plant, whoſe branches ſpread near the ground, garniſhed with ſilvery winged leaves, which are acute-pointed; the flowers are produced toward the extremity of the branches; theſe are not ſucceeded by ſeeds in England, but the plant is propagated by cuttings in the ſame manner as the former, and the plants require the ſame treatment.

ANTIRRHINUM [which in compoſition ſometimes indicates a likeneſs, Ἀντίῤῥινον, of ἀντὶ and ῥὶν, the noſtrils, becauſe it repreſents a noſe:] Snapdragon, or Calves-ſnout.

The Characters are,

The empalement is of one leaf, cut into five parts, the two upper ſegments being longer than the lower. The flower is ringent, having an oblong tube, divided at the top into two lips, which are cloſed at the jaw. The upper lip is cut into two, and reflexed on each ſide; the under lip is divided into three obtuſe parts: in the bottom is ſituated an obtuſe nectarium, which is not prominent. There are four ſtamina which are included in the upper lip, two being longer, and two ſhorter, crowned by ſhort ſummits. In the center is placed a roundiſh germen, ſupporting a ſingle ſtyle, crowned with an obtuſe ſtigma. The germen afterward becomes a round obtuſe capſule, having two cells, which are full of ſmall angular ſeeds.

This genus is ranged in Linnæus's fourteenth claſs of plants, entitled Didynamia Angioſperma, the flower having two long and two ſhort ſtamina, and many ſeeds included in a capſule. To this genus Linnæus has joined the Linaria and Aſarina; but as the flowers of the Linaria have ſpurs to their petals, and the nectarium being very prominent, which are not ſo in this genus, ſo it ſhould be ſeparated from it.

The Species are,

1. Antirrhinum (*Minus*) foliis lanceolatis obtuſis alternis caule ramoſiſſimo diffuſo. Hort. Cliff. 324. *Snap-dragon with obtuſe ſpear-ſhaped leaves growing alternate, and a diffuſed branching ſtalk.* Antirrhinum arvenſe minus. C. B. P. 212.
2. Antirrhinum (*Orontium*) floribus ſubſpicatis, calycibus digitatis corolla longioribus. Hort. Upſal. 176. *Snap-dragon with ſpiked flowers, and fingered empalement longer than the flower.* Antirrhinum arvenſe majus. C. B. P. 212.
3. Antirrhinum (*Majus*) foliis lanceolatis petiolatis calycibus breviſſimis racemo terminali. Vir. Cliff. 61. *Snap-dragon with ſpear ſhaped leaves having foot-ſtalks, and very ſhort flower-cups, terminated by a ſpike of flowers.* Antirrhinum majus alterum folio longiore. C. B. P. 211.
4. Antirrhinum (*Latifolium*) foliis lanceolatis glabris, calycibus hirſutis racemo longiſſimo. *Snap-dragon with ſmooth ſpear-ſhaped leaves, hairy flower-cups, and a very long ſpike of flowers.* Antirrhinum latifolium amplo pallido flore. Bocc. Muſ. 2. 49.
5. Antirrhinum (*Italicum*) foliis lineari-lanceolatis hirſutis racemo breviore. *Snap-dragon with narrow, hairy, ſpear-ſhaped leaves, and a ſhorter ſpike of flowers.* Antirrhinum longifolium majus Italicum flore amplo niveo lacteſcente. H. R. Par.
6. Antirrhinum (*Siculum*) foliis linearibus floribus petiolatis axillaribus. *Snap-dragon with narrow leaves and flowers, with foot-ſtalks proceeding from the wings of the leaves.* Antirrhinum ſiculum linariæ folio niveo flore. Bocc. Muſ.

The two firſt ſorts grow naturally on arable land in many parts of England, ſo are ſeldom admitted into gardens; theſe are both annual plants, which come up from ſcattered ſeeds. They flower in June and July, and their ſeeds are ripe in September.

The third ſort is not a native of England, but having been firſt brought into gardens, the ſeeds have ſcattered about in ſo great plenty, that it is become very common upon walls and old buildings in many parts of England. Of this ſort there are ſeveral varieties, which differ in the colour of their flowers, ſome having red flowers with white mouths, ſome with yellow mouths, others have white flowers, with yellow and white mouths. There is alſo one with ſtriped leaves. The laſt is propagated by ſlips and cuttings, which readily take root any time in the ſpring or ſummer. The different colours of the flowers are variable from ſeeds.

The fourth ſort grows naturally in the iſlands of the Archipelago, from whence I received the ſeeds. The leaves of this are much broader, the flowers greatly larger, and the ſpikes longer, than in any of the other ſorts. The colours of the flowers are as changeable in this ſort as the former, when raiſed from ſeeds; but as this is the moſt ſpecious kind, ſo it better deſerves propagating than the common, eſpecially as it is equally hardy.

The fifth ſort has long narrow leaves, which are hairy; the flowers are large, and the ſpike is ſhorter than the former; there are ſome varieties in the colour of the flowers of this ſort, but it is equally hardy with the common ſort.

The ſixth ſort is an annual plant, which ſeldom grows more than a foot high; the leaves of this are very narrow and ſmooth; the flowers come out from the wings of the leaves ſingle, ſtanding on long footſtalks; theſe are very white, with a dark bottom. If the ſeeds of this ſort are permitted to ſcatter, the plants will come up, and require no other care but to thin them and keep them clean from weeds.

The third, fourth, and fifth ſorts are raiſed from ſeeds, which ſhould be ſown in a dry ſoil, which is not too rich, either in April or May; and in July the plants may be planted out into large borders, where they will flower the ſpring following; or they may be ſown early in the ſpring, for flowering the ſame autumn, but then they are not ſo likely to endure the winter; and if the autumn prove bad, they will not perfect their ſeeds.

Theſe plants grow extremely well upon old walls or buildings, in which places they will endure for ſeveral years; whereas thoſe planted in gardens ſeldom laſt longer than two years, unleſs they are planted in a very poor ſoil, and the flowers often cropped, and not ſuffered to ſeed; but any of theſe ſorts may be continued, by planting cuttings in any of the ſummer months, which will eaſily take root.

All the ſorts of Snap-dragons are pretty ornaments in a garden, and requiring very little culture, are rendered more acceptable. They are all hardy plants, and will reſiſt the cold of our winters extremely well, eſpecially if they are planted on a dry, gravelly, or ſandy ſoil; for when they are planted in a rich moiſt ſoil, they will grow very luxuriant for a time, but are very ſubject to rot in autumn or winter; and are much more ſuſceptible of cold, than when they are in a dry, hungry, rocky ſoil; ſo that theſe plants may be placed amongſt ſtones, or they will grow in the joints of old walls, where they may be placed ſo as to render ſome abject part of a garden very agreeable, for they will continue in flower ſeveral months; and if the ſeeds are permitted to ſhed, there will be a continual ſupply of young plants, without any trouble.

Wherever theſe plants are deſigned to grow on walls, or on a rocky barren ſoil, the ſeeds ſhould be ſown the beginning of March, where they are deſigned to remain; (for if the plants are firſt raiſed in a better ſoil, and afterward tranſplanted into thoſe places, they ſeldom ſucceed well.) When the plants are come up, they will require no other culture but to keep them clear from weeds; and where they come up too thick, to pull ſome of them out, ſo as to give them room to grow. In July theſe ſorts will begin to flower, and will continue flowering till the froſt prevents them. Thoſe plants which grow on walls, will have ſtrong woody ſtems, which will continue two or three years or more, and are rarely hurt by froſt.

APARINE [this plant is ſo called, becauſe it is very rough; it is called Philanthropon, of φιλέω, to love, and ἄνθρωπος, man; becauſe if a perſon walks in uncultivated places, the plant not only applies itſelf to his garments, but it holds them, as if it had a mind to bind man with an amicable band:] Gooſe-graſs or Clivers.

The common ſort grows wild almoſt every where, the ſeeds ſticking to the cloaths of people that paſs by where they grow: it is ſometimes uſed in medicine, but it is too common a weed to be admitted into a garden.

There are ſome other ſorts of this plant which are kept in botanic gardens for the ſake of variety, which I ſhall beg leave to enumerate here.

1. Aparine ſemine lævi. Tourn. *Gooſe-graſs with a ſmooth ſeed.* This is under Gallium in Linnæus.
2. Aparine ſemine coriandri ſaccharati. Park. Theat. *Gooſe-graſs with ſweet ſeeds like Coriander.*
3. Aparine pumila ſupina, flore cæruleo. Tourn. *Low trailing Gooſe-graſs, with a blue flower.* The two laſt are included in Linnæus's genus of Vailantia.

All theſe plants, if they are permitted to ſcatter their ſeeds, will maintain themſelves in a garden without any other culture, than that of preventing other weeds from over-growing them, theſe being all very low plants.

The firſt ſort grows wild in Cambridgeſhire, as doth the third about Liphoeck in Hampſhire, where I have gathered it.

APETALOUS plants, [of α privative, and πέταλον, a flower-leaf, *Gr.*] are ſuch as have no petals or flower-leaves.

APHACA. See Lathyrus.

APICES [of Apex, *Lat.* a top or point] theſe are called ſummits by Vaillant, and are thoſe little knobs that grow on the top of the ſtamina in the middle of the flower: which are generally ſuppoſed to be a kind of male ſperm, which when ripe, diffuſes itſelf to every part of the flower, and fecundates the ovarium and renders it fruitful.

APIOS. See Glycine.

APIUM [Apium is ſo called, as ſome ſay, of Apes, bees, becauſe bees are ſaid to be delighted very much with it,] Parſley.

The Characters are,

It is a plant with an umbelliferous flower; the rays of the great umbel are few, but thoſe of the ſmaller are many; the involucrum is in ſome ſpecies of one leaf, and in others of many; the petals of the greater umbel are uniform; theſe are round, equal, and turn inward. Each flower has five ſtamina, crowned by roundiſh ſummits. Under the flower is ſituated the germen, ſupporting two reflexed ſtyles, crowned by blunt ſtigma; the germen afterward becomes an oval channelled fruit, dividing into two parts, having two oval ſeeds channelled on one ſide, and plain on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, entitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The Species are,

1. Apium (*Petroſelinum*) foliolis caulinis linearibus involucellis minutis. Hort. Cliff. 108. *Parſley with very narrow leaves on the flower-ſtalks.* Apium hortenſe vel petroſelinum vulgò. C. B. P. *Common Parſley.*
2. Apium (*Criſpum*) foliis radicalibus amplioribus criſpis caulinis ovato-multifidis. *Parſley with the lower leaves very broad and curled, the upper oval, and cut into many ſegments.* Apium vel petroſelinum criſpum. C. B. P. 153. *Curled Parſley.*
3. Apium (*Latifolium*) foliis radicalibus trifidis, ſerratis, petiolis longiſſimis. *Parſley with under leaves divided into three parts, which are ſawed, and have very long foot-ſtalks.* Apium hortenſe latifolium maxima craſſiſſima ſuavi & eduli radice. Boerh. Ind. alt. *The large rooted Parſley.*
4. Apium (*Graveolens*) foliolis caulinis cuneiformibus. Hort. Cliff. 107. *Parſley with the lower leaves faſhioned like a wedge.* Apium paluſtre ſive apium officinarum. C. B. P. 154. *Smallage.*
5. Apium (*Dulce*) foliis erectis, petiolis longiſſimis foliolis quinque lobatis ſerratis. *Parſley with upright leaves, having very long foot-ſtalks, and the ſmaller leaves compoſed of five ſawed lobes.* Apium dulce ceteri Italorum. Inſt. R. H. 305. *Upright Celery.*
6. Apium (*Rapaceum*) foliis patulis, petiolis brevibus, foliolis quinis ſerratis, radice rotundo. *Parſley with ſpreading leaves, having ſhort foot-ſtalks, the ſmaller leaves having five lobes, and a round root.* Apium dulce degener, radice rapacea. Juſſ. *Celeriack, or Turnep-rooted Celery.*
7. Apium (*Luſitanicum*) foliis radicalibus tribolatis, caulinis quinque-lobatis crenatis. *Parſley with under leaves having three lobes, and thoſe on the ſtalks five, which are indented.* Apium Luſitanicum maximum, folio trilobato flore luteolo. Boerh. Ind. alt.

The firſt ſort is the common Parſley, which is generally cultivated for culinary uſe; and is what the College of Phyſicians have directed to be uſed in medicine, under the title of Petroſelinum; for when Apium is preſcribed, the Smallage is always intended.

The ſecond ſort has generally been ſuppoſed to be only a variety of the firſt, but from many years trial I have always found, that if the ſeeds are carefully ſaved from plants of the curled-leaved Parſley, it will conſtantly produce the ſame; but there are few perſons who will be at the trouble to ſave the ſeeds ſo carefully, as not to have ſome of the common ſort mixed with it; for when ſeeds are bought at the ſhops, there is generally a mixture of both: therefore the only method to have it good, is to ſeparate all thoſe plants which have plain leaves from the curled, as ſoon as they are diſtinguiſhable, leaving only ſuch as are of the right kind; if this is duly obſerved, the ſeeds will conſtantly produce the ſame.

The third ſort is chiefly cultivated for their roots, which are now pretty commonly ſold in the London markets; the leaves of this ſort have much longer foot-ſtalks, and their ſubdiviſions are not ſo numerous as in the common Parſley; the lobes of the leaves are much larger, and of a darker green, ſo that it is eaſily diſtinguiſhed from the common ſort by its leaves, but the roots are ſix times as large as the common Parſley can be brought to with the utmoſt culture. I have ſown the ſeeds of both ſorts for ſeveral years on the ſome ſpot of ground, and have thinned the plants when young, to an equal diſtance, and given the ſame culture to both; but when their roots were taken up, thoſe of the common ſort were not larger than a man's little finger, but the other were as large as full grown Carrots, which were very tender and ſweet, whereas the other were ſtringy and ſtrong; and this difference conſtantly holds, ſo it may be allowed to be ſpecifically different. This ſort was many years cultivated in Holland, before the Engliſh gardeners could be prevailed on to ſow it. I brought the ſeeds of it from thence in 1727, and would then have perſuaded ſome of the kitchen-gardeners to make trial of it, but they refuſed to accept of it, ſo that I cultivated it ſeveral years before it was known in the markets.

The fourth ſort is commonly known by the title of Smallage. This is what the phyſicians intend when they preſcribe Apium. Dr. Linnæus has joined to this the Celery, ſuppoſing them to be the ſame, and the only difference to ariſe from culture, but herein he is greatly miſtaken; for I have cultivated the Smallage in gardens forty years, to try if by art it could poſſibly be brought to the ſame goodneſs as Celery, but have not been able to alter it from its original; all that can be done by culture, is to bring it to a larger ſize than it naturally grows wild, and by earthing it, to give it a whiteneſs; but it will not grow tall as Celery, nor will it riſe with a ſtrait ſtem, but ſends out many ſuckers near the root, and when it is blanched, retains its ſtrong rank taſte, which no culture can alter, therefore I make no doubt of its being a diſtinct ſpecies.

The fifth ſort is the Celery before-mentioned, and the ſixth ſort was ſuppoſed to be a degenerate ſpecies from it, but I cannot agree to this opinion; for from many years trial I have never found it vary. The leaves of this ſort are ſhort, when compared with thoſe of the other, and ſpread open horizontally; the roots grow as large as the common Turneps. The difference which I have obſerved to ariſe from the culture, has been only in the ſize of the roots; thoſe on rich ground, which were properly cultivated were much larger than thoſe on poorer land, but the leaves and outward appearance of the plants were never altered, ſo that I make no doubt of its being a different ſpecies.

The ſeeds of the ſeventh ſort I received from the royal garden at Paris, many years ſince, where it had been long preſerved, and maintained its difference; and from more than twenty years cultivating it in the garden at Chelſea, I have found the ſame, ſo that I cannot doubt of its being different from all the other ſpecies.

The broad-leaved Garden Parſley, mentioned by Caſper Bauhin, and the round-leaved Portugal Parſley, mentioned by Tournefort, I believe are only varieties of the common Parſley; for if they are diſtinct ſpecies, all the ſeeds which I have received from different parts of Europe, under thoſe titles, have been wrong; for the plants which have riſen from thoſe ſeeds, have always proved to be the common ſort.

As Tournefort, and many other botaniſts, have enumerated all the varieties of plants which were found in the gardens, and did not diſtinguiſh which of them were ſpecifically different; ſo Dr. Linnæus has gone into the other extreme, and ſuppoſed many plants, which are permanently different, to be only accidental varieties, ariſing from culture. But as he is now cultivating as many plants as the inclemency of the climate where he is ſituated, will permit, there is no doubt of his reforming his error, in this particular, when he finds what plants retain their ſpecific difference.

The common Parſley muſt be ſown early in the ſpring, for the ſeeds remain a long time in the earth, the plants ſeldom appearing in leſs than ſix weeks after the ſeeds are ſown. This ſort is generally ſown in drills by the edges of borders in the kitchen-gardens near London, becauſe it is much eaſier to keep it clear from weeds, than if the ſeeds are ſown promiſcuouſly on a border, and the Parſley is much ſooner cut for uſe: but when the roots are deſired for medicinal uſe, then the ſeeds muſt be ſown thin; and when the plants are come up, they ſhould be hoed out ſingle, as is practiſed for Carrots, Onions, &c. obſerving alſo to cut up the weeds: if this be obſerved, the roots will become fit for uſe by July or Auguſt, and continue ſo till ſpring.

There are ſome perſons who are afraid to uſe Parſley in their kitchens, leſt they ſhould ſuffer by having the leſſer Hemlock mixed with it, whoſe leaves are ſo like Parſley, that perſons who are not ſkilled in botany, may be eaſily deceived; which being a noxious plant, ſeveral perſons have been injured by eating it: but to prevent this, I have for many years cultivated the ſort with curled leaves, which is ſo unlike the Hemlock, that no perſon, however ignorant, can miſtake one for the other, and have conſtantly adviſed thoſe of my acquaintance to do the ſame; for the curled ſort is equally good as the common Parſley, and I have conſtantly found the ſeeds, ſaved from the curled ſort, to produce the ſame.

The common Parſley is, by ſome ſkilful perſons, cultivated in fields for the uſe of ſheep, it being a ſovereign remedy to preſerve them from the rot, provided they are fed twice a week for two or three hours each time with this herb; but hares and rabbets are ſo fond of it, that they will come from a great diſtance to feed upon it; and in countries where theſe animals abound, they will deſtroy it, if it is not very ſecurely fenced againſt them; ſo that whoever has a mind to have plenty of hares in their fields, by cultivating Parſley, will draw all the hares of the country to them, and this will preſerve them ſound.

The beſt time for ſowing it in the fields is about the middle or latter end of February; the ground ſhould be made fine, and the ſeeds ſown pretty thick, in drills drawn at about a foot aſunder, that the ground may be kept hoed between the drills, to deſtroy the weeds, which, if permitted to grow, will ſoon overrun the Parſley. One buſhel of ſeed will ſow an acre of land.

The great Garden Parſley is now more known to us in England than it was ſome years paſt. In Holland it has been long common in all their markets: they bring theſe roots in bunches, as we do young Carrots to market in ſummer; and the roots are much of the ſame ſize: it is called Petroſeline Wortle by the Dutch, who are very fond of it for water ſouche.

It may be cultivated by ſowing the ſeeds in good ground early in the ſpring; and in April, when the plants are up, cut them out with a hoe (as is practiſed for young Carrots) to about five or ſix inches ſquare, and keep them conſtantly clean from weeds; and in July the roots will be fit to draw for uſe, and may be boiled and eaten as young Carrots; and are very palatable and wholſome, eſpecially for thoſe who are troubled with the gravel.

But if theſe plants are cut out, to allow them more room, if the ſoil is good, the roots will grow to the ſize of a middling Parſnep, by September.

Smallage is a common weed by the ſide of ditches and brooks of water, in many parts of England, ſo that it is ſeldom cultivated in gardens; but if any perſon is willing to propagate it, the ſeeds ſhould be ſown ſoon after they are ripe, on a moiſt ſpot of ground; and when the plants come up, they may be either tranſplanted in a moiſt ſoil, or hoed out, and left ſix or eight inches aſunder, where they may remain for good. The ſeed of this plant is one of the leſſer warm ſeeds; both the herb and ſeeds are uſed in medicine.

The ſeeds of the two ſorts of Celery ſhould be ſown at two or three different times, the better to continue it for uſe through the whole ſeaſon, without running up to ſeed. The firſt ſowing ſhould be in the beginning of March, upon a gentle hot-bed; the ſecond may be a fortnight or three weeks after, which ought to be in an open ſpot of light earth, where it may enjoy the benefit of the ſun; the third time of ſowing ſhould be the end of April, or beginning of May, which ought to be in a moiſt ſoil; and if expoſed to the morning ſun only, it will be ſo much the better, but it ſhould not be under the drip of trees.

The ſeeds which are ſown in the hot-bed will come up in about three weeks or a month after ſowing, when the plants ſhould be carefully cleared from weeds; and if the ſeaſon prove dry, they muſt be frequently watered; and in about a month or five weeks after it is up, the plants will be fit to tranſplant: you muſt therefore prepare ſome beds of moiſt rich earth, in a warm ſituation, in which you ſhould prick theſe young plants, at about three inches ſquare, that they may grow ſtrong; and if the ſeaſon ſhould prove cold, the beds muſt be covered with mats, to ſcreen the plants from morning froſts, which would retard their growth: you muſt alſo obſerve, in drawing theſe plants out of the ſeed-beds, to thin them where they grow too thick, leaving the ſmall plants to get more ſtrength before they are tranſplanted; by which means one and the ſame ſeed-bed will afford three different plantings, which will accordingly ſucceed each other for uſe.

You muſt obſerve, if the ſeaſon proves dry, to keep it diligently watered after it is tranſplanted, as alſo to clear the ſeed-beds from weeds; and after every drawing, keep them duly watered, to encourage the ſmall plants left therein.

The middle of May ſome of the plants of the firſt ſowing will be fit to tranſplant for blanching, which ſhould be planted in a moiſt, rich, light ſoil, upon which the firſt planted Celery will often grow to be twenty inches long in the clean blanched parts, which upon a poor or dry ſoil ſeldom riſes to be ten inches.

The manner of tranſplanting it is as follows: after having cleared the ground of weeds, you muſt dig a trench by a line about ten inches wide, and ſix or ſeven inches deep, looſening the earth in the bottom, and laying it level; the earth that comes out of the trench ſhould be equally laid on each ſide the trench, to be ready to draw in again to earth the Celery as it advances in height. Theſe trenches ſhould be made at three feet diſtance from each other; then plant the plants in the middle of the trench, at about four or five inches diſtance, in one ſtrait row, having before trimmed the plants, and cut off the tops of the long leaves; when they are planted you muſt obſerve to cloſe the earth well to their roots, and to water them plentifully until they have taken freſh root; after which time it will be needleſs, except in dry ſoils, or very dry ſeaſons: as theſe plants advance in height, you muſt obſerve to draw the earth on each ſide cloſe to them, being careful not to bury their hearts, nor ever to do it but in dry weather, otherwiſe the plants will rot.

When the plants have advanced a conſiderable height above the trenches, and all the earth, which was laid on the ſides thereof, hath been employed in earthing them up; you muſt then make uſe of a ſpade to dig up the earth between the trenches, which muſt alſo be made uſe of for the ſame purpoſe, continuing from time to time to earth it up, until it is fit for uſe.

The firſt of your planting out will, perhaps, be fit for uſe by the beginning of July, and will be ſucceeded by the after plantations; and if the latter ſowings are rightly managed, there will be a ſucceſſion of Celery for uſe till April; but you ſhould obſerve to plant the laſt crop in a drier ſoil, to prevent its being rotted with too much wet in winter; and alſo if the weather ſhould prove extreme ſharp, you will do well to cover your ridges of Celery with ſome Peaſe-haulm, or ſome ſuch light covering, which will admit the air to the plants; for if they are covered too cloſe, they will be very ſubject to rot; by this means you may preſerve your Celery in ſeaſon a long time, but you muſt remember to take off the covering whenever the weather will permit, otherwiſe it will be apt to cauſe the Celery to rot. By this method of covering the Celery, the froſt will be kept out of the ground; ſo it may be always taken up for uſe when it is wanted, which, if neglected, it cannot be taken up in hard froſt. The Celery, when fully blanched, will not continue good above three weeks or a month before it will rot or pipe: therefore, in order to continue it good, you ſhould have at leaſt ſix or ſeven different ſeaſons of planting; ſo that if it be only intended to ſupply a family, there need not be much planted at each time, but this muſt be proportioned according to the quantity required.

The other ſort of Celery, which is commonly called Celeriac, is to be managed in the ſame manner as is directed for the Italian Celery, excepting that this ſhould be planted upon the level ground, or in very ſhallow drills, for this plant ſeldom grows above eight or ten inches high, ſo requires but little earthing up; the great excellency of this being in the ſize of the root, which is often as large as ordinary Turneps. It ſhould be ſown about the middle of March, upon a rich border of earth, and, in dry weather, conſtantly watered, otherwiſe the ſeeds will not grow: when the plants are large enough to tranſplant out, they ſhould be placed eighteen inches aſunder, row from row, and the plants ſix or eight inches diſtant in the rows; the ground muſt be carefully kept clean from weeds, but this ſort will require but one earthing up, which ſhould not be performed until the roots are nearly grown: both theſe ſorts of Celery delight in a rich, light, moiſt ſoil, where they will grow to a much larger ſize, and will be ſweeter and tenderer than on a poor or dry ground.

The beſt method to ſave this ſeed, is to make choice of ſome long good roots of the upright Celery, which have not been too much blanched, and plant them out at about a foot aſunder in a moiſt ſoil, early in the ſpring; and when they run up to ſeed, keep them ſupported with ſtakes, to prevent their being broken down by the winds: and in July, when the ſeed begins to be formed, if the ſeaſon ſhould prove very dry, it will be proper to give ſome water to the plants, which will greatly help their producing good ſeeds. In Auguſt theſe ſeeds will be ripe, at which time it ſhould be cut up, in a dry time, and ſpread upon cloths in the ſun to dry; then beat out the ſeeds, and preſerve them dry in bags for uſe.

APIUM ANISUM DICTUM. See PIMPINELLA.

APIUM MACEDONICUM. See BUBON.

APIUM PYRENAICUM. See CRITHMUM.

APOCYNUM. Tourn. Inſt. R. H. 91. Lin. Gen. Plant. 269. [Ἀπόκυνον, of ἀπὸ and κυνὸς a dog, becauſe the antients believed this plant would kill dogs.] Dogſbane.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, cut into five acute ſegments at the top; it hath but one petal, which is of the open bell-ſhape, cut into five parts at the brim, which turn backward; in the bottom of the flower are ſituated five nectariums, which are oval, and ſurround the germen: there are five ſtamina, ſcarce viſible, which are crowned by oblong erect ſummits, which are bifid; in the center are two oval germen, ſupporting ſmall ſtyles, crowned with globular ſtigma, larger than the germen. The germen afterward become two long pointed capſules, opening in two valves, having one cell, which is filled with compreſſed ſeeds, lying over each other like tiles on a houſe, each being crowned with down.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, entitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The Species are,

1. Apocynum (*Androſæmi folium*) caule rectiuſculo herbaceo foliis ovatis utrinque glabris cymis terminalibus. Lin. Sp. Plant. 213. *Dogſbane with an erect herbaceous ſtalk, oval leaves, ſmooth on both ſides, and terminated by a head of flowers.* Apocynum Canadenſe foliis androſæmi majoris. Mor. Hiſt. 3. p. 609.
2. Apocynum (*Cannabinum*) caule rectiuſculo herbaceo foliis oblongis panniculis terminalibus. Lin. Sp. Plant. 213. *Dogſbane with an erect herbaceous ſtalk, oblong leaves, and ſtalks terminated by flowers.* Apocynum Canadenſe maximum flore minimo herbaceo. Pluk. Alm. 35.
3. Apocynum (*Venetum*) caule rectiuſculo herbaceo foliis ovato-lanceolatis. Prod. Leyd. 411. *Dogſbane with an upright herbaceous ſtalk, and oval ſpear-ſhaped leaves.* Apocynum maritimum venetum ſalicis folio flore purpureo. Tourn. Inſt. 92.
4. Apocynum (*Specioſiſſimum*) foliis ovatis petiolatis, ſuperne glabris, floribus amplis pediculis longis hirſutis caule fruticoſo. *Dogſbane with oval leaves, which are ſmooth on their upper ſide, large flowers with long hairy foot-ſtalks, and a ſhrubby ſtalk.* Apocynum erectum fruticoſum, flore luteo maximo & ſpecioſiſſimo. Sloan. Cat. Jam. 89.
5. Apocynum (*Scandens*) foliis oblongo-cordatis rigidis floribus lateralibus, caule fruticoſo volubili. *Dogſbane with ſtiff, oblong, heart-ſhaped leaves, flowers growing on the ſides of the ſtalk, and a ſhrubby twining ſtalk.* Apocynum ſcandens foliis citrii ſiliquis maculatis. Plum. Cat. 2.
6. Apocynum (*Fruteſcens*) caule erecto fruteſcente foliis lanceolato-ovalibus corollis acutis fauce villoſis. Flor. Zeyl. 114. *Dogſbane with an upright ſhrubby ſtalk, oval ſpear-ſhaped leaves, acute petals, and hairy jaws.* Apocynum caule erecto arboreo foliis ovatis acutis. Prod. Leyd. 412.
7. Apocynum (*Reticulatum*) caule volubili perenne foliis ovatis venoſis. Prod. Leyd. 412. *Dogſbane with a perennial twining ſtalk, and oval veined leaves.*
8. Apocynum (*Obliquum*) caule volubili foliis ovatis rigidis obliquis cymis lateralibus tubo floris longiſſimo. *Dogſbane with oval ſtiff leaves which are oblique, a twining ſtalk, and flowers growing from the ſide of the branches.* Apocynum ſcandens majus folio ſubrotundo. Sloan. Cat. Jam. 89.
9. Apocynum (*Nervoſum*) caule fruticoſo ſcandente foliis ovatis nervoſis cymis lateralibus flore luteo magno tubo longiſſimo. *Dogſbane with a climbing ſhrubby ſtalk, oval-veined leaves, and large flowers growing in bunches from the ſides of the ſtalks, having very long tubes.*
10. Apocynum (*Cordatum*) foliis oblongo-cordatis, mucronatis ſeſſilibus floribus lateralibus, caule ſcandente. *Dogſbane with oblong heart-ſhaped leaves, which end in a point, flowers growing at the wings of the leaves, and a climbing ſtalk.* Apocynum ſcandens foliis oblongis acuminatis floribus amplis patulus & luteis. Houſt. MSS. Fig. Pl. num. 8. pl. 44. f. s.
11. Apocynum (*Villoſum*) foliis cordatis glabris floribus villoſis lateralibus petiolis longioribus caule ſcandente. *Dogſbane with ſmooth heart-ſhaped leaves, hairy flowers growing from the ſide of the branches, and a climbing ſtalk.* Apocynum ſcandens amplo flore villoſo luteo ſiliquis tumidis anguloſis. Houſt. MSS. Fig. Pl. tab. 44. fig. 2.

The firſt ſort grows naturally in North America. This hath a perennial root; the ſtalks riſe about three feet high, grow upright, and are garniſhed with ſmooth oval leaves, growing oppoſite. Theſe, as alſo the ſtalks, abound with a milky juice, which flows out when they are broken; the flowers are white, and collected in a kind of umbel, growing at the top of the ſtalks. The nectarii in the bottom, have a purpliſh caſt; theſe flowers are ſeldom ſucceeded by pods which ripen in England, but the plant is propagated by parting the roots. It is hardy, ſo will thrive in the full ground, but the ſoil ſhould be light or dry, otherwiſe the roots are apt to rot in winter. The beſt time to part the roots is in March, before they begin to put out new ſtalks.

The ſecond ſort is a native of the ſame countries as the firſt; the roots of this ſort creep far in the ground, ſo that when it is planted in a garden, it is apt to ſpread ſo much as to be troubleſome. The ſtalks of this ſort are brown, and grow about two feet high, garniſhed with oblong ſmooth leaves, ſet on by pairs, and abound with a milky juice as the former. Towards the upper part of the ſtalk, the flowers come out from the wings of the leaves, collected in ſmall bunches, which are of an herbaceous white colour, and ſmall, ſo make no great appearance, therefore are ſeldom admitted into gardens, except for the ſake of variety. This is very hardy, and propagates too faſt by its creeping roots. Both theſe ſorts flower in July, and in autumn their ſtalks decay to the root.

The third ſort grows upon a ſmall iſland in the ſea, near Venice, but is ſuppoſed to have been originally brought from ſome other country. There are two varieties of this, one with a purple, and the other with a white flower. The roots of this creep pretty much, by which it is propagated, for it ſcarce ever produces any ſeeds either in the gardens where it is cultivated, or at Venice, where it grows without care, as I have been informed by a very curious botaniſt, who reſided many years at Venice, and conſtantly went to the ſpot ſeveral times in the ſeaſon, to procure the ſeeds, if there had been any produced; but he aſſured me he never could find any pods formed on the plants. The ſtalks of this riſe about two feet high, and are garniſhed with oval ſmooth leaves placed oppoſite; the flowers grow at the top of the ſtalks in ſmall umbels, ſhaped like thoſe of the former ſorts, but are much larger, ſo that the ſort with purple flowers makes a pretty appearance. It flowers in July and Auguſt. This ſort will live in the open air, provided it is planted in a warm ſituation and a dry ſoil; for although the ſoil in which it grows wild near Venice, is moiſt, yet in this country the roots will rot in winter, when they are in a wet ground. The beſt time to remove and plant the roots is in ſpring, juſt before they begin to puſh out new ſtalks.

The fourth ſort grows naturally in Jamaica, in the Savannas, from whence it had the title of Savanna Flower, by which it is chiefly known in that iſland. This ſort riſes three or four feet high, having woody ſtalks, which ſend out a few lateral branches, garniſhed with oval ſmooth leaves, placed by pairs oppoſite, of a ſhining green colour on their upper ſides, but pale and veined underneath; the flowers are produced from the ſides of the branches, upon long foot-ſtalks; there are commonly four or five buds at the end of each, but there is ſeldom more than one of them which comes to flower, the others withering ſoon. The flower is very large, having a long tube, which ſpreads open wide at the top, of a bright yellow, ſo make a fine appearance, eſpecially in the places where the plants grow naturally, being moſt part of the year in flower. This plant is too tender to thrive in England without the aſſiſtance of a ſtove. It is propagated by ſeeds, which muſt be procured from Jamaica, for the plants do not perfect them in England, nor are many of the ſeeds which are brought from thence good, either from their being unſkilfully gathered before they are ripe, or being put up moiſt, for few of them have ſucceeded. When the ſeeds are obtained, they ſhould be ſown in pots filled with light ſandy earth, and plunged into a hot-bed of tanners bark. If the ſeeds are good, the plants will appear in a month or five weeks after, when they ſhould be treated in the ſame manner as other tender plants from the ſame country, with this difference only, to be ſparing in watering them, for theſe plants which abound with a milky juice, require very little wet. They muſt be conſtantly kept in the tan-bed in the ſtove, and as they advance in height, they will require larger pots, but there muſt be great care not to over-pot them; for unleſs their roots are confined, the plants will not thrive. The ſecond year the plants will flower, if they have been ſkilfully managed, when they will make a fine appearance in the ſtove; the uſual time of their flowering in England, is in July and Auguſt, but the plants retain their leaves through the year, which, being of a beautiful green, look very well at all ſeaſons.

The fifth ſort was diſcovered by father Plumier, in ſome of the French iſlands in America, who made a drawing of the plant. It was afterwards found by the late Mr. Robert Millar, ſurgeon, growing plentifully near Carthagena, in New Spain, from whence he ſent the ſeeds, which ſucceeded in ſeveral gardens. This plant hath twining ſtalks, by which it mounts to the tops of very tall trees, garniſhed with ſtiff, oblong, heart-ſhaped leaves, which are ſmooth, and of a ſhining green colour, being of the ſame thickneſs with thoſe of the Citron-tree. The flowers are produced in ſmall cluſters from the ſides of the branches, and are of an herbaceous colour, ſo do not make any great appearance. Theſe appear in Auguſt and September, but are not ſucceeded by pods in this country.

The ſixth ſort grows naturally in India, Ceylon, and upon the coaſts of Guinea, from whence I have received the ſeeds. This plant riſes with a woody ſtem to the height of five or ſix feet, dividing into ſeveral branches, garniſhed with oblong, pointed, ſmooth leaves, of a ſhining green above, but pale underneath, placed by pairs oppoſite. From the wings of the leaves the flowers are produced in looſe bunches. Theſe are ſmall, tubulous, and of a purple colour, but are never ſucceeded by pods in this country. It is a very tender plant, ſo muſt be conſtantly kept in a hot-houſe, and plunged in the tan-bed, otherwiſe it will not thrive in England; it may be propagated by cuttings during the ſummer months, but they ſhould be laid to dry in the ſtove, three or four days before they are planted; for as the plants abound with a milky juice, ſo unleſs the ends of the cuttings where the wounds are made, are well dried and healed over before they are put into the ground, they are very ſubject to rot. This plant muſt be ſparingly watered, eſpecially in winter, and ſhould be planted in light ſandy earth.

The ſeventh ſort grows naturally in India; I received ſeeds of this from Dr. Van Royen, profeſſor of botany at Leyden. This plant hath a twining ſtalk, by which it riſes to a conſiderable height, garniſhed with oblong leaves, which are much veined, and abound with a milky juice, which flows out whenever they are broken. This plant hath not yet produced flowers in England. It is tender, ſo requires to be conſtantly preſerved in the ſtove, otherwiſe it will not thrive in this country.

The eighth ſort grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. William Houſton. It hath a climbing ſtalk, which faſtens to the neighbouring trees, and riſes ten or twelve feet high. The leaves are oval, ſtiff, and oblique to the foot-ſtalk; the flowers are produced from the wings of the leaves, of a purpliſh colour, and have very long tubes, but ſpread open wide at the top. This doth not produce ſeeds in England, nor have I been able to propagate it, either by layers or cuttings. It is tender, ſo muſt conſtantly remain in the ſtove, and ſhould have little water.

The ninth ſort hath a climbing woody ſtalk, and riſes to a conſiderable height, by the ſupport of neighbouring trees. The leaves grow by pairs oppoſite; they are oval, ending in a ſharp point, and have many tranſverſe nerves from the midrib. The flowers come out from the wings of the leaves, each ſtanding upon a ſeparate long foot-ſtalk; they are large, of a bright yellow colour, with very long tubes, ſpreading open wide at the top; theſe are ſucceeded by long compreſſed pods, which have borders on one ſide filled with long channelled ſeeds, which are crowned with long plumes of ſoft down. This ſort grows naturally at Carthagena, in New Spain, from whence I received the ſeeds. It is tender, ſo will not thrive in England, unleſs it is conſtantly preſerved in the ſtove. This is propagated by ſeeds, which muſt be procured from the country where it grows naturally, for the ſeeds do not ripen in this country. When the ſeeds are procured, they muſt be ſown in pots, and plunged into a hot-bed; and when the plants come up, they ſhould be treated in the ſame manner as hath been before directed for the fourth ſort. It flowers in Auguſt and September in England, but in its natural country it flowers great part of the year.

The tenth and eleventh ſorts were diſcovered at La Vera Cruz, in New Spain, by the late Dr. William Houſton, who ſent their ſeeds to England. Theſe plants have both climbing ſtalks, by which they mount to the tops of the talleſt trees. In England they have climbed over the plants in the ſtoves, and riſen to upward of twenty feet high. The tenth ſort has produced flowers in England ſeveral times, but the eleventh, which grows more luxuriantly than the other, never had any appearance of flowers. Theſe are both propagated by ſeeds, which ſhould be ſown as the fourth ſort, and the plants muſt be treated in the ſame manner afterward. All theſe ſpecies of Dogſbane abound with a milky juice, which flows out from any part of their ſtalks or leaves when they are broken; and this is generally ſuppoſed to be hurtful, if taken inwardly, for it doth not raiſe bliſters on the ſkin, as the juice of Spurge, and other acrid plants, ſo is not injurious unleſs inwardly taken. The pods of all the ſorts are filled with ſeeds, which are, for the moſt part, compreſſed, and lie over each other (*imbricatim*) like tiles on a houſe: theſe have each a long plume, of a cottony down faſtened to their crowns, by which, when the pods are ripe and open, the ſeeds are wafted by the wind to a conſiderable diſtance; ſo that in the countries where theſe plants naturally grow, they are ſome of the moſt troubleſome weeds.

The down of theſe plants is in great eſteem in France, for ſtuffing of eaſy chairs, making very light quilts, which are warm, and extremely light, ſo are very proper covering for perſons afflicted with the gout, for the down is ſo extreme light and elaſtic that it occaſions no weight. This the French call Delawad, and in the ſouthern parts of France, where ſome of the ſorts will thrive in the open air, and perfect their ſeeds, there are many plantations made of theſe plants for the ſake of the down.

As many of theſe ſorts grow plentifully in the uncultivated lands in Jamaica, this cottony down might be eaſily procured from thence in plenty, and might probably become a vendible commodity in England, which may turn to advantage, if once it becomes a faſhionable ſort of furniture, eſpecially as the plants require no cultivation, the only trouble being to collect the down, which, in ſome of the ſorts which have large pods, is produced in great quantity, ſo may be collected with little trouble.

The other ſorts which have been ranged under this genus, are now referred to the following genera, to which the reader is deſired to turn, for ſuch of them as are not here enumerated, viz. Aſclepias, Cynanchum, and Periploca.

APPLE-TREE. See Malus.

APPLES of Love. See Licopersicon and Solanum.

APPLES (MAD). See Melongena.

APRICOT, or ABRICOT. See Armeniaca.

AQUIFOLIUM. See Ilex.

AQUILEGIA [called alſo *Aquilina*, from *Aquila*, L. an eagle, becauſe the flower reſembles that bird]. Columbine.

The Characters are,

The flower hath no empalement, but is compoſed of five equal oval petals, which are plain, and ſpread open, within which are five equal nectarii, ranged alternately with the petals, each of the horns widening upward, the opening being oblique to the ſide as it aſcends, and is faſtened to the receptacle within, the lower part lengthening gradually into a long tube, hanging by a blunt incurved apex. It hath many awl-ſhaped ſtamina, which are crowned by oblong upright ſummits, with five oval germen, ſupporting

porting awl-ſhaped ſtyles, which are longer than the ſtamina, crowned by erect ſtigma; the germen afterwards become five cylindrical veſſels, which ſtand upright, are parallel, pointed, and open in one cell, which are filled with oval ſhining ſeeds.

This genus of plants is ranged in the fifth ſection of Linnæus's thirteenth claſs, entitled Polyandria Pentagynia, the flowers having many ſtamina and five ſtyles.

The Species are,

1. Aquilegia (*Vulgaris*) nectaris rectis petalo lanceolato brevioribus. Lin. Sp. Plant. 533. *Columbine with upright nectariums ſhorter than its petal, which is ſpear-ſhaped.* Aquilegia Sylveſtris. C. B. P. 144. *Wild Columbine.*
2. Aquilegia (*Alpina*) nectariis rectis, petalis ovatis longioribus. *Columbine with erect nectarii, and longer oval flower-leaves.* Aquilegia montana magno flore. C. B. P.
3. Aquilegia (*Inverſa*) nectariis incurvis. Hort. Upſal. *Columbine with nectarii turned inward.* Aquilegia flore pleno inverſo. J. B. 485. *Columbine with a double inverted flower.*
4. Aquilegia (*Canadenſis*) nectariis rectis ſtaminibus corollâ longioribus. Hort. Upſal 153. *Columbine with ſtraight nectarii, and ſtamina longer than the petals.* Aquilegia pumila præcox Canadenſis. Cornut. Canad. 60. *Early dwarf Canada Columbine.*

The firſt ſort is found growing wild in the woods in ſome parts of England; I have frequently gathered it in the woods, near Bexley, in Kent; and alſo between Maidſtone and Rocheſter. The flowers of this are blue, the petals are ſhort, and the nectarii are very prominent, in which it differs from the ſecond, whoſe petals are longer, and the nectarii do not riſe ſo high. This I found growing naturally near Ingleborough Hill, in Yorkſhire. The flowers of this are much larger than thoſe of the Garden Columbine, and the ſeeds which I ſowed of this in the garden at Chelſea, produced the ſame ſpecies without the leaſt variation.

The third is the Garden Columbine, of which there are great varieties, not only in the colour and fulneſs of their flowers, but alſo in their form. In ſome there are no viſible nectarii, but in place of them a multiplicity of petals, ſo that the flowers are as double as thoſe of the Larkſpur. Theſe are commonly called Roſe Columbines; the colours of theſe are cheſnut, blue, red, and white, and ſome are finely variegated with two colours.

There are others with ſharp pointed petals, which expand in form of a ſtar; of theſe there are ſingle and double flowers, of the ſeveral colours as the former. From the different ſhape of theſe flowers, any perſon not well ſkilled in the culture of plants, would ſuppoſe they were diſtinct from the others; but having ſeveral years ſown their ſeeds, which were collected with great care, I have found them always varying from one to the other: therefore I have not enumerated their varieties here, knowing they can never be preſerved the ſame from ſeeds, however carefully they are ſaved: however, as the ſorts with variegated flowers are eſteemed the greateſt beauties, ſo thoſe perſons, who are deſirous to have them in perfection, ſhould root out all thoſe plants whoſe flowers are not well marked, or at leaſt cut off their ſtems ſo ſoon as their flowers appear, leaving only the moſt beautiful to ſeed, that the farina of the plain flowers, may not impregnate the others, whereby the plants raiſed from their ſeeds may not be degenerated, of which too much care cannot be taken.

Theſe plants are all raiſed by ſowing the ſeeds, or parting the old roots, but the former method is chiefly practiſed; for the old roots are very apt to degenerate after they have blown two or three years, ſo as to become quite plain.

The ſeeds ſhould be ſown in a nurſery-bed in Auguſt or September, for the ſeeds which are kept till ſpring ſeldom grow well, or at leaſt remain in the ground a whole year. The ſpring following the plants will appear above ground, therefore ſhould be kept clear from weeds, and if the ſeaſon ſhould be dry, they ſhould be refreſhed with water, that they may gather ſtrength.

In the middle or latter end of May, theſe plants will be ſtrong enough to tranſplant; therefore ſome beds of good freſh undunged earth ſhould be prepared, planting them therein at eight or nine inches diſtance every way, keeping them clear from weeds, and refreſhing them with a little water, as they may require it.

In the following autumn, by which time the plants will have acquired ſtrength enough to flower the ſummer following, the roots ſhould be carefully taken up, and planted in the borders of the flower-garden; but where their roots are deſigned to be preſerved in perfection, all their flower-ſtems ſhould be cut off, as ſoon as the flowers are paſt, to prevent their degenerating by the commixture of the farina from other flowers.

But in order to be ſure of having no ſingle or bad flowers in the borders, you may ſuffer the plants to remain in the nurſery-beds until they have blown; at which time you may put a ſtick by each root you fancy to preſerve, or pull out all the ſingle or bad coloured ones, and throw them away, cutting off all the flowers from your beſt roots as ſoon as they have ſhewn themſelves, which will greatly add to the preſerving them fair in their colours.

In order to keep up a ſucceſſion of good flowers, freſh ſeeds ſhould be ſown every year; and if you can meet with a friend, at ſome diſtance, who is furniſhed with good flowers of this kind, it will be very advantageous to both parties, to exchange ſeeds once in two years, by which they will not be ſo apt to degenerate into plain colours.

In ſaving the ſeeds of the variegated columbines, great care ſhould be taken not to ſuffer any plain flowers to remain for ſeed, there being generally ſome plain flowers intermixed with the ſtriped ones on the ſame plant, and often in the ſame branches: theſe ſhould be cut off, for if they are permitted to ſeed, or if their farina mix and impregnate the ſtriped flowers, they will degenerate into plain colours; ſo that there cannot be too much care taken in ſaving the ſeeds, where the beauty of their flowers are regarded.

The Canada Columbine flowers almoſt a month before the other ſorts; for which reaſon it is preſerved in the gardens of the curious, though there is no great beauty in the flowers. There is another variety of this ſort, with taller flower-ſtems, which flowers a little after the other, but do not differ, either in the ſhape of its flowers or leaves from this, ſo I conclude they are but one diſtinct ſpecies. The Canada Columbines flower in April, and their ſeeds ripen the beginning of Auguſt. The other ſorts flower toward the end of May, and in cool ſeaſons will continue to produce flowers till the middle of July, and their ſeeds ripen toward the middle or end of September, according as the ſeaſon proves more or leſs favourable.

The firſt ſort is that which is directed for medicinal uſe in the diſpenſaries, but at preſent is very rarely ordered.

ARABIS. Lin. Gen. Plant. 732. Baſtard Tower Muſtard.

The Characters are,

The flower hath a four-leaved empalement, two of the oppoſite leaves being large, and the other two narrow; theſe fall off. The flower hath four petals in form of a croſs, which ſpread open; at the bottom of each is ſituated a reflexed nectarium fixed to the empalement, and between theſe ariſe ſix upright ſtamina, two of which are no longer than the flower-cup, the other four are much longer: theſe are crowned with heart-ſhaped ſummits. In the center is ſituated a taper germen, which is as long as the ſtamina, having no ſtyle, but the obtuſe ſtigma reſts upon it. This afterward becomes a narrow, long, compreſſed pod opening lengthways, having two valves and a thin partition, between which is lodged a row of flat ſeeds.

This genus of plants is ranged in Linnæus's fifteenth claſs, entitled Tetradynamia Siliquoſa: ſo called, becauſe the flowers have four ſtamina longer than the other two, and the ſeeds growing in long pods.

The Species are,

1. Arabis (*Thaliana*) foliis petiolatis lanceolatis integerrimis. Vir. Cliff. 64. *Baſtard Tower Muſtard, with whole ſpear-ſhaped leaves having foot-ſtalks.* Burſæ paſtoris ſimilis ſiliquoſa major. C. B. P. 108.
2. Arabis (*Alpina*) foliis amplexicaulibus dentatis. Hort. Cliff. 335. *Baſtard Tower Muſtard, with indented leaves embracing the ſtalks.* Draba alba ſiliquoſa repens. C. B. P.
3. Arabis (*Pendula*) foliis amplexicaulibus ſiliquis ancipitibus linearibus calycibus ſubpiloſis. Hort. Upſal. 191. *Baſtard Tower Muſtard with leaves embracing the ſtalks, narrow pods hanging two ways, and hairy flower-cups.* Turritis latifolia hirſuta ſiliquis pendulis. Amman. Ruth. 58.
4. Arabis (*Turrita*) foliis amplexicaulibus ſiliquis decurvis planis linearibus calycibus ſubrugoſis. Hort. Upſal. 192. *Baſtard Tower Muſtard, with narrow, plain, hanging pods, and rough flower-cups.* Leucoium heſperidis folio. Tourn. Inſt. 221. *Stock Gilliflower with a leaf of Dame's Violet.*
5. Arabis (*Lyrata*) foliis glabris, radicalibus lyratis, caulinis linearibus. Flor. Virg. 99. *Baſtard Tower Muſtard with ſmooth leaves, thoſe at the root lyre-ſhaped, but on the ſtalks linear.*
6. Arabis (*Canadenſis*) foliis caulinis lanceolatis dentatis glabris. Flor. Virg. 100. *Baſtard Tower Muſtard, with ſpear-ſhaped, indented, ſmooth leaves.* Eruca Virginiana, bellidis majoris folio. Pluk. Alm. 136.

The firſt ſort is a low plant, ſeldom riſing more than four or five inches high, ſending out many ſhort branches on every ſide, terminated by ſmall white flowers growing alternately the moſt part of their length, each having four petals in form of a croſs, which are ſucceeded by long ſlender pods filled with ſmall round ſeeds. It grows naturally on ſandy dry ground, in many parts of England.

The ſecond ſort grows naturally in Iſtria, from whence I received the ſeeds; it is alſo a native of the Alps, and many other mountainous countries. This is a perennial plant, which increaſes by its creeping roots, which run obliquely near the ſurface of the ground, and ſend down roots at every joint. The leaves are collected into heads, ſpreading circularly like thoſe of the London Pride. Theſe are oblong, whitiſh, and indented on their edges; out of theſe heads ariſe the flower-ſtalks, which grow near a foot high, garniſhed with leaves placed alternately, which are broader at their baſe than thoſe which grow below, and cloſely embrace the ſtalks: the flowers grow in looſe bunches on the top; theſe are white, and have leaves in form of a croſs, which are ſucceeded by long flat pods, opening lengthways, having two cells, which are ſeparated by an intermediate partition, each having one row of flat reddiſh ſeeds.

This is a very hardy plant, ſo will thrive in any ſituation. It produces ſeeds in plenty, but as it multiplies ſo faſt by its creeping roots, few perſons are at the trouble to ſow the ſeeds. It flowers early in the ſpring, and having many ſtalks riſing from one root, they make a pretty variety in cold ſituations, where many finer plants will not thrive, ſo may have place in rural plantations among ſhrubs, where they will thrive with very little care.

The third ſort grows naturally in Siberia, from whence the ſeeds were brought to Peterſburgh. This is a perennial plant, which grows near a foot high; the leaves are broad, hairy, and indented on their edges; theſe cloſely embrace the ſtalks. The flowers grow alternately in looſe ſpikes, and are of a dirty white colour. Theſe are ſucceeded by long narrow pods, which are filled with flat brown ſeeds like the former, but the pods of this hang downwards two ways. It flowers early in ſpring, and perfects ſeeds very well, by which it may be propagated in plenty.

The fourth ſort grows naturally in Hungary, Sicily, and France. I have alſo found it growing wild upon ſome old walls at Cambridge and Ely, but the ſeeds might probably come out of the gardens where they were firſt planted. The plants of this kind, which grow on walls or ruins, continue much longer than thoſe which are ſown in gardens, where they ſeldom live longer than two years. The leaves of this ſort are long, broad, hairy, and a little waved on their edges; of a pale colour, and ſpread near the ground: from the center of theſe come out the ſtalks, which riſe about a foot and a half high, having ſeveral leaves growing alternately, which cloſely embrace them. Toward the top of the ſtalks, they divide into ſeveral ſmall branches, which are terminated by long looſe ſpikes of flowers, of a dirty white colour, each having four petals placed in form of a croſs. After the flowers are paſt, the germen becomes long flat pods, which turn backward at their extremity and open lengthways, having two rows of flat-bordered ſeeds, of a dark brown colour, ſeparated by a thin intermediate partition.

This ſort is eaſily propagated by ſeeds, which ſhould be ſown in the autumn; for thoſe which are ſown in the ſpring frequently miſcarry, or lie in the ground a whole year before they grow. When the plants are ſtrong enough to remove, they may be tranſplanted into a ſhady border, or in rural plantations, where no other care will be neceſſary, but to prevent their being overgrown by weeds. The plants flower in May, and their ſeeds ripen in July. There is little beauty in this plant, yet many perſons preſerve it in their gardens to make a variety.

The fifth ſort is annual, it grows naturally in North America; the leaves near the root are lyre-ſhaped, but thoſe on the flower-ſtalks are linear, placed alternately; both are ſmooth; the flower-ſtalks riſe near a foot high, and are terminated by white flowers, which are ſucceeded by ſlender pods.

The ſixth ſort was brought from Virginia; this is a biennial plant, whoſe lower leaves ſpread on the ground, theſe are deeply indented on their ſides; the flower-ſtalks riſe a foot high, ſuſtaining ſeveral yellow flowers placed ſcatteringly at the top, which are ſucceeded by pretty long flat pods, filled with ſeeds.

The two laſt mentioned ſorts have little beauty to recommend them, nor are their virtues known, therefore they are rarely admitted into any gardens except for variety. They are eaſily propagated by ſeeds, which if permitted to ſcatter on the ground, will produce plants in plenty on any ſoil, or in any ſituation.

ARACHIS, Earth, or Ground Nut.

The Characters are,

The empalement of the flower opens in two parts, the upper being cut into three at the extremity, the under one is hollow ending in a point, and longer than the other. The flower is of the butterfly kind, having four petals; the ſtandard is large, roundiſh, and plain; the wings are open and ſhorter than the ſtandard, the keel is little longer than the empalement, and turns back. The flower hath ten ſtamina, nine of which coaleſce, and the upper one ſtands off; theſe are no longer than the keel, crowned by round ſummits. In the center is ſituated an oblong germen, ſupporting an awl-ſhaped ſtyle, crowned by a ſingle ſtigma. The germen afterward turns to an oblong pod, containing two or three oblong blunt ſeeds.

This genus of plants is ranged in Linnæus's ſeventeenth claſs, entitled Diadelphia Decandria, from the flowers having ten ſtamina, which are in two bodies.

We have but one Species of this plant, viz.

Arachis (*Hypogæa.*) Lin. Hort. Cliff. 353. *Earth or Ground Nut.* Arachidna quadrifolia villoſa flore luteo. Plum. Nov. Gen. 49.

The native country of this plant I believe is Africa, though at preſent, all the ſettlements in America abound with it; but many perſons who have reſided in that country affirm, they were originally brought by the ſlaves from Africa there, where they have been ſpread all over the ſettlements.

It multiplies very faſt in a warm country, but being impatient of cold, it cannot be propagated in the open air in England; therefore whoever has an inclination to cultivate this plant, muſt plant the ſeeds in a hot-bed in the ſpring of the year, keeping the glaſſes over the plants till the middle or end of June; after which time, if the weather prove warm, they may be expoſed to the open air by degrees. The branches of this plant trail upon the ground, and the flowers (which are yellow) are produced ſingle upon long foot-ſtalks; and as ſoon as the flower begins to decay, the germen is thruſt under ground, where the pod is formed and ripened; ſo that unleſs the ground is opened, they never appear: the negroes kept this a ſecret among themſelves, therefore could ſupply themſelves with theſe nuts unknown to their maſters. The roots of theſe plants are annual, but the nuts or ſeeds ſufficiently ſtock the ground in a warm country, where they are not very carefully taken up. In South Carolina there is great plenty of theſe nuts, which the inhabitants roaſt, and make uſe of as chocolate.

ARALIA, Berry-bearing Angelica.

The CHARACTERS are,

It is an umbelliferous plant with a globular umbel, having a ſmall involucrum; the empalement of the flower is ſmall, indented in five parts, and reſts upon the germen. The flower hath five oval petals, which are reflexed; it hath five awl-ſhaped ſtamina crowned by roundiſh ſummits; the round germen below the empalement ſupports five ſhort ſtyles, each of which is crowned by a ſingle ſtigma. The germen afterward turns to a roundiſh channelled berry, having five cells, each containing one oblong hard ſeed.

This genus of plants is ranged in the fifth ſection of Linnæus's fifth claſs, entitled Pentandria Pentagynia, the flowers having five ſtamina and five ſtyles.

The SPECIES are,

1. ARALIA (*Racemoſa*) caule folioſo herbaceo lævi. Hort. Upſal. 70. *Berry-bearing Angelica, with an herbaceous leafy ſtalk.* Aralia Canadenſis. Tourn. Inſt. R. H. 300.
2. ARALIA (*Nudicaulis*) caule nudo foliis ternatis. Hort. Cliff. 113. *Berry-bearing Angelica with a naked ſtalk.* Aralia caule nudo radice repente. Cold. Noveb. 66.
3. ARALIA (*Spinoſa*) arboreſcens caule foliolisque aculeata. Vir. Cliff. 26. *Tree Berry-bearing Angelica, whoſe ſtalk and leaves are prickly.* Aralia arboreſcens ſpinoſa. Vaill. Serm. *Angelica-tree*, vulgò.

The firſt ſort is pretty common in many gardens near London, but the ſecond is at preſent more rarely met with. Both theſe plants grow naturally in North America, from whence their ſeeds were brought to Europe. They are perennial plants, whoſe ſtalks decay in autumn, and new ones ariſe from their roots in the ſpring. The firſt grows three or four feet high, and divides into many irregular branches, garniſhed with ramoſe leaves, placed alternately; at the wings of theſe the flower-ſtalks are produced, which are terminated by round umbels of ſmall four-leaved flowers, of a whitiſh colour; theſe are ſucceeded by round channelled berries, which when ripe, are black. This flowers in July, and the ſeeds ripen in October.

The ſecond ſort riſes to near the ſame height as the former; the leaves of this have two trifoliate large lobes, which are ſawed on their edges. The flower-ſtalks ariſe between theſe immediately from the root, being naked, and are terminated by round umbels of flowers, in ſhape and colour like the firſt; theſe are ſucceeded by berries, which are ſmaller than thoſe of the other. This flowers toward the end of July, and the ſeeds ripen late in the autumn. The roots of this ſort were formerly brought over and ſold for Sarſaparilla, and at this time ſeveral of the inhabitants of Canada make uſe of it as ſuch, but it is very different from the true ſort.

Both theſe ſorts are eaſily propagated by ſeeds, which are generally produced in plenty. Theſe ſhould be ſown in the autumn ſoon after they are ripe, for thoſe which are ſown in the ſpring, never grow the ſame year, ſo that a whole ſeaſon is gained by the ſowing in autumn. When the plants appear, they muſt be kept clean from weeds during the ſummer; and in the autumn following, when their leaves decay, the roots may be taken up, and tranſplanted where they are to remain. They are very hardy plants, ſo may be planted in any ſituation; and as they grow naturally in woods, ſo they may be planted in wilderneſs quarters, under trees, where, although they have no great beauty, yet they will add to the variety.

Theſe two ſorts may alſo be propagated by parting of their roots; the beſt time for doing this is in the autumn, ſoon after their leaves decay. Theſe ſhould be planted pretty far aſunder, for their roots ſpread to a conſiderable diſtance, where they are left undiſturbed for ſome years.

The third ſort riſes with a woody ſtem to the height of eight or ten feet, dividing into ſeveral branches, garniſhed with branching leaves, which are compounded of many divaricated wings; the lobes of which are oblong, and the ribs of the leaves, as alſo the branches and ſtems of the plants, are armed with ſtrong crooked ſpines, which renders the places very difficult to paſs through where they grow in plenty. The flowers of this ſort are produced in large looſe umbels, at the extremity of the branches, and are of an herbaceous colour, ſo make no great figure, but the plants are preſerved in moſt of the curious gardens in England. It flowers in Auguſt, but the ſeeds do not ripen in this country.

This is propagated by ſeeds, which are eaſily procured from North America; but as they ſeldom arrive here till toward the ſpring, ſo the plants never come up the firſt year: therefore when the ſeeds arrive, they ſhould be ſown in pots, filled with light earth, and placed in a ſhady ſituation, where they may remain until the next autumn, being careful to weed the pots conſtantly; otherwiſe if weeds are permitted to grow till they are large, they cannot be taken out, without drawing up the ſeeds with their roots. In the autumn, the pots ſhould be plunged either into an old bed of tan, or in a warm border under the ſhelter of a hedge or wall; and if the winter proves ſevere, it will be proper to cover the pots with ſtraw or Peaſe-haulm, to prevent the froſt from penetrating deep into the ground. In March the pots ſhould be plunged into a moderate hot-bed, which will bring up the plants early, ſo that they will have more time to get ſtrength before the following winter. When the plants come up, they ſhould be frequently refreſhed with water, and conſtantly kept clean from weeds: in May they ſhould be inured to the open air, and when they are removed out of the bed, they ſhould have a ſhady ſituation. Theſe plants ſhould not be diſturbed the firſt ſeaſon, but as they are often injured by froſt when young, ſo in October the pots ſhould be placed under a frame, where they may be ſcreened from hard froſts, but in mild weather ſhould be conſtantly opened to enjoy the free air. The leaves of theſe plants fall away in the autumn, ſo that ſome perſons have ſuppoſed them dead, and have thrown them out of the pots, which every one ſhould be cautioned againſt. In the ſpring, before the plants begin to puſh, they ſhould be carefully ſhaken out of the pots, and ſeparated; part of them ſhould be planted ſingly into ſmall pots, and the other may be planted in a bed of light earth in a warm ſituation. If thoſe which are planted in the ſmall pots are plunged in a moderate hot-bed, it will greatly forward their growth; but they muſt be early inured to bear the open air, otherwiſe they will draw up weak. In the following ſummer they muſt have a ſhady ſituation, and the next winter ſhould be ſheltered again; the ſpring following they may be ſhaken out of the pots, and planted where they are deſigned to remain. Thoſe plants which were planted in the bed, will require protection from the froſt the firſt winter; therefore if the ſurface of the ground is covered with old tanners bark, it will prevent the froſt from penetrating to their roots; and if in hard froſts, ſome ſtraw, Peaſe-haulm, or any light covering is laid over the bed, it will ſecure their ſtems from being injured. The plants in the bed may remain there two years; by which time they will be ſtrong enough to tranſplant to the places where they are deſigned to grow. As theſe plants do not come out very early in the ſpring, ſo they often continue growing pretty late in the autumn, which cauſes the extreme parts of their ſhoots to be very tender, whereby they often ſuffer from the early froſts in autumn, which frequently kill the upper parts of the ſhoots; but as their woody ſtems are ſeldom injured, ſo they put out new branches below: and if in very ſevere winters the ſtems are deſtroyed, yet the roots will remain, and put out new ones the following ſummer, therefore they ſhould not be deſtroyed.

This plant may alſo be propagated by its roots, for as they ſpread far in the ground, ſo if they are laid open, and ſome of the ſtrongeſt are ſeparated from the plant and left in the ground, they will put out new ſtems and make new plants. Or if part of the roots are taken off and planted on a moderate hot-bed, they will puſh out ſtems in plenty, ſo may be increaſed with eaſe.

ARBOR, a tree, is defined to be a gemmiparous plant, with a ſingle trunk or ſtem, abounding with ſhoots. This is the only definition which conveys an idea whereby to diſtinguiſh a tree from a ſhrub, which is a gemmiparous plant, with many ſtems or trunks.

ARBOR CAMPHORIFERA. See Laurus.

ARBOR CORAL. See Erythrina.

ARBOR JUDÆ. See Cercis.

ARBOREOUS [*Arboreus, Lat.* of, or belonging to, or of the nature of, trees.] An epithet which botaniſts apply to thoſe funguſes, or moſſes which grow on trees, in diſtinction from thoſe that grow on the ground; as Agaric, Jews-ear, &c.

ARBOURS [*Arboreta*, of *Arbor*, *Lat.* a tree.] Theſe were formerly in greater eſteem with us than at preſent; few gardens were without covered arbours, and ſhady ſeats; but of late they have been much rejected, and that not without good reaſon; for beſides the great expence in their firſt erecting, they were a continual charge keeping repaired; for the wet ſoaking through the leaves of the trees to the wood-work, was, by the continual ſhade, and for the want of free air, detained ſo long as to rot the wood (which, if wholly expoſed to the weather, would have laſted ſeven or eight) in two or three years; beſide, the ſeats are continually damp, and unhealthy: for which reaſon, covered ſeats or alcoves, are every where, at this time, preferred to them.

Arbours are generally made of lattice-work, either in wood or iron, and covered with Elms, Limes, Hornbeam; or with Creepers, as Honeyſuckles, Jaſmines, or Paſſion-flowers; either of which will anſwer the purpoſe very well, if rightly managed.

ARBUTUS, the Strawberry-tree.

The Characters are,

The flower hath a ſmall, obtuſe, permanent empalement, which is cut into five parts, upon which the germen ſits. The flower is of one leaf, ſhaped like a pitcher, and divided into five parts at the brim, which turn backward. It hath ten ſhort ſtamina, which are joined at the bottom to the flower leaf; theſe are crowned with bifid ſummits. At the bottom of the flower is ſituated the globular germen, ſupporting a cylindrical ſtyle, crowned by a thick blunt ſtigma. After the flower is paſt, the germen becomes an oval or round berry, having five cells, which are filled with hard ſeeds.

This genus of plants is ranged in the tenth claſs of Linnæus, entitled Decandria Monogynia, from the flowers having ten ſtamina and one ſtyle.

The Species are,

1. Arbutus (*Unedo*) foliis glabris ſerratis, baccis polyſpermis, caule erecto arboreo. *Strawberry-tree with ſmooth ſawed leaves, berries having many ſeeds, and an upright trunk.* Arbutus folio ſerrato. C. B. P. 460.
2. Arbutus (*Andrachne*) foliis glabris integerrimis, baccis polyſpermis caule erecto arboreo. *Strawberry-tree with ſmooth entire leaves, berries full of ſeeds, and an erect woody ſtem.* Arbutus folio non ſerrato. C. B. P. 46. Andrachne Theophraſti. Cluſ. Hiſt. 48. *called Andrachne.*
3. Arbutus (*Acadienſis*) caulibus procumbentibus foliis ovatis ſubſerratis floribus ſparſis baccis polyſpermis. Lin. Sp. Plant. 395. *Arbutus with trailing ſtalks, oval leaves, ſomewhat indented, flowers growing looſely, and many ſeeds.* Vitis idæa Acadienſis foliis Alaterni. Tourn. Inſt.
4. Arbutus (*Alpina*) caulibus procumbentibus foliis rugoſis ſerratis. Flor. Lap. 161. *Arbutus with trailing ſtalks and rough ſawed leaves.* Vitis idæa foliis oblongis albicantibus. C. B. P. 470.
5. Arbutus caulibus procumbentibus foliis integerrimis. Flor. Lap. 162. *Arbutus with trailing ſtalks and entire leaves.*
6. Arbutus (*Uva Urſi*) caulibus diffuſis, foliis emarginatis. *Arbutus with diffuſed ſtalks and indented leaves.* Uva urſi. Cluſ. Hiſt. 1. p. 63. *Bear Berry.*

The firſt ſort grows naturally in Italy, Spain, and alſo in Ireland, and is now very common in the Engliſh gardens. Of this ſort there are the following varieties, viz. one with an oblong flower and oval fruit; another with a double flower, and a third with red flowers; but theſe being only ſeminal varieties, I have not mentioned them as ſpecies; though for the ſake of the curious, I ſhall give a farther account of them.

The ſecond ſort grows naturally in the eaſt, particularly about Magneſia, where it is ſo plenty, as to be the principal fuel uſed by the inhabitants of the country. This grows to a middle ſized tree; the branches are irregular, and are garniſhed with large oval leaves, ſomewhat like thoſe of the Bay-tree, but not quite ſo long; theſe are ſmooth and entire, having no ſerratures on their edges; the flowers are ſhaped like thoſe of the common Arbutus, but grow thinly on the branches. The fruit is oval, and of the ſame colour and conſiſtence with the common ſort, but the ſeeds of this are flat, whereas thoſe of the common ſort are pointed and angular. Tournefort enumerates three other varieties of this tree, which he obſerved in the Levant, one with ſawed leaves, which is now in many Engliſh gardens, and paſſes for the Andrachne: another with a large oblong fruit, and a third with large compreſſed fruit: but it is doubtful if they are not accidental varieties, which have been produced from ſeeds of the firſt.

The common Strawberry-tree is too well known to require any deſcription of it here, being at preſent in moſt of the Engliſh gardens, and is one of the greateſt ornaments to them in the months of October and November, that being the ſeaſon when the trees are in flower, and the fruit of the former year is ripe, for the fruit is a whole year growing to perfection; ſo that the fruit which is produced from the flowers of one year, do not ripen till the bloſſoms of the ſucceeding year are fully blown; ſo that when there is plenty of fruit and flowers upon the trees, they make a goodly appearance, and at a ſeaſon when moſt other trees are paſt their beauty.

Thoſe trees which have large oval fruit, make the greateſt figure, the flowers of this being larger, and oblong. The ſort with double flowers is a curioſity, but as the flowers have only two orders of leaves, ſo they make no great appearance; nor do the trees produce fruit in any plenty, therefore the other is more preferable. The ſort with red flowers makes a pretty variety, when intermixed with the other; for the outſide of them are of a fine red colour at their firſt appearance, and afterward they change to purple before they fall off. The fruit of this is the ſame with the common ſort. All theſe varieties are preſerved, by inarching or grafting them upon the common Arbutus, for the ſeeds of either do not produce the ſame kind; though from the ſeeds of the oval fruit, there is generally many more of the ſame produced, than from the ſeeds of the common ſort.

The beſt method to propagate the Arbutus is from ſeeds; therefore when the fruit is perfectly ripe, it ſhould be gathered and mixed with dry ſand, to preſerve them till the time for ſowing them; the ſureſt method of raiſing the plants, is to ſow the ſeeds in pots, which ſhould be plunged into an old bed of tanners bark, which has loſt its heat, covering the bed with glaſſes, &c. to keep out froſt; this ſhould be done in December, if the ſeeds are good, and as the ſpring advances, the pots are refreſhed with water, the plants will come up the beginning of April, when they ſhould be frequently but ſparingly watered, and conſtantly kept clean from weeds.

As the ſummer advances, if the plants are ſhaded in the heat of the day, it will greatly promote their growth; but in warm weather they muſt be open all night to receive the dew, ſo ſhould only be covered in the middle of the day: with this management, the plants will riſe to the height of five or ſix inches the firſt ſummer. The beginning of October, theſe plants may be ſhaken out of the pots, and their roots carefully ſeparated, planting them ſingly in ſmall pots filled with light earth; then plunge the pots into an old bed of tanners bark, under a common frame, obſerving to ſhade them from the ſun in the middle of the day, and to give them water as they may require: in this bed the pots ſhould remain during the winter, obſerving to expoſe the plants to the open air, at all times when the weather is favourable; but in froſty weather they muſt be covered, otherwiſe they will be in danger if the ſeaſon proves ſevere. The ſpring following the plants may be removed to a very gentle hot-bed, which will require no other covering but mats. This will enable them to make ſtrong ſhoots early in the ſummer, whereby they will be in a better condition to bear the cold of the ſucceeding winter: in this bed the plants may continue moſt part of the ſummer, for if the pots are taken out and ſet upon the ground, the ſmallneſs of their ſize will occaſion the earth in them to dry ſo faſt, that watering will ſcarcely preſerve the plants alive; but if they are kept growing all the ſummer, they will be more than a foot high by the next autumn: but it will be adviſable to ſcreen them from the froſt during their continuance in pots, by plunging them into the ground in a warm place, and covering them with mats in bad weather.

When the plants are grown to be two or three feet high, you may ſhake them out of the pots, and plant them in the open ground in the places where they are to remain; but this ſhould be done in April, that they may have taken good root before the winter, which would be apt to damage them if newly planted; and as all the earth about their roots may be thus preſerved, there will be no fear of ſucceeding at this ſeaſon.

Theſe plants are tolerably hardy, and are ſeldom hurt, except in extreme hard winters, which many times kill the young and tender branches, but rarely deſtroy the roots; therefore, however dead they may appear after a hard winter, yet I would adviſe the letting them remain till the ſucceeding ſummer has ſufficiently demonſtrated what are living and what are dead; for the winters anno 1728-9, and 1739-40, gave us great reaſon to believe moſt of the trees of this kind were deſtroyed; and many people were ſo haſty, as to dig up or cut down, many of their trees; whereas all thoſe people who had patience to let them remain, found that ſcarce one in five hundred failed to come out again the next ſummer, and many of them made handſome plants that ſeaſon.

This tree delights in a moiſt ſoil, for when they are planted in dry ground, they ſeldom produce much fruit: the flowers of this tree being produced in autumn, if the winter proves ſevere, are generally deſtroyed, which has occaſioned their producing very little fruit in England for ſeveral years: therefore, in order to obtain fruit, the trees ſhould be placed in a warm ſituation; and where the ground is not naturally moiſt, there ſhould be a good quantity of loam and rotten neat's dung laid about their roots; and if the ſpring ſhould prove dry, they muſt be plentifully watered, in order to have plenty of fruit.

The very beſt ſeaſon for tranſplanting of the Arbutus is in September, at which time the bloſſoms are beginning to appear; and at that ſeaſon, if it ſhould prove very dry and they are kept moiſt, they will take root very ſoon; but toward the beginning of November, their roots ſhould be well covered with mulch, to keep out the froſt.

The third ſort grows naturally in Acadia, and other northern parts of America, upon ſwampy land, which is frequently overflowed with water; this is a low buſhy ſhrub, with ſlender trailing branches, which are garniſhed with oval leaves, a little ſawed on their edges; the flowers come out from the wings of the leaves, growing in thin looſe bunches. The fruit of this ſort is never produced in England, and it is with great difficulty the plants are kept alive here.

The fourth ſort grows naturally on the Alps, and the Helvetian mountains. This never riſes high, but ſends out from the root many ſlender branches, which trail upon the ground, garniſhed with oblong rough leaves, of a pale green colour; the flowers are produced from the wings of the leaves, upon long ſlender foot-ſtalks, and are ſucceeded by berries about the ſize of the common black Cherry, which are firſt green, afterward red, and when ripe they are black. Theſe are of a pleaſant taſte, ſo are frequently eaten by the inhabitants of thoſe countries where they grow naturally. This is alſo a very difficult plant to keep alive in gardens, for it is an inhabitant of bogs, growing among moſs, where the ground is never dry.

The fifth ſort grows naturally upon the mountains in Spain, and in moſt of the northern parts of Europe. The branches of this trail on the ground, which are cloſely garniſhed with ſmooth thick leaves of an oval form, placed alternately; the flowers are produced in ſmall bunches toward the extremity of the branches, which are ſhaped like thoſe of the common ſort, but are ſmaller; and are ſucceeded by berries, of the ſame ſize with thoſe of the former ſort, which are red when ripe.

There are few of theſe plants in the Engliſh gardens, for as they are inhabitants of very cold countries, where they are covered with ſnow all the winter, and growing upon bogs among moſs, ſo when they are brought into a garden, they ſeldom continue long, nor do they thrive with the utmoſt care; for in places where artificial bogs have been contrived to receive theſe plants, they have been preſerved two or three years, and then have periſhed; ſo that unleſs the place where they are planted is naturally boggy, there is little hopes of their ſucceeding long.

The ſixth ſort grows naturally upon Mount Cenis in Italy, and upon ſome mountains in Spain; this hath woody ſtalks which riſe two or three feet high, dividing into many diffuſed branches, cloſely garniſhed with roundiſh fleſhy leaves, which are indented at the top; the flowers are produced in a racemus toward the end of the branches, which are ſhaped like thoſe of the Strawberry-tree, of an herbaceous colour, ſtriped with purple. The plants of this kind are very rare in England, nor is this ſort much known among botaniſts, moſt of whom have ſuppoſed the fifth to be the ſort mentioned by Cluſius, in which they are greatly miſtaken.

The Adrachne is at preſent very rare in England; this may be propagated in the ſame manner as hath been directed for the common Arbutus, but as there are no plants in this country which produce fruit at preſent, the ſeeds muſt be procured from the Levant, where they may be had in plenty. As the leaves of this tree are larger than thoſe of the common Arbutus, the trees make a finer appearance, therefore deſerve our care to cultivate them, eſpecially as they will bear the open air when the plants are become woody; for while they are young, they are impatient of much froſt, therefore ſhould be preſerved in pots three or four years, till they have obtained ſtrength, and may then be planted in a warm ſituation and on a dry ſoil, for this ſort will not thrive in wet ground.

ARCTIUM. Lin. Gen. 830. Lappa. Tourn. Inſt. R. H. Burdock.

The Characters are,

The empalement of the flower is ſcaly, each ſcale ending in a long thorn which is reflexed at the point. The flower is compoſed of many florets, which are tubulous, uniform, and of one leaf. The tube is long and ſlender, cut into five narrow ſegments at the top: theſe have each five ſhort ſlender ſtamina, which are crowned by cylindrical ſummits. The germen is ſituated at the bottom of the tube, having a hairy tip, ſupporting a long ſlender ſtyle, crowned by a bifid reflexed ſtigma; the germen afterward becomes a ſingle, pyramidal, angular ſeed, crowned with down.

This genus of plants is ranged in the firſt ſection of Linnæus's ſeventeenth claſs, entitled Syngeneſia Polygamia Æqualis, there being an equal number of female and hermaphrodite flowers included in one common empalement.

The Species are,

1. Arctium (*Lappa*) foliis cordatis inermibus petiolatis capitulis majoribus ſparſis. *Burdock with heart-ſhaped leaves without prickles, having foot-ſtalks, and large heads growing ſcatteringly.*
2. Arctium (*Perſonata*) foliis cordatis inermibus, capitulis minoribus compactis. *Burdock with heart-ſhaped leaves without ſpines, and ſmall heads growing cloſe together.*
3. Arctium (*Tomentoſis*) foliis cordatis inermibus, capitulis tomento-reticulatis. *Burdock with heart-ſhaped leaves without ſpines, and woolly netted leaves.*

The two firſt ſorts are common weeds, growing on the ſides of roads and foot-paths in moſt parts of England, and are not admitted into gardens. The firſt is ordered for medicinal uſe by the college of phyſicians, therefore I have inſerted it here: the ſecond is by many ſuppoſed to be only a variety of the firſt, but I have for ſeveral years ſown the ſeeds of both ſorts in the Chelſea garden, where they have conſtantly retained their difference, ſo may be allowed to be diſtinct ſpecies. The firſt is titled by Caſpar Bauhin, Lappa major, ſive Arctium Dioſcorides. Pin. 192. *Greater Burdock*, or *Arctium of Dioſcorides.* The ſecond is titled by Vaillant, Lappa vulgaris capitulo minore. Act. Par. 1718. *Common Burdock with a ſmall head.*

The third ſort is not a native of England, but grows naturally on the Apennine mountains. The leaves of this are like thoſe of the common ſort, but are whiter on their under ſide; the heads are more compact, and the florets are of a bright red colour; but the greateſt difference is in their empalements, which in this ſort are beautifully netted with a fine down all over. This is alſo ſuppoſed to be only a variety of the common ſort, but I have cultivated it above forty years, during which time it has never varied, ſo that it is certainly a diſtinct ſpecies. This is by Caſpar Bauhin titled, Lappa major montana capitulis tomentoſis. Pin. 198. *Greater Mountain Burdock with woolly heads.*

As theſe plants are ſeldom admitted into gardens, it is needleſs to ſay any thing of their culture; but where they are troubleſome weeds, it may not be amiſs to mention, that their roots laſt but two years, ſo may be deſtroyed with leſs trouble than ſuch as have perennial roots; for if they are cut up before they ſeed, in two or three years they may be entirely rooted out; for the plants which come up from ſeed, do not flower till the ſecond year, and when the ſeeds are perfected their roots decay.

ARCTOTIS. This hath been uſually known under the title of Anemonoſpermos, from the reſemblance the ſeeds of theſe plants have to that of the Anemone.

The Characters are,

The common empalement is roundiſh and ſcaly, thoſe on the lower part are looſe and awl-ſhaped, the middle oval, and thoſe on the top concave. The flower is compoſed of many female florets which are ranged on the border; theſe have one ſide ſtretched out like a tongue, which are called the rays, having an oval four-cornered germen ſituated in their center, crowned with down, ſupporting a ſlender ſtyle, crowned by two oval ſtigma; the germen afterward becomes a ſingle roundiſh ſeed, covered with a ſoft down. The middle or diſk of the flower is compoſed of hermaphrodite florets, which are funnel-ſhaped, and divided at the top into five parts, which are reflexed; theſe have five ſtamina, crowned by ſhort ſummits; in the center is placed a ſmall germen, ſupporting a cylindrical ſtyle with a ſingle ſtigma. Theſe flowers are abortive.

This genus of plants is ranged in the fourth ſection of Linnæus's ſeventeenth claſs, entitled Syngeneſia Polygamia Neceſſaria, the flowers of this ſection being compoſed of female and hermaphrodite florets; in ſome ſpecies the florets in the diſk are fertile, and in others they are ſterile.

The Species are,

1. Arctotis (*Triſtis*) floſculis radiantibus vicenis tripartitis. Lin. Sp. 1306. *Arctotis with the rays of the flower compoſed of florets cut into three ſegments.* Anemonoſpermos Afra, foliis & facie taraxaci incanis. Breyn. Prod. t. 15.
2. Arctotis (*Anguſtifolia*) floſculis radiantibus fertilibus, foliis lanceolatis integris dentatis, Lin. Sp. 1306. *Arctotis whoſe florets in the rays are fertile, and ſpear-ſhaped, entire, indented leaves.* Anemonoſpermos Afra, folio ſerrato rigido flore intus ſulphureo extus puniceo. Boerh. Ind. Alt. 1. p. 1. 100.
3. Arctotis (*Aſpera*) floſculis radiantibus fertilibus, foliis pinnato-ſinuatis villoſis laciniis oblongis dentatis. Lin. Sp. 1307. *Arctotis whoſe rays of the flower are fertile and woolly, with ſinuated, oblong, indented leaves.* Anemonoſpermos Afra, folio Jacobææ tenuiter laciniato flore aurantio pulcherrimo. Boerh. Ind. Alt. 1. p. 100.
4. Arctotis (*Calendula*) floſculis radiantibus ſterilibus duodenis ſubintegris, foliis lyratis nigro denticulatis. Lin. Sp. 1306. *Arctotis whoſe rays of the flower are ſterile and intire, and the leaves are lyre-ſhaped and indented.* Anemonoſpermos Africana Jacobææ maritimæ foliis flore ſulphureo. Com. Rar. 36.
5. Arctotis (*Plantaginea*) floſculis radiantibus fertilibus, foliis lanceolato-ovatis nervoſis decurrentibus amplexicaulibus. Lin. Sp. 1306. *Arctotis whoſe rays of the flower are fertile, and oval, ſpear-ſhaped, nervous, running leaves embracing the ſtalks.* Anemonoſpermos Afra, folio plantaginis, florum radiis intus aureis extus puniceis. Boerh. Ind. 1. p. 100.
6. Arctotis (*Acaulis*) pedunculis radicalibus, foliis lyratis. Lin. Sp. 1306. *Arctotis whoſe foot-ſtalks ariſe from the root, and the leaves are lyre-ſhaped.* Anemoſpermos Africana, folio plantiginis flore ſulphureo. Com. Rar. 35.
7. Arctotis foliis pinnato-laciniatis criſpis caule ramoſo fruticoſo. *Arctotis with winged, jagged, curled leaves, and a branching ſhrubby ſtalk.* Anemonoſpermos Africana foliis Cardui benedicti florum radiis intus albicantibus. Hort. Amſt. 2. 45.
8. Arctotis (*Paleacea*) floſculis radiantibus ſterilibus, paleis floſculos diſci æquantibus, foliis pinnatis linearibus. Amœn. Acad. 6. Afr. 84. *Arctotis whoſe rays of the flower are barren, the ſcales of the flowers in the diſk equal, and linear winged leaves.* Aſter foliis integris anguſtis, flore magno luteo. Burm. Afr. 176.

Theſe plants are natives of the country about the Cape of Good Hope, from whence they have been brought to ſome curious gardens.

The firſt ſort here mentioned is an annual plant, which may be ſown upon a warm border of light earth in the open air, in the middle of April, where they are deſigned to remain; theſe flower in Auguſt, and if the ſeaſon proves favourable, they will perfect ſeeds very well, and the plants will grow much ſtronger than thoſe raiſed upon a hot-bed; but, as in cold ſeaſons theſe may fail to perfect their ſeeds, it will be a ſecure method to raiſe ſome upon the hot-bed, which never fails to perfect ſeeds, provided they are not treated too tenderly.

The ſecond, third, fourth, and ſeventh ſorts, grow to the height of four or five feet, ſending forth many branches; therefore will require to be frequently pruned, to keep them in tolerable order, eſpecially the ſeventh, which ſends forth ſtrong rambling ſhoots, when their roots are not much confined in the pots, but more ſo when they are duly watered.

Theſe are ſeldom deſtitute of flowers the whole year, unleſs the winter is ſevere, which renders them more valuable than thoſe which flower at one ſeaſon only; for all thoſe plants which flower in the winter-ſeaſon, make a fine variety in the green-houſe; and when the plants are ſet abroad in ſummer, their flowers being at that ſeaſon produced in greater plenty, they add to the beauty of a garden.

The ſhrubby ſorts are propagated by planting cuttings in a bed of light freſh earth, in any of the ſummer months, obſerving to ſhade them from the heat of the ſun until they have taken root, as alſo to refreſh them often with water; and in ſix weeks after planting, they will be rooted ſufficiently, at which time they ſhould be tranſplanted into pots filled with freſh earth, ſetting the pots in a ſhady place until the plants are new rooted; after which time they ſhould be placed in the open air until the latter end of October, or later, according as the weather is favourable, when they muſt be removed into the green-houſe, where they ſhould be placed as near the window as poſſible, that they may have a good quantity of free air at all times, when the weather is mild; nor ſhould they be over-hung by other plants, which would occaſion them to take a mouldineſs, and rot; they muſt alſo be frequently refreſhed with water, giving it them plentifully in mild weather, otherwiſe their leaves and branches will hang and wither; in ſummer they can ſcarce have too much water given them. They will alſo require to be ſhifted into other pots two or three times at leaſt every ſummer, and the pots ſhould be frequently removed, to prevent the plants from ſtriking their roots through the holes of the pots into the ground, which they are very apt to do, then they will ſhoot very vigorouſly; but when theſe roots are torn off, by removing the pots, the plants are often killed.

All theſe plants ſhould be frequently renewed by cuttings, becauſe the old plants are ſubject to decay in winter; therefore if young plants are not annually raiſed, the ſpecies may ſoon be loſt.

If the green-houſe in which theſe plants are placed in winter is ſubject to damps, it will be very difficult to preſerve ſome of the ſorts; for when the windows are kept cloſe, the tender parts of their ſhoots are very ſubject to a mouldineſs, which will ſoon cauſe the plants to decay, if it is not conſtantly cleaned off, and free air admitted to dry off the damps.

ARCUATION [from *arcuo*, *Lat.* to bend or bow like an arch;] the method of raiſing trees by layers.

The firſt thing that is to be done, is, to procure ſtrong mother plants, which are uſually called ſtools. It is no matter whether the trees be crooked, or othertherwiſe deformed. They are to be planted in a border ſix feet wide, and in a ſtrait line ſix feet aſunder. The border muſt be well trenched, or dug, and cleared from all roots, clods, ſtones, or any other obſtructions. Theſe trunks or ſtools being planted in this trench, will throw out a great many ſhoots according to their ſtrength, which may be laid about the Michaelmas following: in order to this, the ground round each ſtool ſhould be carefully dug, breaking the clods and picking out the ſtones as before. Then the ſhoots ſhould be bent down in arches, and put into the ground about three inches deep; and to keep them in this ſituation, each ſhould have a forked ſtick drove into the ground over the part of the ſhoot immerſed, turning the extremity of each ſhoot upward.

When the branches are thus laid round the ſtool, and pegged faſt down, the branches, or ſhoots, will be covered all over, except the very top. Some perſons give the branches a twiſt, in order to make them take root the ſooner. Others ſlit ſuch of the ſhoots as are not apt to take root without, in the ſame manner as is practiſed in laying of Carnations, which is generally a ſure way; and if they are afterward mulched, it will be of uſe to keep out the froſt in winter, and alſo to keep the ground moiſt the following ſpring and ſummer. About the end of September following they may be opened and examined, to ſee if they have taken root or not, which it is very probable they will have done; but if not, they muſt be let alone, to lie till the next autumn, when they are to be taken up, and planted in the nurſery.

This may be done to the Dutch, Witch, and Engliſh Elms; the Abele, Lime, Alder, Platanus, and many ſorts of evergreen trees and flowering ſhrubs.

AREA is the internal capacity or content of any given boundary or limits, of what figure or ſhape ſoever it be.

ARGEMONE [ſo called from Ἄργεμα, a diſeaſe in the eye, which this plant is ſaid to cure; it is alſo called the Infernal Fig, becauſe the capſule pretty much reſembles a Fig, and from its aſperity,] Prickly Poppy.

The Characters are,

The flower hath a three-leaved empalement, which falls off; it hath five roundiſh petals, which ſpread open, and are larger than the empalement; in the center is ſituated an oval five-cornered germen, crowned by a large obtuſe ſtigma, which is permanent, divided into five parts, attended by a great number of ſtamina, crowned by oblong erect ſummits; the germen afterward becomes an oval ſeed-veſſel, having five angles, and as many cells, which are filled with ſmall rough ſeeds.

This genus of plants is ranged in Linnæus's thirteenth claſs, entitled Polyandria Monogynia, the flowers having many ſtamina and one germen.

We have but one Species of this genus, viz.

Argemone (*Mexicana*) capſulis quinque valvibus, foliis ſpinoſis. Lin. Sp. 727. *Argemone whoſe capſule hath five valves, and the leaves are prickly; or Pickly Poppy.* Papaver ſpinoſum. C. B. P. 171.

This is an annual plant, which is very common in moſt parts of the Weſt-Indies, and is, by the Spaniards, called Fico del Inferno, or the Devil's Fig; there is no great beauty or uſe in this plant that I know of, but whoever hath a mind to cultivate it, ſhould ſow it on a bed of light earth, in the ſpring, where it is to remain; and if it comes up too thick, the plants muſt be thinned to four inches diſtance, where, when once it has ſhed its ſeed, there will not want a ſupply of plants for ſeveral years after. I have been informed that gumbouge is made from the juice of this plant, but how true I cannot take upon me to determine.

ARGIL [*Argilla*, *Lat.* a ſort of white earth like chalk, but more brittle,] Potters Clay.

ARIA THEOPHRASTI. See Cratægus.

ARISARUM. See Arum.

ARISTA, of corn, is that ſharp-pointed needle that ſtands out from the huſk or hoſe of the grain, called the beard or awn of corn.

ARISTOLOCHIA, [Ἀριστολοχία from ἄριστος, beſt, and λοχεία, Child Birth, becauſe ſuppoſed to be of ſoreign uſe on that occaſion.] Birthwort.

The Characters are,

The flower hath no empalement; it is of one leaf, which is unequal; the baſe is ſwelling and globular, afterward is extended into a cylindrical tube, which ſpreads at the brim, where the lower part is ſtretched out like a tongue. It hath no ſtamina, but there are ſix ſummits which join the under part of the ſtigma: the oblong angular germen ſits under the flower, ſupporting a concave globular ſtigma, divided into ſix parts; the germen afterward turns to a large ſeed-veſſel, differing in form, which opens in ſix cells, which are filled with ſeeds, for the moſt part compreſſed.

This genus of plants is ranged in the fifth ſection of Linnæus's twentieth claſs, entitled Gynandria Hexandria, the flowers being male and female in the ſame ſpecies, having no ſtamina or pointal, and ſix ſummits, which reſt on the receptacle.

The Species are,

1. Aristolochia (*Rotunda*) foliis cordatis, ſubſeſſilibus obtuſis, caule infirmo, floribus ſolitariis. Lin. Sp. Plant. 962. *Birthwort with blunt heart-ſhaped leaves growing cloſe, a weak ſtalk, and flowers growing ſingly.*

ſingly. Ariſtolochia rotunda flore ex purpurâ nigro. C. B. P. 307.

2. Ariſtolochia (*Longa*) foliis cordatis petiolatis integerrimis obtuſiuſculis, caule infirmo floribus ſolitariis. Lin. Sp. Plant. 962. *Birthwort with entire, heart-ſhaped, blunt leaves, having foot-ſtalks, a weak ſtalk, and flowers growing ſingly.* Ariſtolochia longa vera. C. B. P. 307.
3. Ariſtolochia (*Clematitis*) foliis cordatis caule erecto floribus axillaribus confertis. Hort. Upſal. 279. *Birthwort with heart-ſhaped leaves, an upright ſtalk, and flowers growing in cluſters from the ſide.* Ariſtolochia clematitis recta. C. B. P. 307.
4. Ariſtolochia (*Piſtolochia*) foliis cordatis, crenulatis petiolatis, floribus ſolitariis. Lin. Sp. Plant. 962. *Birthwort with heart-ſhaped indented leaves, having foot-ſtalks, and flowers growing ſingly.* Ariſtolochia piſtolochia dicta. C. B. P. 307.
5. Ariſtolochia (*Sempervirens*) foliis cordato-oblongis undatis, caule infirmo, floribus ſolitariis. Lin. Sp. Plant. 961. *Birthwort with oblong, heart-ſhaped, waved leaves, a weak ſtalk, and flowers growing ſingly.* Ariſtolochia piſtolochia dicta Cretica foliis ſmilacis ſempervirens. H. L.
6. Ariſtolochia (*Serpentaria*) foliis cordato-oblongis planis, caulibus infirmis flexuoſis, teretibus floribus ſolitariis. Lin. Sp. Plant. 961. *Birthwort with plain, oblong, heart-ſhaped, flexible, weak ſtalks, and flowers growing ſingly.* Ariſtolochia piſtolochia ſive ſerpentaria Virginiana. Pluk. Alm. 50. *Virginia Snakeroot.*
7. Ariſtolochia (*Arboreſcens*) foliis cordato-lanceolatis caule erecto fruticoſo. Lin. Sp. Plant. 960. *Birthwort with ſpear-ſhaped leaves in form of a heart, and an upright ſhrubby ſtalk.* Ariſtolochia polyrrhizos auriculatis foliis Virginiana. Pluk. Alm. 50.
8. Ariſtolochia (*Indica*) foliis cordato-oblongis caule volubili pedunculis multifloris. Flor. Zeyl. 323. *Birthwort with oblong heart-ſhaped leaves, a twining ſtalk, and many flowers upon each foot-ſtalk.* Ariſtolochia ſcandens odoratiſſima floris labello purpureo ſemine cordato. Sloan. Cat. Jam. 60. *Contrayerva of Jamaica.*
9. Ariſtolochia (*Hirta*) foliis cordatis obtuſiuſculis hirtis floribus ſolitariis pendulis recurvatis ſubtruncatis. Lin. Sp. 1365. *Hairy Birthwort with obtuſe heart-ſhaped leaves, and hanging recurved flowers growing ſingly, formed like a lip.* Ariſtolochia longa ſubhirſuta folio oblongo flore maximo. Tourn. Cor. 8.
10. Ariſtolochia (*Scandens*) foliis cordatis petiolis longiſſimis, caule ſcandente, floribus terminalibus pedunculis longiſſimis. *Birthwort with a climbing ſtalk, heart-ſhaped leaves with very long foot-ſtalks, and flowers growing at the end of the branches upon very long foot-ſtalks.*
11. Ariſtolochia (*Conferta*) foliis cordatis petiolatis, caule ſcandente, floribus axillaribus confertis. *Birthwort with heart-ſhaped leaves, a climbing ſtalk, and flowers growing in cluſters from the wings of the ſtalk.*
12. Ariſtolochia (*Repens*) foliis lanceolatis ſeſſilibus ſubhirſutis, caule erecto floribus ſolitariis longiſſimis. *Birthwort with ſpear-ſhaped hairy leaves growing cloſe to the branches, an upright ſtalk, and very long flowers growing ſingly.* Ariſtolochia erecta flore atro purpureo foliis anguſtis radice repente. Houſt. MSS.
13. Ariſtolochia (*Maxima*) foliis oblongo-ovatis obtuſis integerrimis, caule ſcandente floribus terminalibus, fructibus hexangularibus maximis. *Birthwort with a climbing ſtalk, oblong, oval, entire, blunt leaves, flowers growing at the ends of the branches, and very large fruit with ſix angles.*

The firſt and ſecond ſorts grow naturally in the ſouth of France, in Spain, and Italy, from whence their roots are brought for medicinal uſe. The roots of the firſt ſort are roundiſh, and grow to the ſize of ſmall Turneps, in ſhape and colour like the roots of the common Cyclamen; the roots of which are frequently ſold in the markets for thoſe of the round Birthwort, which at firſt may have been occaſioned by the ſuppoſed virtues of the roots of the Cyclamen. This ſends out three or four weak trailing branches, which lie on the ground where they are not ſupported, and extend to the length of two feet; the leaves are heart-ſhaped, and rounded at their extremity; theſe are placed alternately on the ſtalks, and cloſe to the foot-ſtalks of the leaves, the flowers come out ſingly, at every leaf, toward the upper part of the ſtalk. They are of a purpliſh black colour, and ſhaped like thoſe of the other ſorts, and are frequently ſucceeded by ſeed-veſſels, having ſix cells, which are full of flat ſeeds. The flowers appear in June and July, and the ſeeds ripen in autumn.

The ſecond ſort hath long tap roots, ſhaped like thoſe of Carrots; theſe ſend out weak trailing branches, which extend little more than a foot; the leaves of this ſort are paler, and have longer foot-ſtalks than the firſt, placed alternately, and the flowers come out from the wings of the leaves like the other, which are not ſo long, and are of a pale purple colour: they are ſometimes ſucceeded by oblong ſeed-veſſels, having ſix cells filled with compreſſed ſeeds. The ſtalks of both theſe ſorts decay in the autumn, and new ones are produced in the ſpring.

They are both propagated by ſeeds, which ſhould be ſown in the autumn, in pots filled with light earth, and placed under a frame, to be ſcreened from the froſt; but the glaſſes ſhould be taken off at all times when the weather is mild. If theſe pots are put into a gentle hot-bed in March, it will bring up the plants much ſooner than they otherwiſe would riſe. As the ſeaſon advances, the plants ſhould be inured by degrees to bear the open air: when the pots are taken out of the bed, they muſt be placed where they may enjoy the morning ſun, but ſcreened from it in the heat of the day. Gentle refreſhings of water muſt be in dry weather given to the plants during the ſummer, but in the autumn, when their ſtalks begin to decay, they muſt have little wet. In the winter the pots muſt be ſheltered as before; and in March, before the roots begin to ſhoot, they ſhould be tranſplanted into ſeparate ſmall pots filled with light earth, and ſet under the frame, where they ſhould remain till ſpring; then they may be removed into the open air, and treated in the ſame manner as in the former ſummer, and ſheltered alſo the following winter. The next ſpring they may be turned out of the pots, and planted in a warm border, where, during the ſummer, they will require no other care but to keep them clean from weeds; and in the autumn when their ſtalks are decayed, if the border is covered with old tanners bark to keep out the froſt, the roots will be ſecured; but where this care is not taken, the roots are frequently killed by froſt. With this management the roots will thrive much better than thoſe which are kept in pots, and continue longer; and when they are three years old, they will flower and produce plenty of ſeeds, whereas thoſe in pots ſeldom perfect their ſeeds in England.

When the ſeeds of theſe plants are ſown in the ſpring, the plants will not appear till the ſpring following; ſo that a whole ſeaſon is loſt, and many times they fail, therefore it ſhould always be ſown in the autumn.

The third ſort grows naturally in France, Spain, Italy, and Hungary, but is preſerved in ſome of the Engliſh gardens, becauſe it is ſometimes uſed in medicine. This is a terrible plant for creeping at the root; ſo that if once it has taken in a garden, it will be difficult to extirpate again, and will over-run whatever plants grow near it; therefore it ſhould be planted in ſome abject part of the garden by itſelf, for it will thrive in almoſt any ſoil or ſituation.

The fourth ſort grows wild in Spain, Italy, and the ſouth of France; but in England it is preſerved, for variety, in botanic gardens. The plants of this ſort muſt be planted in pots filled with light rich earth, and ſheltered from ſevere cold in winter, otherwiſe they will not live; but they ſhould have as much free air as poſſible in mild weather. This produces flowers every year, but never perfects its ſeeds in this country.

The fifth ſort grows naturally in Crete. The root of this is perennial, and ſends out many trailing branches, which extend one foot and a half in length, garniſhed with oblong heart-ſhaped leaves, which are waved on their edges, and are evergreen. The flowers come out ſingly from the wings of the leaves, which are of a dark purple colour, in ſhape like the others, but the plants never produce ſeeds in England, ſo is propagated by parting of the roots: this is too tender to thrive in the open air in winter; the plants are preſerved in pots, and placed under a common frame in winter, where they ſhould have as much free air as poſſible in mild weather, but ſcreened from hard froſt; in mild winters I have had this plant live abroad in a warm border, but in hard winters it will be deſtroyed; therefore one or two plants ſhould be ſheltered to preſerve the ſpecies.

The ſixth ſort is the Snakeroot, which is greatly uſed in medicine: theſe roots are brought from Virginia and Carolina, where there are two ſpecies of this plant, but this ſort is the beſt for uſe. There are ſome of theſe preſerved in the gardens of thoſe who are curious in collecting rare plants, but as they are ſometimes killed by froſt in winter, ſo they are not very common in the Engliſh gardens. This is propagated by ſeeds, which ſhould be ſown in the autumn, in ſmall pots filled with light ſandy earth, and placed under a common frame in winter, and afterward treated in the ſame manner as hath been directed for the two firſt ſorts, as ſhould the plants alſo; with which management they will produce their flowers, and perfect their ſeeds every year.

The ſeventh ſort grows naturally in North America, and is by ſome called Snakeroot, but is not near ſo ſtrong as the former; the branches of this grow erect, and are perennial, whereas thoſe of the other ſort decay to the root every winter: this riſes about two feet high; the branches are not very woody, but are ſtrong enough to ſupport themſelves; the leaves are oblong and heart-ſhaped; the flowers come out ſingly at the wings of the leaves. This will live abroad in warm borders, with a little protection in hard froſts. It is generally kept in pots, and ſheltered in winter; but thoſe which are planted in the full ground will thrive much better, provided they are ſcreened from hard froſts.

The eighth ſort grows naturally in Jamaica, where it is called Contrayerva; the roots are there uſed as ſuch: this hath long trailing branches, which climb upon the neighbouring plants, and riſe to a conſiderable height; the leaves are placed alternately, and are of the long heart-ſhaped kind; the flowers are produced in ſmall cluſters toward the upper part of the ſtalks, which are of a dark purple colour; the ſeed-veſſels are oblong and ſmooth. This is tender, and in winter ſhould have very little wet, therefore muſt be conſtantly kept in the ſtove, otherwiſe it will not live in England.

The ninth ſort was diſcovered by Dr. Tournefort in the Levant. This hath ſome reſemblance to the ſecond ſort, but the leaves are hairy, and not ſo deeply eared at the bottom; the flowers are alſo much larger. This may be propagated by ſeeds, in the ſame manner as hath been directed for the firſt and ſecond ſorts, and the plants treated ſo, will thrive very well in England.

The tenth ſort ſends out climbing ſtalks, which ſupport themſelves by faſtening to the neighbouring trees, and thereby riſe to a very great height; the leaves are very broad and heart-ſhaped, having ſeveral longitudinal veins; the flowers grow in looſe bunches at the extremity of the branches, each having a long foot-ſtalk: this is tender, ſo muſt be kept in a ſtove, and treated as other exotic plants. It grows naturally about Tolu in New Spain, where it was diſcovered by the late Mr. Robert Millar, who ſent the ſeeds to England.

The eleventh ſort was diſcovered by the ſame gentleman at Campeachy in New Spain, from whence he ſent the ſeeds: this ſort ſeldom climbs above three or four feet high; the leaves are ſhort and heart-ſhaped, in ſome meaſure like thoſe of the firſt; the flowers come out in ſmall cluſters from the wings of the leaves, and are of a dark purple colour.

The twelfth ſort was diſcovered at La Vera Cruz in New Spain, by the late Dr. Houſton, who ſent the ſeeds to Europe: this riſes with an upright ſtalk, to the height of three feet; the leaves are long, narrow, hairy, and grow cloſe to the branches, having ſcarce any foot-ſtalk; the flowers come out ſingly from the wings of the leaves, which are near four inches long, of a dark purple colour, and grow erect; theſe are ſucceeded by ſlender veſſels, about one inch long, which open into ſix cells, filled with flat heart-ſhaped ſeeds. This ſort requires a warm ſtove to preſerve it in this country.

The thirteenth ſort was diſcovered by Mr. Robert Millar, near Carthagena in New Spain, who ſent it to England; this hath ſtrong climbing ſtalks, by which it mounts up to the top of the talleſt trees; the leaves of this are four inches long and two broad, of an oval ſhape, rounded at their ends, and are nearly as thick as thoſe of the common Laurel; the flowers come out in looſe cluſters at the ends of the ſhoots, each ſtanding on a very long foot-ſtalk; the ſeed-veſſels are four inches long, and as much in circumference, having ſix longitudinal ribs, which make ſo many angles, being very prominent; they open into ſix cells, which are filled with heart-ſhaped leaves.

All theſe ſorts, which are natives of the warm parts of America, are too tender to thrive in the open air in this country, therefore require a ſtove to preſerve them. They are propagated by ſeeds, which muſt be procured from the countries where the grow naturally, for they do not produce any here. As the ſeeds are a conſiderable time in their paſſage, they ſhould be brought over in their pods; for many of the ſorts have very thin light ſeeds, which are ſoon dried in a hot country, when they are out of their covers, which will prevent their growing. So ſoon as the ſeeds arrive, they ſhould be ſown in ſmall pots filled with light earth; and if this happens in the autumn, or winter, the pots ſhould be plunged into the tan in the bark-ſtove, between ſome of the pots with large plants, which will ſcreen them from the ſun; for as theſe plants delight in ſhade, ſo, by thus placing of the pots, the earth will not dry very faſt, which will be of great advantage to the ſeeds, which ſhould not be too often watered. Here the pots may remain till March, at which time they ſhould be removed, and plunged into a hot-bed, under frames, where, if the ſeeds are good, the plants will appear in May: but if the ſeeds arrive in ſpring or ſummer, they muſt be immediately ſown in ſmall pots, and plunged into a moderate hot-bed, obſerving to ſhade them conſtantly in the heat of the day; but the ſeeds ſown at this ſeaſon ſeldom grow the ſame year; therefore if the plants do not appear, the pots ſhould be plunged in the tan-bed of the ſtove in autumn, and in the ſpring following, treated as before directed, which will bring up the plants. When theſe are ſtrong enough to tranſplant, they ſhould be each put into a ſeparate ſmall pot, and plunged into the tan-bed in the ſtove, and treated as other tender plants from the ſame countries.

ARMENIACA, the Apricot.

The CHARACTERS are,

The empalement of the flower is bell-ſhaped, cut into five blunt ſegments at the top; the flower is compoſed of five large roundiſh petals which ſpread open, whoſe baſe are inſerted in the empalement; in the center is placed a round germen, ſupporting a ſlender ſtyle, crowned by a round ſtigma; this is attended by upward of twenty awl-ſhaped ſtamina, which are crowned by ſhort double ſummits. The germen afterward becomes a roundiſh pulpy fruit, having a longitudinal furrow incloſing a roundiſh nut, which is a little compreſſed on the ſides.

Dr. Linnæus has joined the Armeniaca, Ceraſus, Lauroceraſus, and Padus, to his genus of Prunus, making them only ſo many ſpecies of the ſame genus, and ranges it in his twelfth claſs of plants, entitled Icoſandria Monogynia; the flowers of this claſs have from twenty to thirty ſtamina faſtened to the empalement, and a ſingle ſtyle.

The joining of ſo many plants under the ſame genus, as Linnæus has done, renders it much more difficult to aſcertain their ſpecific difference, than when they are ranged under different genera; and although moſt of them do agree in thoſe parts from whence the characters according to his ſyſtem are taken, yet if their fruits may be allowed as one of the characteriſtic notes (which ſurely ought not to be totally omitted) there will be reaſon for ſeparating ſome of them, eſpecially when we conſider the boundary which nature has ſet between them; for it is well known that all fruits which are of the ſame genus, may be grafted or budded upon each other; but thoſe of different genera will not take upon each other, nor will any two plants of different genera impregnate each other. Now the Cherry and Plum cannot by any art be made to take when grafted or budded upon ſtocks of the other kind; nor will the Apricot take upon the Cherry, the Laurel, or Padus; but it will grow upon the Plum to which it is nearly allied, therefore theſe may be joined together according to the ſtrict rules of botany: yet in a work of this kind, deſigned for the inſtruction of the practical gardener, were theſe fruits to be included under the ſame appellation, it would rather confound than inſtruct, thoſe who had not applied themſelves to the ſtudy of botany: therefore I ſhall continue this genus under its former title, and ſhall enumerate all the varieties of this fruit which are at preſent cultivated in the Engliſh gardens, ranging them according to the orders of their ripening. For although moſt, if not all thoſe which are by the gardeners called different ſorts, may have been produced by culture, ſo ſhould be deemed as one ſpecies; yet as the differences may be continued for ever, by the method in which they are propagated, ſo it would be unpardonable in a book of gardening to omit them.

The ſpecific title given by Linnæus to the Apricot is, Prunus floribus ſubſeſſilibus foliis ſubcordatis. Sp. Plant. 474. i. e. *Plum whoſe flowers want foot-ſtalks, and heart-ſhaped leaves.*

The VARIETIES are,

1. The Maſculine Apricot.
2. The Orange Apricot.
3. The Algier Apricot.
4. The Roman Apricot.
5. The Turkey Apricot.
6. The Breda Apricot.
7. The Bruſſels Apricot.

The Maſculine is the firſt ripe of all the Apricots; it is a ſmall roundiſh fruit, of a red colour towards the ſun; as it ripens, the colour fades to a greeniſh yellow on the other ſide. It is chiefly preſerved for being the firſt ripe, and there is a quickneſs in the flavour of the fruit when it is not too ripe, which renders it agreeable; the tree is very apt to be covered with flowers, but as they come out early in the ſpring, they are frequently deſtroyed by the cold, unleſs the trees are covered to protect them.

The Orange is the next ripe Apricot; this fruit is much larger than the former, and as it ripens changes to a deep yellow colour. The fleſh of this is dry and not high flavoured, it is better for tarts than for the table.

The Algier is the next in ſeaſon; this is of an oval ſhape, a little compreſſed on the ſides; it turns to a pale yellow, or ſtraw-colour, when ripe; the fleſh is high flavoured, and very full of juice.

The Roman is the next ripe Apricot; this is a larger fruit than the former, and not compreſſed ſo much on the ſides; the colour is deeper, and the fleſh is not ſo moiſt as the former.

The Turkey Apricot is yet larger than either of the former, and of a globular figure; the fruit turns to a deeper colour than the former; the fleſh is firmer, and drier than thoſe of the two former.

The Breda Apricot (as it is called from its being brought from thence into England) was originally brought from Africa: this is a large roundiſh fruit, changing to a deep yellow when ripe; the fleſh is ſoft, full of juice, and of a deep Orange colour within ſide; the ſtone is rounder and larger than any of the other ſorts: this is the beſt Apricot we have, and when ripened on a ſtandard, is preferable to all other kinds.

The Bruſſels is the lateſt ripe of all the Apricots, for when it is planted againſt a wall, it is generally the beginning of Auguſt before it is ripe, unleſs when it is planted to a full ſouth aſpect; which is what ſhould not be practiſed, becauſe the fruit is never well taſted which grows in a warm expoſure. This fruit is of a middling ſize, rather inclining to an oval figure; red on the ſide next the ſun, with many dark ſpots, and of a greeniſh yellow on the other ſide; the fleſh is firm, and of a high flavour; the fruit often cracks before it is ripe. This is commonly preferred to the former ſort by moſt people, but when the other is planted as a ſtandard, the fruit is fuller of juice, and of a richer flavour than this.

Moſt people train theſe trees up to ſtems of ſix or ſeven feet high, or bud them upon ſtocks of that height; but this is a practice I would not recommend to the public, becauſe the higher the heads of theſe trees are, the more they are expoſed to the cutting winds in the ſpring, which too frequently deſtroy the bloſſoms; and the fruit is alſo more liable to be blown down in ſummer, eſpecially if there ſhould happen to be much wind at the time when the fruit is ripe; which by falling from a great height, will be bruiſed and ſpoiled; therefore I prefer half ſtandards, of about two and a half, or three feet in the ſtem, to thoſe which are much taller; or to plant them as dwarfs againſt an eſpalier, where, if they are ſkilfully managed, they will produce a large quantity of good fruit; and the trees in eſpalier may be more conveniently covered in the ſpring, when the ſeaſon proves bad, whereby there will be a greater certainty of fruit every year.

Theſe fruits are all propagated by budding them on Plum-ſtocks, and will readily take upon almoſt any ſort of Plum, provided the ſtock be free and thriving (except the Bruſſels kind, which is uſually budded on a ſort of ſtock, commonly called the St. Julian, which better ſuits this tree, as being generally planted for ſtandards, than any other ſort of Plum will.) The manner of raiſing the ſtocks, and budding theſe trees, ſhall be treated of under their particular articles, to which I refer the reader, and ſhall proceed to their planting and management.

Theſe trees are all (except the two laſt ſorts) planted againſt walls, and ſhould have an eaſt or weſt aſpect; for if they are planted full ſouth, the great heat cauſes them to be mealy before they are eatable.

The borders near theſe walls ſhould be ſix or eight feet wide, at leaſt, and if it were more, the better; but I would never adviſe the making of them ſo deep as is the general cuſtom, for if the earth be two feet deep, or two and a half at moſt, it is enough.

If the ground is a wet cold loam or clay, the borders ſhould be raiſed as much above the level of the ſurface as it will admit, laying ſome ſtones or rubbiſh in the bottom, to prevent the roots from running downwards; but if you plant upon a chalk or gravel, it will be better to raiſe the borders above either to a proper thickneſs, with good loamy earth, than to ſink the borders by removing the chalk or gravel; for although theſe are removed the whole breadth of the border, which we may allow to be eight feet, and this trench filled with good earth, yet the roots of the trees will in a few years extend this length, and then meeting with the chalk or gravel, they will receive a check whereby their leaves will fall off early in the ſeaſon, and the fruit will be ſmall, dry, and ill-flavoured, and the ſhoots of the trees will be weak. But where the borders are raiſed upon either to their full height, the roots will not ſtrike down into the gravel or chalk, but rather extend themſelves near the ſurface, where they will meet with better ſoil: and as the trees are of long duration, and old trees being not only more fruitful than young, but the fruit is alſo better flavoured, therefore the providing for their continuance is abſolutely neceſſary.

The ſoil I would in general adviſe to be uſed for theſe, and all other ſorts of fruit-trees, is freſh untried earth, from a paſture ground, taken about ten inches deep, with the turf, and laid to rot and mellow at leaſt twelve months before it is uſed, mixing a little rotten dung with it; this muſt be often turned, to ſweeten and imbibe the nitrous particles of the air.

When the former ſoil of the border is taken away, this freſh earth ſhould be carried in the place; and if the borders are filled with it two months before the trees are planted, the ground will be better ſettled, and not ſo liable to ſink after the trees are planted: in filling of the borders, the ground ſhould be raiſed four or five inches above the level they are deſigned, to allow for the ſettling.

The borders being thus prepared, make choice of ſuch trees as are but of one year's growth from budding; and if the ſoil is dry, or of a middling temper, October is the beſt ſeaſon for planting, eſpecially having at that time a greater choice of trees from the nurſeries, before they have been picked and drawn over by other people. The manner of preparing theſe trees for planting being the ſame in common with other fruit trees, I ſhall refer the reader to the article of Peaches, where he will find it largely treated of.

At the time of planting no part of the head of the trees ſhould be cut off, unleſs there are any ſtrong foreright ſhoots which will not come to the wall, which may be taken quite away.

The trees being thus prepared, you muſt mark out the diſtances they are to ſtand, which in a good ſtrong ſoil, or againſt a low wall, ſhould be twenty feet or more; but in a moderate one, eighteen feet is a good reaſonable diſtance; then make a hole where each tree is to ſtand, and place its ſtem about four inches from the wall, inclining the head thereto; and after having fixed the tree in the ground, nail the branches to the wall, to prevent their ſhaking, and cover the ſurface of the ground round the root with rotten dung, to keep out the froſt: in this ſtate let it remain till the end of February or the beginning of March, when if the weather is good, you muſt unnail the branches of your trees, ſo as not to diſturb their roots; and, being provided with a ſharp knife, put your foot cloſe to the ſtem of the tree; and having placed your left-hand to the bottom of the tree, to prevent its being diſturbed, with your right-hand cut off the head of the tree, if it has but one ſtem; or where it may have two or more ſhoots, each of them muſt be ſhortened, to about four or five eyes above the bud, ſo that the ſloping ſide may be toward the wall.

In the ſpring, if the weather proves dry, it will be neceſſary to give the trees a gentle refreſhing with water; in the doing of which, if they watered with a roſe to the watering-pot all over their heads, it will greatly help them; and alſo lay ſome turf, in the manner directed for Apples, or ſome other mulch, round their roots, to prevent their drying during the ſummer ſeaſon; and in the ſpring, as new branches are produced, obſerve to nail them to the wall in a horizontal poſition; and ſuch ſhoots as are produced fore-right, muſt be entirely diſplaced. This muſt be repeated as often as is neceſſary, to prevent their hanging from the wall, but by no means ſtop any of the ſhoots in ſummer.

At Michaelmas, when the trees have done growing, their branches ſhould be unnailed, and ſhorten them in proportion to their ſtrength; a vigorous branch may be left eight or nine inches long, but a weak one ſhould not be left above five or ſix. I ſuppoſe many perſons will wonder at this direction, eſpecially having allowed ſuch a diſtance between the trees, as believing, by this management, the wall will never be filled; but my reaſon for it is, that I would have no part of the wall left unfurniſhed with bearing wood; which muſt conſequently be the caſe, if the branches are left to a greater length at firſt; for it ſeldom happens, that more buds than two or three upon each branch ſhoot; and theſe are, for the moſt part, ſuch as are at or near the extreme part of the laſt year's wood; ſo that all the lower part of the ſhoots become naked, nor will they ever after produce ſhoots; and this is the reaſon, we ſee ſo many trees which have their bearing wood ſituated only in the extreme part of the tree.

When you have ſhortened the ſhoots, be ſure to nail them as horizontally as poſſible, for upon this it is that the future good of the tree chiefly depends.

The ſecond ſummer obſerve, as in the firſt, to diſplace all fore-right ſhoots as they are produced, nailing in the other cloſe to the wall horizontally, ſo that the middle of the tree may be kept open; and never ſhorten any of the ſhoots in ſummer, unleſs to furniſh branches to fill vacant places on the wall; and never do this later than the end of April, for reaſons hereafter given in the article of Peaches. At Michaelmas ſhorten theſe ſhoots, as was directed for the firſt year; the ſtrong ones may be left nine or ten inches, and the weak ones ſix or ſeven at moſt.

The following year's management will be nearly the ſame with this, but only obſerve, that Apricots produce their bloſſom buds, not only upon the laſt year's wood, but alſo upon the curſons, or ſpurs, which are produced from the two years wood; a great care ſhould therefore be had in the ſummer management, not to hurt or diſplace theſe: obſerve alſo to ſhorten the branches at the winter pruning, ſo as to furniſh freſh wood in every part of the tree; and be ſure to cut out entirely all luxuriant branches, or diſplace them as ſoon as they are produced; which, if left to grow, would exhauſt the nouriſhment from the bearing branches, which in my opinion, cannot be too ſtrong, provided they are kindly; for the more vigorous the tree is, the more likely it is to reſiſt the injuries of the weather; though we often ſee trees brought to ſo weak a condition, as to be able only faintly to blow their bloſſoms, and then moſt of the bearing branches have died; which has given occaſion to the owner to imagine it was the effect of a blight, when, in reality, it was only for want of right management. And, I am fully perſuaded, half the blights we hear complained of, proceed from nothing elſe but this.

Theſe few rules, well executed, together with a little obſervation and care, will be ſufficient, therefore to pretend to preſcribe particular directions for all the different accidents, or manner of treating fruits, would be impoſſible; but I believe the reader will find what has been ſaid, if duly attended to, will anſwer his deſign; for, without diligent obſervation, there can be no ſuch thing as a ſkilful manager, let him have ever ſo many or good inſtructions laid down to him.

The Bruſſels and Breda Apricots, being, for the moſt part, planted for ſtandards, will require very little pruning or management; only obſerve to take out all dead wood, or ſuch branches as croſs each other; this muſt be done early in autumn, or in the ſpring, after the cold weather is paſt, that the part may not canker where the inciſion is made.

ARMERIUS, Sweet-William. See Dianthus.

ARNICA. Lin. Gen. Plant. 784. Doronicum. Bauh. Pin. 184. Leopardſbane.

The Characters are,

The common empalement is ſcaly, and ſhorter than the rays of the flower. It hath a compound flower, the border or rays being compoſed of many female florets, which ſpread open, cut into three parts at their end; the diſk, or middle, has many hermaphrodite florets, which are tubulous, cut into three unequal ſegments at the brim; theſe have each five ſhort ſtamina, crowned with oblong ſummits. The female florets have alſo five awl-ſhaped ſtamina, but no ſummits; in the hermaphrodite florets the germen is ſituated below the flower, ſupporting a ſlender ſhort ſtyle, crowned by a bifid ſtigma. The germen afterward becomes a ſingle oblong ſeed, crowned with long ſlender down.

This genus of plants is ranged in the ſecond ſection of Linnæus's eighteenth claſs, entitled Syngeneſia Polygamia ſuperflua, the flower being compoſed of hermaphrodite and female florets; and the chief diſtinction of this genus is in the hermaphrodite and female flowers being of the ſame ſhape, and the female having ſtamina.

The Species are,

1. Arnica (*Montana*) foliis ovatis integris, caulinis geminis oppoſitis. Lin. Sp. Plant. 884. *Arnica with entire oval leaves, thoſe on the ſtalks growing oppoſite by pairs.* Doronicum plantaginis folio alterum. C. B. P. 185.
2. Arnica (*Scorpioides*) foliis alternis ſerratis. Hall. Helvet. 737. *Arnica with ſawed leaves growing alternately.* Doronicum radice dulci. C. B. P. 184.
3. Arnica (*Crocea*) foliis ovalibus ſerrato denticulatis, ſubtus tomentoſis. Lin. Sp. Plant. 1246. *Arnica with oval indented leaves, whoſe underſides are woolly.* Dens leonis enulæ folio. Pet. Muſ. 393.

The firſt ſort grows naturally upon the Alps, and alſo upon many of the mountains in Germany, and other cold parts of Europe, and is greatly eſteemed by the Germans for its medicinal qualities, where it is preſcribed by this title of Arnica. It is alſo ranged among the medicinal plants in many diſpenſaries, by the title given to it by Caſpar Bauhin.

The roots of this plant, when placed in a proper ſoil and ſituation, greatly increaſe, for they ſend out thick fleſhy roots, which ſpread very far under the ſurface; theſe put out many oval entire leaves, from between which the flower-ſtems ariſe, which grow about a foot and a half high, having two or three pair of leaves growing oppoſite upon each, and the top is terminated by a ſingle yellow flower, compoſed of many florets, like thoſe of Dandelion. Theſe are ſucceeded by oblong ſeeds, which are crowned with down, whereby they are diſperſed to a conſiderable diſtance when ripe. It flowers in April and May, and the ſeeds ripen in September.

This plant delights in a moiſt ſhady ſituation; it may be propagated by parting of the root in autumn, when the ſtalks begin to decay, or by the ſeeds if ſown in autumn, ſoon after they are ripe, for thoſe ſown in the ſpring often fail; but if the ſeeds are permitted to ſcatter, the plants will come up the following ſpring, ſo that when one plant is obtained, it will propagate itſelf faſt enough without other care, but to keep it clean from weeds.

The ſecond ſort grows naturally on the mountains of Bohemia, as alſo in Siberia, from whence I received the ſeeds. The roots of this ſort are much jointed, and divide into many irregular fleſhy offſets, which are variouſly contorted; from whence many ſuperſtitious perſons have been led to imagine, that the roots would expel the poiſon of ſcorpions, and cure the wounds made by the bite of that animal. It is a very hardy plant, and is propagated in the ſame manner as the former.

The third ſort grows naturally at the Cape of Good Hope, from whence the ſeeds have been brought to Europe. This will not live through the winter in the open air in this country, ſo the plants muſt be kept in pots, which ſhould be placed under a common hot-bed frame in winter, to ſcreen it from the froſt, but ſhould enjoy the free air at all times, when the weather is mild. It propagates by roots and ſeeds in plenty. This is titled by Dr. Burman, Gerbera foliis planis dentatis flore purpureo. Plant. Afr. 157.

ARTEDIA. Lin. Gen. Plant. 249. We have no Engliſh name for this genus.

The Characters are,

It is an umbelliferous plant; the greater umbel is ſpread open, and compoſed of many ſmall ones; the involucrum of the large one is compoſed of ten oblong leaves, which extend the length of the umbel, cut at their tips into three parts. The involucrum of the ſmall umbels have but three narrow leaves, which are longer than the umbel; the rays of the large umbel are difform, thoſe of the ſmall ones in the diſk are male, and the rays are hermaphrodite. They have five petals, which are erect, heart-ſhaped, and turned inward. Theſe have each five ſlender ſtamina, crowned with roundiſh ſummits; thoſe flowers which compoſe the rays, have a ſmall germen at bottom, ſupporting two reflexed ſtyles, crowned by a ſingle ſtigma. The germen afterward becomes a roundiſh compreſſed fruit, with a leafy border, which ſplits into two, and contains two oblong ſeeds, with ſcaly borders.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, entitled Pentandria Digynia, from their flowers having five ſtamina and two ſtyles.

We have but one Species of this plant, *viz.*

1. Artedia (*Squamata*) ſeminibus ſquamatis. Hort. Cliff. 89. *Artedia with ſquamous ſeeds.* Thapſia Orientalis anethi folio ſemine eleganter crenato. Tourn. Cor. 22.

This is a native of the eaſt. Rawvolf found it growing upon Mount Libanus; it is an annual plant, whoſe ſtalks riſe about two feet high, ſending out a few ſide branches, garniſhed with narrow compound leaves reſembling thoſe of Dill; the extremity of the ſtalk is terminated by a large umbel of white flowers, compoſed of five unequal petals, thoſe on the outſide being much larger than the other. Theſe are ſucceeded by roundiſh compreſſed fruit, each having two ſeeds, whoſe borders are ſcaly.

This plant decays as ſoon as the ſeeds are perfected, and many times before they are ripe in England; for unleſs the ſeeds are ſown in autumn, and the plants come up before winter, they rarely produce good ſeeds here. The ſeeds ſhould be ſown on a warm border where the plants are to remain, for they will not bear tranſplanting. All the care they require is to keep them clean from weeds, and thin the plants to ſix or eight inches diſtance. They flower in June, and their ſeeds ripen the end of Auguſt.

ARTEMISIA ['Αρτεμισία, *Gr.* ſo called, according to ſome, from Artemiſia, wife of Mauſolus, king of Caria, who brought this plant into uſe, and adopted it as hers; whereas, before, it was called Parthenis, the virgin goddeſs being feigned to have given that name to it.] Mugwort.

The Characters are,

The common empalement is ſcaly and round, as are alſo the ſcales. The flower is compoſed of hermaphrodite and female florets, the border being ranged with the female, which have a ſmall germen at bottom, ſupporting a ſlender ſtyle, crowned by a bifid ſtigma. The hermaphrodite florets compoſe the diſk, or middle; theſe are tubulous, cut into five parts at the brim; in the center is placed the germen, with the like ſtyle and ſtigma as the female, accompanied by five hairy ſtamina, crowned by cylindrical ſummits, which are indented in five parts. The germen afterward becomes a ſingle naked ſeed, ſitting upon a naked placenta.

This genus of plants is ranged in the ſecond ſection of Linnæus's eighteenth claſs, entitled Syngeneſia Polygamia ſuperflua, the flowers of theſe being compoſed of female and hermaphrodite florets, which are both fruitful.

The Species are,

1. Artemisia (*Vulgaris*) foliis pinnatifidis planis inciſis; ſubtus tomentoſis, racemis ſimplicibus floribus ovatis radio quinque-floro. Lin. Sp. Plant. 348. *Mugwort with plain cut leaves, ending in many parts, woolly underneath, with ſingle ſpikes of oval flowers, whoſe rays are compoſed of five florets.* Artemiſia vulgaris major. C. B. P. 137.
2. Artemisia (*Integrifolia*) foliis lanceolatis ſubtus tomentoſis integerrimis dentatiſque florum radio ſub quinque floro. Lin. Sp. Plant. 1189. *Mugwort with ſpear-ſhaped entire leaves, indented on their edges, whoſe under ſides are woolly, and the rays of the flower compoſed of five florets.* Artemiſia foliis planis lanceolato-linearibus inferioribus ſæpe ex pinnato-dentatis. Flor. Sib. 2. p. 109.
3. Artemisia (*Cæruleſcens*) foliis caulinis lanceolatis integris; radicalibus multifidis, floſculis fœmineis ternis. Lin. Sp. 1189. *Mugwort whoſe leaves on the ſtalks are entire,*

entire, thoſe at the root multifid, and three female floſcules compoſe the rays of the flower. Abſinthium maritimum lavendulæ folio. C. B. P. 139. *Lavender-leaved Sea Wormwood.*

4. ARTEMISIA (*Dracunculus*) foliis lanceolatis glabris integerrimis. Hort. Cliff. 403. *Mugwort with ſpear-ſhaped, entire, ſmooth leaves.* Abrotanum lini folio acriore & odorato. Tourn. Inſt. 459. Tarragon.

5. ARTEMISIA (*Minima*) foliis cuneiformibus repandis, caule procumbente, floribus axillaribus ſeſſilibus. Lin. Sp. 1190. *Mugwort with wedge-ſhaped leaves, a trailing ſtalk, and flowers growing at the wings of the ſtalk.*

6. ARTEMISIA (*Abrotanum*) foliis ramoſiſſimis ſetaceis, caule erecto ſuffruticoſo. Hort. Cliff. 403. *Artemiſia with very branching briſtly leaves and a ſhrubby erect ſtalk.* Abrotanum mas anguſtifolium majus. C. B. P. 136. *Southernwood.*

7. ARTEMISIA (*Humilis*) foliis ſetaceis pinnatifidis, caule decumbente ſuffruticoſo. *Mugwort with briſtly wing-pointed leaves, and a low ſhrubby ſtalk.* Abrotanum humile corymbis majoribus aureis. Tourn. Inſt. 459.

8. ARTEMISIA (*Santonicum*) foliis caulinis linearibus pinnato-multifidis, ramis indiviſis, ſpicis ſecundis reflexis. Zin. Goett. 397. *Artemiſia with linear multifid leaves on the ſtalks, undivided branches, and fertile reflexed ſpikes.* Semen ſanctum. Lob. Icon. 756.

9. ARTEMISIA (*Campeſtris*) foliis multifidis linearibus, caulibus procumbentibus virgatis. Hort. Cliff. 403. *Artemiſia with linear multifid leaves, and trailing ſpriggy ſtalks.* Abrotanum campeſtre. C. B. P. 136. *Wild Southernwood.*

10. ARTEMISIA (*Crithmifolia*) foliis compoſitis divaricatis linearibus carnoſis glabris, caule aſcendente paniculato. Lin. Sp. 1186. *Artemiſia with compound, linear, ſmooth, fleſhy leaves, and a panicled aſcending ſtalk.*

11. ARTEMISIA (*Maritima*) foliis multipartitis tomentoſis, racemis cernuis, floſculis fœmineis ternis. Lin. Sp. 1186. *Mugwort with woolly divided leaves, nodding branches, and three female florets.* Abſinthium ſeriphium Belgicum. C. B. P. 139. See WORMWOOD.

12. ARTEMISIA (*Rupeſtris*) foliis pinnatis, caulibus adſcendentibus hirſutis, floribus globoſis cernuis, receptaculo pappoſo. Her. Gotl. 285. *Mugwort with winged leaves, hairy aſcending ſtalks, and globular nodding flowers.* Abſinthium Alpinum incanum. C. B. P. 139.

13. ARTEMISIA (*Pontica*) foliis multipartitis ſubtus tomentoſis, floribus ſubrotundis nutantibus, receptaculo nudo. Hort. Upſal. 257. *Artemiſia with finely divided leaves, woolly on their under ſide, and roundiſh nodding flowers.* Abſinthium Ponticum tenuifolium incanum. C. B. P. 138. *Pontick Wormwood.*

14. ARTEMISIA (*Annua*) foliis triplicato-pinnatis utrinque glabris, floribus ſubgloboſis nutantibus, receptaculo glabro conico. Hort. Upſal. 257. *Artemiſia with triple winged leaves, which are ſmooth on both ſides, globular nodding flowers, having ſmooth conical receptacles.* Abſinthium tanacetifolio odoratiſſimum. Amm. Ruth.

15. ARTEMISIA (*Abſinthium*) foliis compoſitis multifidis, floribus ſubgloboſis pendulis, receptaculo villoſo. Hort. Cliff. 404. *Artemiſia with compound multifid leaves, globular hanging flowers, and hairy receptacles.* Abſinthium vulgare. J. B. *Common Wormwood.*

16. ARTEMISIA (*Inodora*) foliis compoſitis tomentoſis, floribus ſubgloboſis, receptaculo villoſo. *Artemiſia with woolly compound leaves, globular flowers, and hairy receptacles.* Abſinthium inſipidum Abſinthio vulgari ſimile. C. B. P. *Inſipid Wormwood.*

17. ARTEMISIA (*Arboreſcens*) foliis compoſitis multifidis linearibus, floribus ſubgloboſis, caule fruteſcente. Lin. Sp. 1188. *Artemiſia with compound linear leaves, globular flowers, and a ſhrubby ſtalk.* Abſinthium arboreſcens. Lob. Icon. 753. *Tree Wormwood.*

18. ARTEMISIA (*Æthiopica*) foliis linearibus confertis minimis diviſis, caule fruticoſo tomentoſo. Lin. Sp. 1184. *Mugwort with linear leaves in bunches, and a woolly ſhrubby ſtalk.* Abſinthium Africanum arboreſcens, folio vermiculato incano. Tourn. Inſt. 458.

19. ARTEMISIA (*Glacialis*) foliis palmatis multifidis ſericeis, caulibus adſcendentibus, floribus glomeratis ſub faſtigiatis. Lin. Sp. 1187. *Mugwort with ſilky multifid leaves, aſcending ſtalks, and glomerated flowers.* Abſinthium Alpinum candidum humile. C. B. P. 139.

20. ARTEMISIA (*Tanacetifolia*) foliis bipinnatis ſubtus tomentoſis nitidis, pinnis tranſverſis, racemis ſimplicibus. Lin. Sp. 1188. *Artemiſia with double-winged leaves, woolly on their under ſide, and a ſimple racemis of flowers.*

The firſt ſort grows naturally on banks, and by the ſide of foot-paths, in moſt parts of England, ſo is rarely admitted into gardens, where it would ſoon become a troubleſome weed; for the roots creep far under the ſurface of the ground, ſo that unleſs they are ſtopped, they will ſoon ſpread over a large ſpace of ground; but as this plant is uſed in medicine, I have here mentioned it. This flowers in June, at which time the herb is in perfection for uſe.

The Moxa, ſo famous in the eaſtern countries for curing the gout by burning of the part affected, is the lanugo, or down, which is on the under part of the leaves, of a ſort of Mugwort, which is ſuppoſed to be different from our common ſort, but the dried ſamples which I have ſeen brought to England for that, appear to differ in nothing but the ſize of the plant, that being much leſs; and I ſuppoſe the ſoft down of the common ſort, or of any other plant, will anſwer the purpoſe full as well.

The ſecond ſort grows naturally in Siberia; this riſes up with ſingle ſtalks about two feet high, which are garniſhed with plain, narrow, ſpear-ſhaped leaves, cut into acute ſegments on their edges, ſomewhat like thoſe of Buckſhorn Plantain; the flowers come out from the wings of the leaves in ſmall looſe ſpikes, and near the top they are often ſingle; theſe are larger than thoſe of the common ſort, and are of a pale yellow colour.

This ſort is as hardy as the common, and multiplies as faſt, ſo is only preſerved in botanic gardens for the ſake of variety.

The third ſort grows naturally near the ſea, in Italy, Spain, and France, but is hardy enough to live in the open air in England, provided it is planted in a dry ſoil: it grows too feet high, having many ligneous branches, which are terminated by ſpikes of flowers, which have little beauty, therefore the plants are preſerved in gardens for the ſake of variety.

The fourth ſort is the common Tarragon, which is frequently uſed in ſallads, eſpecially by the French: this is a very hardy plant, which propagates greatly by its creeping roots, or may be multiplied faſt by planting the young ſhoots the beginning of May, in the ſame manner as is practiſed for Mint, and if they are duly ſupplied with water in dry weather, will ſoon ſpread and meet.

The fifth ſort grows naturally in China, but is hardy enough to thrive in the open air here. It is an annual plant, which ſeldom comes up the firſt year, if the ſeeds are ſown in the ſpring; therefore it is much better to let the ſeeds ſcatter in the autumn, becauſe theſe will more ſurely grow, than thoſe ſown by hand.

The ſixth ſort is the common Southernwood, which is kept in gardens for the agreeable ſcent of its leaves; it is a low under ſhrub, ſeldom riſing more than three or four feet high, ſending out lateral ſhrubby branches growing erect, garniſhed with five briſtly leaves, having an agreeable ſcent when bruiſed: the flowers are produced in ſpikes from the extremity of the branches, but unleſs the autumn proves warm and dry, the flowers rarely open in England.

This is propagated by ſlips and cuttings, planted in a ſhady border, about the beginning of April, obſerving to water them duly in dry weather; in this border they may remain till the following autumn, when they ſhould be tranſplanted, either into pots or thoſe parts of the garden where they are deſigned to remain.

The ſeventh ſort is a very low under ſhrub, the branches bend near the ground, ſo never riſe more than two feet high, unleſs when they flower; for the ſpikes are generally more than a foot long; the flowers are yellow, and are ranged in ſpikes which appear in autumn. This is propagated either by ſlips or cuttings in the ſame manner as the former, and is equally hardy.

The eighth ſort produces the Semen Santonicum, which is much uſed for worms in children. It grows naturally in Perſia, from whence the ſeeds are brought to Europe; this hath the appearance of our Wild Mugwort; the branches are ſlender, erect, and garniſhed with linear winged leaves, and terminated by recurved ſlender ſpikes of flowers, which have naked receptacles. This may be propagated by ſlips or cuttings in the like manner as the former; but the plants ſhould be planted in a dry ſoil and ſheltered ſituation, where they will endure the cold of our ordinary winters pretty well; but it will be proper to have a plant or two in pots, which may be ſheltered in winter under a common hot-bed frame to preſerve the ſpecies.

The ninth ſort is our common Wild Southernwood, which grows naturally in ſome parts of Norfolk, ſo is rarely admitted into gardens.

The tenth ſort grows naturally in Portugal; this is a low under ſhrub, ſeldom riſing more than two feet high, and has much of the aſpect of our wild ſort, ſo is rarely kept in gardens in this country.

The eleventh ſort is the common Sea Wormwood, grows naturally on the ſea coaſts in moſt parts of England, where there are ſeveral varieties (if not diſtinct ſpecies) to be found. Theſe are low under ſhrubs, moſt of them creep at their root, whereby they multiply greatly in their natural ſituation, but when tranſplanted into a garden, ſeldom thrive ſo well; however, theſe varieties are now commonly ſubſtituted for the true Roman Wormwood in the London ſhops.

The twelfth ſort grows naturally on the Alps; this is alſo a low under ſhrub, ſeldom riſing more than a foot high, ſending out ſeveral ſlender branches, garniſhed with very white winged leaves, for which the plants are ſometimes admitted into gardens. It is very hardy, and may be eaſily propagated by cuttings in the ſpring.

The thirteenth ſort is the true Roman Wormwood, though at this time never uſed in any of the ſhops; yet by ſkilful perſons is greatly preferred to the Sea Wormwood, being leſs nauſeous and a much pleaſanter bitter, and may be had in as great plenty, provided it was cultivated by thoſe who ſupply the markets with medicinal herbs. This is a low herbaceous plant, whoſe ſtalks die to the root in autumn, and new ones ariſe in the ſpring; theſe are garniſhed with finely divided leaves, whoſe underſide are woolly; the upper part of the ſtalks are furniſhed with globular flowers which nod on one ſide, having naked receptacles. Theſe appear in Auguſt, but are rarely ſucceeded by ſeeds in England.

This ſort is eaſily propagated by its creeping roots, which may be parted in the autumn, and planted two or three feet aſunder, that they may have room to ſpread; the beſt time for this is in the middle of October; it will grow in any ſoil which is not too wet.

The fourteenth ſort grows naturally in Siberia; it is an annual plant which grows two feet high, garniſhed with ſmooth winged leaves, which have an agreeable ſcent; the flowers are globular and nod on one ſide. If the ſeeds of this are permitted to ſcatter in the autumn, the plants will come up better than if ſown with care.

The fifteenth ſort is the common Wormwood which grows naturally in lanes and uncultivated places in many parts of England, ſo is not often cultivated in gardens. This is eaſily propagated by ſeeds, which ſhould be ſown in the autumn ſoon after they are ripe; or if they are permitted to ſcatter, the plants will come up without farther care.

The ſixteenth ſort has been ſuppoſed to be a variety of the common Wormwood: indeed the appearance of the plants are nearly alike, but the ſegments of the leaves of this are broader and whiter than thoſe of the common, and the whole plant is inſipid, and continues ſo from ſeed.

The ſeventeenth ſort is commonly known by the title of Tree Wormword; this grows naturally near the ſea in Italy and the Levant. This riſes with a woody ſtalk ſix or ſeven feet high, ſending out many ligneous branches, garniſhed with leaves ſomewhat like thoſe of the common Wormwood, but more finely divided, and much whiter. The branches are terminated by ſpikes of globular flowers in the autumn, which are ſeldom ſucceeded by ſeeds here. This plant is eaſily propagated by cuttings, which, if planted in a ſhady border during the ſummer ſeaſon, and duly watered, take root freely. In autumn ſome of the young plants ſhould be potted, that they may be ſheltered in winter; the other may be planted in a warm border, where they will live, provided the winter proves favourable.

The eighteenth ſort is a low ſhrubby plant; the ſtalk is woolly, ſending out a few ſhrubby branches, garniſhed with linear leaves growing in cluſters; the flowers grow in a roundiſh bunch, and are ſhaped like thoſe of Wormwood. This grows naturally in Æthiopia. It is propagated by planting the cuttings any time in ſummer, and the plants muſt be ſheltered from hard froſts in winter.

The nineteenth ſort grows naturally on the Alps; this is a low plant, ſeldom riſing more than a foot and a half high; the ſtalks are cloſely garniſhed with very white leaves ſhaped like a hand; the flowers are globular, and produced in cluſters at the extremity of the ſtalk; theſe are rarely ſucceeded by ſeeds in England. This plant may be propagated by planting the ſide ſhoots in a ſhady border during any of the ſummer months, which, if duly watered, will put out roots, and in autumn they may be tranſplanted where they are to remain.

The twentieth ſort grows naturally at Piedmont; it is an herbaceous plant, whoſe ſtalks die to the root in winter, and freſh ſhoots ariſe in the ſpring, which are garniſhed with winged leaves, woolly on their under ſide; the flowers are produced on ſingle ſpikes, which are rarely ſucceeded by ſeeds in England. It may be eaſily propagated by parting the roots in the autumn.

ARTICHOKE is called by the Latins Cinara.

As this plant is much better known by its Engliſh title than the Latin, I ſhall treat of it under this head, and refer for its character to the Latin title of Cinara, under which the other ſpecies will be exhibited.

We have two ſorts of Artichokes which are cultivated in the Engliſh gardens, which we ſhall diſtinguiſh here only by the names they are generally known among the gardeners, and reſerve their farther diſtinctions to their Latin titles.

The beſt ſort is what the gardeners call the Globe Artichoke. This hath large heads with broad brown ſcales, which turn inward; the fleſhy part at the bottom of the ſcales is very thick, therefore is much preferred to the other, which is called the French Artichoke. The ſtalks of this ſort generally grow taller, and the heads are ſmaller, and more conical than thoſe of the other ſort. The ſcales are narrower, of a greener colour, and turn outward. The fleſhy part which is eaten is not near ſo thick, and hath a diſagreeable perfumed taſte; this was almoſt totally rooted out of the Engliſh gardens before the hard froſt in 17$\frac{39}{40}$, when the greateſt part of the roots of the other ſort were deſtroyed, ſo many perſons were ſupplied the following ſpring with plants from Guernſey, where they cultivate only the latter ſort; but ſince the other has been increaſed again, this green ſort has been in moſt gardens rooted out, to make way for the Globe Artichoke.

The manner of propagating this plant is from ſlips, taken from the old roots, in February or March, which, if planted in a good ſoil, will produce large fair fruit the autumn following; but as this is a plant which few gardeners, that have not been inſtructed in the kitchen-gardens near London, underſtand to manage well, I ſhall be the more particular in my directions about it.

At the latter end of February, or in March, according to the earlineſs of the ſeaſon, or forwardneſs of the old Artichoke roots, will be the proper time for dreſſing them, which muſt be thus performed: with your ſpade remove all the earth from about your ſtock, down below the part from whence the young ſhoots are produced, clearing the earth from between the ſhoots with the hands, ſo as to be able to judge of the goodneſs of each, with their proper poſition upon the ſtock; then make choice of two of the cleareſt, ſtraiteſt, and moſt promiſing plants that are produced from the under part of the ſtock, which are much preferable to the ſtrong thick plants which generally grow upon the crown of the roots; for theſe have hard woody ſtems, ſo never produce good fruit, but are generally what the market people call rogues, which have very little bottom; the ſcales of their heads are irregularly placed; in ſlipping off the plants you muſt be careful not to injure thoſe which are to remain for a crop; then with your thumb force off all the other plants and buds alſo cloſe to the head of the ſtock, from whence they are produced, being very careful not to leave any of the buds, which will ſoon produce plants ſo as to hurt thoſe which are left: then with your ſpade draw the earth about the two plants which are left, and with your hands cloſe it faſt to each of them, ſeparating them as far aſunder as they can conveniently be placed without breaking them, obſerving to crop off the tops of the leaves which hang down with your hands; your ground being levelled between the ſtocks, you may ſow thereon a ſmall crop of Spinach, which will be taken off before the Artichokes will cover the ground, and be ſure to keep them clear from weeds; and toward the latter end of April, or the beginning of May, when your old plants begin to ſhew their fruit, you muſt carefully look over your ſtocks, and draw up all young plants from them, which may have been produced ſince their dreſſing, and cut off all ſuckers which are produced from the ſtems of the Artichoke, leaving only the principal head, by which means your fruit will be the larger; when your Artichokes are fit to gather, you muſt break or cut them down cloſe to the ſurface of the ground, that your ſtocks may make ſtrong freſh ſhoots before the end of October: the ſeaſon for earthing, or, as the gardeners term it, landing them up, is the middle or latter end of November, which is thus done;

Cut off all the young ſhoots quite cloſe to the ſurface of the ground; then dig between every ſtock, raiſing all the earth between each row of ſtocks into a ridge, as is done in the common method of trenching ground, ſo as that the row of Artichokes may be exactly in the middle of each ridge, this will be ſufficient to guard them againſt froſt; and I would here recommend it to the public, as infinitely preferable to long dung, which is by the unſkilful often uſed, and is the occaſion of their fruit being ſmall, and almoſt without any bottoms to them; for there is not any thing ſo hurtful to theſe, as new dung being either buried near, or laid about them.

Since we have experienced, that, in very ſevere froſts theſe roots are ſometimes deſtroyed, therefore it is proper to give ſome directions to prevent it; though this rarely happens in dry ground, in which we have but few inſtances of their being killed, except in the hard froſts of 1683, and 17$\frac{39}{40}$. In theſe two winters moſt of the Artichokes were deſtroyed in England; in the laſt of theſe winters, it happened from the little care which was taken of them, there having been no froſt for ſo many years before, which had injured them, that few people uſed any care to preſerve them; but ſince that hard froſt, many people have run into the other extreme of covering all their roots of Artichokes with long dung every winter, which is a very bad method, becauſe the dung lying near the roots, is very apt to rot the beſt plants; therefore I would adviſe the earthing (or as it is called by the gardeners, landing) the Artichokes to be deferred till the latter end of November, or the beginning of December, provided the ſeaſon continues mild; and towards Chriſtmas, if there is any danger of ſevere froſts, to lay a quantity of long dung, Peaſe-haulm, tanners bark, or any other light covering over the ridges of earth, which will keep out the froſt; and this being at a diſtance from the roots, will not injure them; but this covering ſhould be carefully taken off the beginning of February, or ſooner, provided the ſeaſon is mild, or at leaſt ſo ſoon as the weather is ſo, otherwiſe the plants will be injured by its lying too long upon them.

It will alſo be a good method, whenever any roots of Artichokes are dug up in autumn, either to bury them deep in the ground in a pit till ſpring, or lay them in a heap, ſo as that they may be eaſily covered in hard froſts; and theſe may be a ſupply, if thoſe in the ground are deſtroyed.

When you have thus earthed them up, you have nothing more to do till February or March, by which time they will have grown through the ridge of the earth; and, when the weather is proper, muſt be dreſſed as was before directed.

When you have a mind to make a new plantation, after having digged and buried ſome very rotten dung in the ground you have allotted for that purpoſe, make choice of ſuch of your plants as were taken from your old ſtocks, which are clear, ſound, and not woody, having ſome fibres to their bottom; then with your knife cut off that knobbed woody part, which joined them to the ſtock; and if that cuts criſp and tender, it is a ſign of its goodneſs, but if tough and ſtringy, throw it away as good for nothing; then cut off the large outſide leaves pretty low, that the middle or heart leaves, may be above them. Your plants being thus prepared (if the weather is very dry, or the plants have been any time taken from the ſtocks, it will be convenient to ſet them upright in a tub of water for three or four hours before they are planted, which will greatly refreſh them;) you muſt then proceed to planting, which muſt be done by ranging a line acroſs the ground, in order to their being placed exactly in a row; and, with a meaſure ſtick, plant them at two feet diſtance from each other in the rows, and if deſigned for a full crop, five feet diſtance row from row; your plants muſt be ſet about four inches deep, and the earth cloſed very faſt to their roots, obſerving, if the ſeaſon proves dry, to keep them watered two or three times a week, until they are growing, after which they ſeldom require any.

N. B. You may ſow a thin crop of Spinach upon the ground before you plant your plants, obſerving to clear it from about them after it is come up.

Theſe plants, in a kindly ſeaſon, or a moiſt ſoil, will produce the largeſt and beſt Artichokes ſome time in Auguſt and September, after all thoſe from the old ſtocks are paſt; ſo that if you intend to continue your Artichokes through the whole ſeaſon, you muſt make a new plantation every year, otherwiſe you cannot poſſibly have fruit longer than two or three months.

If any of the plants which are planted in the ſpring ſhould not fruit in autumn, you may, at the ſeaſon of earthing up your roots, tie up the leaves with a ſmall Willow twig, &c. and lay the earth up cloſe to it, ſo that the top of the plant may be above ground; and when the froſt comes on, if you will cover the top with a little ſtraw, or Peaſe-haulm, to prevent their being killed by froſt, theſe plants will produce fruit in winter, or early in the ſpring.

But in thoſe plantations where you intend to plant other things between your Artichokes, you muſt allow nine or ten feet between the rows, as is often practiſed by the kitchen-gardeners near London, who ſow the ground between with Radiſhes or Spinach, and plant two rows of Cauliflowers, at four feet diſtance row from row, and two feet and a half aſunder in the rows, ſo that there are always five feet allowed for the Artichokes to grow; and in May, when the Radiſhes or Spinach are taken off, they ſow a row of Cucumbers for pickling, exactly between the two rows of Cauliflowers, at three feet diſtance from each other; and between the rows of Cauliflowers and the Artichokes, plant a row of Cabbages or Savoys for winter uſe, which, when the Cauliflowers are drawn off, and the Artichokes gathered, will have full liberty to grow, and by this means the ground is fully employed through the whole ſeaſon. This has long been the practice of the kitchen-gardeners near London, who pay large rents for their land, ſo are obliged to get as many crops in a year from it as poſſible.

In thoſe which are planted at five feet diſtance row from row, you may plant in every other row a line of Cabbages or Savoys for winter uſe, which will be gone by the time of landing them up; in doing of which you muſt lay the whole five feet of earth into one ridge, except the ground be extreme ſtiff, or the plants young, in both which caſes you may lay only three feet and a half of the ground in the ridge over the roots, and the remainder may be laid in a ſmall ridge between; the ſame compaſs of ground muſt alſo be allowed where they are planted at a wider diſtance.

And if in the ſpring you find your ſtocks ſhoot very weak, which may have been occaſioned either by hard froſt, or too much wet, you muſt then uncover them, and with your ſpade looſen and break the earth about them, raiſing a ſmall hill about each ſtock, levelling the reſt between the rows, which will greatly help them, and in three weeks, or a month's time after, they are commonly fit to ſlip.

Thoſe Artichokes which are planted in a moiſt rich ſoil, will always produce the largeſt and beſt fruit; ſo that where ſuch a ſoil can be obtained, it will be proper to make a freſh plantation every ſpring, to ſucceed the old ſtocks, and ſupply the table in autumn. But the roots will not live through the winter in a moiſt ſoil, ſo that your ſtocks which you intend ſhould remain to ſupply the table early, and to furniſh plants, ſhould be in a drier ſoil. You ſhould always obſerve to plant theſe in an open ſituation, and not under the drip of trees, where they will draw up very tall, and produce ſmall inſignificant fruit.

ARTICHOKES of Jeruſalem. See Helianthus.

ARTICULATION, is the connection of parts that conſiſt of joints, or knees, ſuch as are the ſiliquæ [the huſks] of many plants; as of the Ornithopodium, Coronilla, which are joined together by a ſoluble knot; whence thoſe parts are called articuloſæ, and are ſaid to be connected articulatim, or geniculatim; and ſuch plants are called Articuloſæ, whoſe roots are jointed, although the ſtalks have no joints; ſo the root of Polygonatum is ſaid to be articuloſe, or geniculated.

ARUM, Wake Robin, or Cuckow Pint.

The Characters are,

The flower hath a large oblong ſpatha, which is cloſed at the bottom, compreſſed in the middle, and coloured within; the ſpadix is ſingle, ſhaped like a club at the top, and ſhorter than the ſpatha upon which the germen are ſituated. It hath no petals nor ſtamina, but many four-cornered ſummits, ſitting cloſe to the germen, with a double row of hairs between them, which adhere to the ſpadix. There are many oval germen which ſurround the upper part of the ſpadix, having no ſtyles, but have bearded ſtigma: the germen afterward become globular berries, with one cell, having round ſeeds.

This genus of plants is ranged in the ſeventh ſection of Linnæus's twentieth claſs, entitled Gynandria Polyandria, theſe plants having male and female flowers joined, but have no ſtamina nor ſtyle, but many ſummits.

This plant is called Wake Robin, from the ſharp acrid taſte, which, if eaten, will occaſion a violent pain in every part of the mouth and throat, attended commonly with a great defluxion of water.

The Species are,

1. Arum (*Maculatum*) acaule foliis haſtatis integerrimis ſpadice clavato. Hort. Upſal. 434. *Arum without ſtalk, ſpear-ſhaped entire leaves, and a club-ſhaped ſpadix.* Arum vulgare maculatum & non maculatum. C. B. P. 195. *The common Arum.*
2. Arum (*Italicum*) foliis haſtatis acutis petiolis longiſſimis ſpathâ maximâ erectâ. *Arum without ſtalk, pointed ſpear-ſhaped leaves, with long foot-ſtalks, and a large upright ſpatha.* Arum venis albis Italicum maximum. H. R. Par.
3. Arum (*Proboſcidium*) acaule foliis haſtatis ſpathâ declinatâ filiformi-ſubulatâ. Lin. Sp. Plant. 966. *Arum without ſtalk, ſpear-ſhaped leaves, and a declining awl-ſhaped ſpatha.* Ariſarum flore in tenuem caudam abeunte. Tourn. Inſt. 161. *Friers Cowl.*
4. Arum (*Ariſarum*) acaule foliis cordato-oblongis ſpathâ bifidâ ſpadice incurvo. Hort. Cliff. 435. *Arum without ſtalk, oblong heart-ſhaped leaves, a bifid ſpatha, and an incurved ſpadix.* Ariſarum latifolium majus. C. B. P. 196. *Broad-leaved Friers Cowl.*
5. Arum (*Tenuifolium*) acaule foliis lanceolatis ſpadice ſetaceo declinato. Hort. Cliff. 345. *Arum without ſtalk, ſpear-ſhaped leaves, and a briſtly declining ſpadix.* Ariſarum anguſtifolium Dioſcoridis forte. Boerh. Ind. alt. 2. p. 73.
6. Arum (*Virginicum*) acaule foliis haſtato-cordatis acutis angulis obtuſis. Hort. Cliff. 434. *Arum without ſtalk, pointed, ſpear, heart-ſhaped leaves, with obtuſe angles.*
7. Arum (*Triphyllum*) acaule foliis ternatis floribus monoicis. Flor. Virg. 113. *Three-leaved Arum without ſtalk.* Arum minus triphyllum ariſarum pene viridi Virginianum. Mor. Hiſt. 3. p. 547.
8. Arum (*Dracunculus*) foliis pedatis, foliolis petiolatis integerrimis æquantibus ſpatham ſpadice longiorem. Lin. Sp. Prod. Leyd. 7. *Arum with foot-ſhaped leaves, compoſed of ſpear-ſhaped, entire, equal lobes, and the ſpatha much longer than the ſpadix.* Dracunculus polyphyllus. C. B. P. 195. *Common Dragon.*
9. Arum (*Dracontium*) foliis pedatis, foliolis lanceolatis integerrimis ſuperantibus ſpatham ſpadice breviorem. Prod. Leyd. 7. *Arum with foot-ſhaped leaves, the upper being compoſed of ſpear-ſhaped entire lobes, and the ſpatha ſhorter than the ſpadix.* Arum polyphyllum minus & humilius. H. L. 60.
10. Arum (*Trilobatum*) acaule foliis ſagittato trilobis flore ſeſſile. Flor. Zeyl. 326. *Trifoliate Arum without ſtalks, and a flower growing cloſe to the root.* Arum humile Zeylanicum latifolium piſtillo coccineo. Hort. Amſt. 1. p. 97.
11. Arum (*Colocaſia*) acaule foliis peltatis ovatis repandis baſi ſemibifidis. Hort. Cliff. 434. *Arum without ſtalk, target-ſhaped oval leaves, waved and ſinuated at their borders, and divided into two parts at their baſe.* Arum maximum Ægyptiacum quod vulgò Colocaſia. *Called Colocaſia.*
12. Arum (*Betæ folia*) acaule foliis cordatis nervoſis floribus ſeſſilibus. *Arum without ſtalk, nervous heart-ſhaped leaves, and flowers without petals.* Arum Americanum betæ folio. Cateſb. Hiſt. Car. 1. 71. *Called Scunk Weed.*
13. Arum (*Divaricatum*) acaule foliis cordatis angulatis divaricatis. Lin. Sp. Plant. 966. *Arum without ſtalk, and heart-ſhaped angular leaves.* Arum acaule foliis ſubhaſtatis. Flor. Zeyl. 325.
14. Arum (*Peregrinum*) acaule foliis cordatis obtuſis mucronatis angulus rotundatis. Hort. Cliff. 435. *Arum without ſtalk, blunt heart-ſhaped leaves, which are pointed, and the angles rounded, called Edder in America.*
15. Arum (*Eſculentem*) acaule foliis peltatis ovatis integerrimis baſi ſemibifidis. Hort. Cliff. 453. *Arum without ſtalk, oval target-ſhaped leaves, whoſe baſe are divided in two parts.* Arum minus nymphææ folio eſculentum. Sloan. Cat. Jam. 62.

16. Arum (*Sagittæ folium*) acaule foliis ſagittatis triangulis angulis divaricatis acutis. Hort. Cliff. 345. *Arum without ſtalk, lance-ſhaped leaves which are triangular, acute-pointed, and ribbed.* Arum maximum Ægyptiacum quod vulgò Colocaſia cauliculis nigricantibus Zeylanica. H. L. B.

17. Arum (*Arboreſcens*) cauleſcens rectum, foliis ſagittatis. Lin. Sp. 1371. *Arum with an erect ſtalk, and arrow-ſhaped leaves, commonly called Dumb Cane.*

18. Arum (*Auritum*) cauleſcens radicans, foliis ternatis, lateralibus unilobatis. Lin. Sp. 1371. *Arum whoſe ſtalks ſend out roots, and trifoliate leaves.* Arum hederaceum triphyllum & auritum. Plum. Amer. 41. tab. 58.

The firſt ſort grows naturally in woods and on ſhady banks in moſt parts of England, ſo is ſeldom admitted into gardens; but being a medicinal plant, it is here inſerted to introduce the other ſpecies. There are two varieties of this, one with plain leaves, and the other hath leaves full of black ſpots, but theſe are only accidental varieties which ariſe from the ſame ſeeds. The roots of this are ordered by the College of Phyſicians to be uſed in a powder which bears the title of the plant; but theſe are generally gathered in the ſpring, when the leaves are in full vigour, ſo that the roots ſhrink and ſoon loſe their pungent quality; but thoſe which are taken up in Auguſt, when their leaves decay, will continue good a whole year, and retain their pungency the ſame as when firſt taken up. The not obſerving this, has brought the medicine into diſrepute. It flowers in April, and the ſeeds ripen in July.

The ſecond ſort grows naturally in Italy, Spain, and Portugal, from whence I have received the ſeeds. The leaves of this ſort riſe a foot and a half high, are very large, running out to a point; theſe are finely veined with white, interſperſed with black ſpots, which, together with the fine ſhining green of their ſurface, make a pretty variety. The flowers grow near a foot high, and have very long upright ſpathas, which are of a pale green, inclining to white; theſe appear the end of April, or beginning of May, and the ſeeds are ripe in Auguſt; this propagates very faſt by offſets from the root, and will thrive in any ſoil or ſituation. The beſt time to tranſplant them is ſoon after the ſeeds are ripe, for by the end of October they will be putting out new fibres.

The third, fourth, and fifth ſorts have been generally ſeparated from this genus, and were diſtinguiſhed by the title of Ariſarum, or Friar's Cowl, from the reſemblance the flower has in ſhape to the hoods or cowls worn by the people of that order; the leaves of theſe have ſhort foot-ſtalks, the flowers growing cloſe to the ground; they flower in April, but ſeldom produce ſeeds in England; however they multiply faſt by offſets, and ſhould have a ſhady ſituation. The time for tranſplanting the roots is the ſame as for the former. They are preſerved in ſome gardens for the ſake of variety, but have little beauty to recommend them.

The ſixth and ſeventh ſorts grow naturally in Virginia and Carolina, from whence I have received their roots; their leaves ariſe immediately from the roots, having ſcarce any foot-ſtalks; the flowers come up between their leaves, which have ſhort foot-ſtalks; they appear in May, but have little beauty, ſo the plants are only kept in botanic gardens for the ſake of variety. They will live in the open air, if they are planted in a ſheltered ſituation, or if the ſurface of the ground is covered with tan to keep out the froſt in winter, and will thrive better in the full ground than in pots. They are propagated by offſets.

The eighth ſort is the common Dragon, which is uſed in medicine, and has been generally ranged in a ſeparate genus from this under the title of Dracunculus, in which genus Tournefort has ranged all thoſe ſpecies which have compound leaves, and thoſe with ſingle leaves he has placed under Arum.

This ſort is uſed in medicine, ſo is preſerved in gardens to ſupply the markets: it grows naturally in moſt of the ſouthern parts of Europe. This plant hath a large, tuberous, fleſhy root, which, in the ſpring puts up a ſtrait ſtalk about three feet high, which is ſpotted like the belly of a ſnake; at the top it ſpreads out into leaves, which are cut into ſeveral narrow ſegments almoſt to the bottom, which ſpread open like a hand; at the top of the ſtalk the flower is produced, which is in ſhape like the common Arum, having a very long ſpatha of a dark purple colour, ſtanding erect, with a large piſtil of the ſame colour, ſo that when it is in flower, it makes no unpleaſing appearance; but the flower hath ſo ſtrong a ſcent of carrion, that few perſons can endure it; for which reaſon it hath been baniſhed moſt gardens, but was it not for this, a few of the plants might merit a place in gardens, for the oddneſs of the flower. It is very hardy, ſo will grow in any ſoil or ſituation, and propagates very faſt by offſets from the root. The time to tranſplant it is in autumn, when their leaves decay. It flowers in June or July, and their ſtalks decay in September.

The ninth ſort grows naturally in moiſt places in Virginia and New England, but is very difficult to preſerve long in a garden. I received ſome roots of this from New England a few years ago, which continued two years; but the ſoil being dry, they decayed in ſummer: theſe ſhould have a moiſt ſhady ſituation, otherwiſe they will not thrive. The leaves of this ſort are divided like thoſe of the former, but are ſmaller, and rarely grow more than nine inches high; the flowers are like thoſe of the common Arum, but the piſtil is longer than the ſpatha. It flowers in June, and the ſtalks decay in autumn.

The tenth ſort grows naturally in Ceylon, and ſome other parts of India, ſo is very impatient of cold: it is a plant of humble growth: the leaves come up from the root, having foot-ſtalks about four inches long; theſe are divided into three lobes, which terminate in points; the flower riſes immediately from the root, ſtanding on a very ſhort foot-ſtalk; the ſpatha is long, erect, and of a fine ſcarlet within, as is alſo the piſtil. This uſually appears in May, and the leaves decay in Auguſt, but new ones ſoon after riſe from the root. This plant muſt be placed in the tan-bed of the bark-ſtove, otherwiſe it will not thrive in England. It is propagated by offſets from the root, which come out in plenty when the plants are in health.

The eleventh, thirteenth, fourteenth, fifteenth, and ſixteenth ſorts, have mild roots, which are eaten by the inhabitants of all the hot countries, where they grow naturally, and ſome of the ſorts are cultivated by the inhabitants of the ſugar colonies, as eſculent plants, their roots being conſtantly eaten, as alſo are the leaves of ſome of the ſorts, particularly the fifteenth, which they call Indian Kale: the leaves of this are boiled, and ſupply the want of other greens. As there is a conſtant ſucceſſion of theſe all the year, a ſmall ſpot of ground, planted with theſe roots, will be ſufficient to ſupply a large family. It is eſteemed a wholſome green, and in thoſe countries where many of the common European vegetables are with difficulty procured, this proves a good ſuccedanum; but they ſeem to make little diſtinction of the ſpecies, for I have received the roots of three ſorts, by the common title of Edder; but I ſuppoſe the fourteenth ſort is the moſt commonly cultivated there for their roots. The ſixteenth ſort has not been many years introduced among them, for it came originally from the Spaniſh Weſt-Indies, where it grows in great plenty. Both theſe have larger roots than the fifteenth, for which reaſon they are preferred to it.

All theſe ſorts are preſerved in the gardens of thoſe perſons, who are curious in collecting exotic plants, for the variety of their leaves; their flowers have very little beauty, nor do they often appear in this country. The plants are propagated eaſily by offſets from their roots, which they put out plentifully: theſe muſt be planted in pots filled with light earth, and plunged into a hot-bed, to promote their taking root;

and if they are afterward continued in the bark-ſtove, they will make great progreſs, and their leaves will be larger. They may be kept in a dry ſtove, upon ſhelves, after they are well eſtabliſhed in the pots, but they will not be ſo ſtrong as the other.

The twelfth ſort I was favoured with by Mr. Peter Collinſon, F. R. S. who procured the root from North America, where it naturally grows. This requires a moiſt ſoil, and a ſhady ſituation, but is hardy in reſpect of cold. It flowered two years in the garden at Chelſea, but in a very dry ſeaſon decayed. The flowers came up before there was any appearance of leaves; the ſpatha was large, and the piſtil ſhort and blunt; the female flowers were ranged each between a ſort of cheque work, which was diagonal to the piſtil; the flower decayed without any appearance of ſeed.

The ſeventeenth ſort riſes to the height of ſix or ſeven feet, with a green jointed ſtalk as large as a walking ſtick; the leaves are placed irregularly at the top of the ſtalks, growing in a cluſter: theſe are oblong, and of a light green colour; from between the leaves the flowers come out on the ſide of the ſtalk, having a long ſpatha of a pale green colour, marked with white ſpots, ſitting cloſe to the ſtem of the plant; at their firſt appearance they ſtand erect, ſoon after they are horizontal, and in a little time they decline downward; their lower part is ſwelling ſo far as the flowers are ranged on the piſtil, above which it is greatly contracted, and toward the top enlarges again, where it is a little open, ſo as to ſhew the naked part of the piſtil, but is twiſted again at the top. All the lower part cloſely folds over the piſtil, ſo that it is ſcarce diſcernible, unleſs the ſpatha is opened, which can only be done on one ſide, the other adhering cloſely to the piſtil, ſo far upward as the flowers extend the naked part of the piſtil only being ſeparated from it; ſo that the female flowers and ſtamina are ranged only upon one ſide of the piſtil, in which it differs from all the other ſpecies which I have ſeen.

It grows naturally in the ſugar iſlands, and other warm parts of America, chiefly in the low grounds; the whole plant abounds with an acrid juice, ſo that if a leaf or part of the ſtalk is broken, and applied to the tip of the tongue, it cauſes a very painful ſenſation, and occaſions the ſalivary ducts to ſwell, and brings on a great defluxion of ſaliva; the ſtalks of this plant are ſometimes applied to the mouths of the negroes by way of puniſhment, which is indeed bad enough. This ſort is propagated by cutting off the ſtalks into lengths of three or four joints, which muſt be laid to dry ſix weeks or two months; for if the wounded part is not perfectly healed over before the cuttings are planted, they will rot and decay: theſe ſhould be planted in ſmall pots filled with light ſandy earth, and plunged into a moderate hot-bed of tan, being careful that they have little wet, until they have made good roots; when they are well eſtabliſhed at bottom, ſome of them may be placed in a dry ſtove, and others plunged into the tan-bed in the bark-ſtove, where they will make the greateſt progreſs, and produce more flowers than the others. It is a tender plant, ſo muſt be conſtantly kept in the ſtove, and ſhould have very little wet in winter.

The eighteenth ſort is a ſcandent plant, ſending out roots from the ſtem and branches, the leaves are large, heart-ſhaped, having three lobes or ears; the flowers are incloſed in a large ſpatha; but theſe are not fruitful in England. This is a tender plant, ſo requires to be conſtantly kept in the bark ſtove, and treated as other tender exotic plants, which come from hot countries, It is propagated by cutting off the branches, which readily put out roots, for all theſe ſpecies which are natives of hot countries, never produce ſeeds in England.

ARUM ÆTHIOPICUM. See Calla.

ARUM SCANDENS. See Dracontium.

ARUNDO. Lin. Gen. Plant. 76. The Reed.

The Characters are,

It is of the Graſs tribe; the flowers grow in ſpikes, and are included in a chaff which is oblong, pointed, and opens with two valves. The petals of the flowers are bivalve and longer than the empalement, having a down at their baſe, which riſes almoſt their length; it hath three hairy ſtamina, crowned with horned ſummits; in the center is ſituated an oblong germen, ſupporting two ſlender ſtyles which are hairy and reflexed, crowned with a ſimple ſtigma. The germen afterward becomes an oblong pointed ſeed, with long down adhering to its baſe.

This genus of plants is ranged in the ſecond ſection of Linnæus's third claſs, entitled Triandria Digynia, the flowers having three ſtamina and two ſtyles.

The Species are,

1. Arundo (*Phragmitis*) calycibus quinquefloris paniculâ laxâ. Prod. Leyd. 66. *Reed with five flowers in each cup, growing in looſe panicles.* Arundo vulgaris paluſtris. J. B. 2. 485. *The common Marſh Reed.*
2. Arundo (*Donax*) calycibus trifloris paniculâ diffuſâ. Prod. Leyd. 66. *Reed with three flowers included in each cup, growing in diffuſed panicles.* Arundo ſativa quæ Donax Dioſcoridis. C. B. P. 17. This is ſometimes called by gardeners the Ever-green Reed, but for what reaſon I cannot imagine, becauſe the ſtalks decay every autumn, and new ſhoots ariſe from the roots in the ſpring.
3. Arundo (*Verſicolor*) Indica Laconica verſicolor. Mor. Hiſt. 3. p. 219. *Indian Reed with variegated leaves.* Arundo Indica variegata ſeu Laconica Theophraſti. Cornut. Can. 55.
4. Arundo (*Bamboa*) calycibus multifloris, ſpicis ternis ſeſſilibus. Lin. Sp. 120. *Reed with many flowers in the cup, and ſeſſile ſpikes, commonly called Bambu.* Beeſha. Hort. Mal. Vol. V. p. 119. *and the Bambu altera ſpecies.* Raii Hiſt. 1316.
5. Arundo (*Arborea*) caule arboreo foliis utrinque acuminatis. *Reed with a tree-like ſtalk, and leaves which are pointed at both ends.* Ily. Hort. Mal. Vol. I. p. 25.
6. Arundo (*Orientalis*) tenuifolia caule pleno ex quâ Turcæ calamos parant. Tourn. Cor. 39. *Eaſtern Reed with a narrow leaf and a full ſtalk, of which the Turks make their writing pens.*

The firſt ſort is ſo very common by the ſides of rivers and large ſtanding waters in divers parts of England, that it is needleſs for me to ſay any thing of its culture. This is cut in autumn, when the leaves begin to fall, and the ſtems are changed brown, for making hedges in kitchen-gardens, and for many other uſes.

The ſecond ſort, although native of a warm country, yet will bear the cold of our winters in the open ground, provided it is planted in a ſoil not too wet; and if the winter ſhould prove very ſevere, a little mulch be laid over the roots; it dies to the ſurface in autumn, and riſes again the ſucceeding ſpring; and if kept ſupplied with water in dry weather, will grow ten or twelve feet high the ſame ſummer; and is very proper to intermix with trees and ſhrubs, or tall plants and flowers in boſquets, where, by the oddneſs of its appearance, it will have a good effect, in adding to the variety. This is propagated by parting the roots early in the ſpring, before they begin to ſhoot, and will, in a year or two, if your ground be good, make very large ſtools, ſo that from each ſtool you may have eight or ten canes produced; but this never produces any ſpikes of flowers in England. The ſtalks of this ſort are brought from Portugal and Spain, and are uſed by the weavers, as alſo to make fiſhing-rods.

The third ſort is ſuppoſed to be a variety of the ſecond, differing therefrom only in having variegated leaves. But this I much doubt, becauſe the ſort with variegated leaves is much tenderer than the other, ſo muſt be ſheltered from the froſt, otherwiſe it will not live through the winter in England. The plant never grows to a third part of the height of the other, and the leaves are narrower and much ſhorter; whether theſe differences may not be occaſioned by the weakneſs of the plant, I cannot take upon me to determine; for it is well known, that all thoſe plants which have variegated leaves, are much weaker than the plain, and do not grow ſo large, nor will they reſiſt the cold ſo well. But as this is ſuppoſed to be a native of a different country, and by all the writers who have mentioned it ſuppoſed to be different, I have enumerated it among the ſpecies.

The two ſorts of Bambu are of great ſervice to the inhabitants of India, who make moſt of their common utenſils of the ſtems of theſe canes, which grow to a prodigious magnitude in thoſe countries.

We have plants of the fourth ſort in the Engliſh gardens, which are more than twenty feet high; and if the ſtoves in which they are kept were high enough to admit them, they would, according to appearance, riſe to twice that height. The ſhoots of this plant are of quicker growth than any other yet known, which riſes with an upright ſtalk; for a ſtrong ſhoot from the root will riſe to twenty feet in five or ſix weeks, as I have for ſeveral years obſerved. Some of theſe ſtems are as large as a man's wriſt, but in general as big as walking-ſticks, and when dried are as fit for that purpoſe as thoſe which are imported. The leaves of this ſort are much broader than thoſe of the fifth, particularly at their baſe; theſe leaves are generally put round the tea-cheſts in their package, and are faſtened together ſo as to form a kind of mat.

The fifth ſort is more rare at preſent in Europe, tho' it is the moſt common on the coaſt of Malabar.

They are both tender plants, ſo will not live in this country, unleſs they are preſerved in a warm ſtove; and as their roots ſpread very wide, they ſhould not be confined: therefore to have them produce ſtrong ſtems, they muſt be planted in large tubs, filled with rich earth, and plunged into the hot-bed in the bark-ſtove; and as they naturally grow in marſhy low places, they require plenty of water, eſpecially when the roots have filled the tubs in which they were planted. When the tubs decay, the boards may be removed, and the plants permitted to root into the tan, which will encourage them to grow to a larger ſize; but then there muſt be care taken when the bed is refreſhed with new tan, to leave a ſufficient quantity of the old tan about the roots of the plants; for if they are too much bared, and the new tan laid near them, when that heats, it will ſcorch their roots ſo that the plants are ſometimes deſtroyed by it. Both ſorts are propagated by ſlips from the roots, which ſhould be taken off in the ſpring, that they may be well eſtabliſhed before the winter.

The ſixth ſort is what the Turks make their writing pens withal; this grows in a valley near mount Athos, as alſo on the banks of the river Jordan, but there are none of the plants in England. This ſort may be managed as the Bambu.

ARUNDO SACCHARIFERA. See Saccharum.

ASARINA. Tourn. Inſt. R. H. 171. tab. 76. Baſtard Aſarum.

The Characters are,

The empalement is of one leaf, which is cut into five equal ſegments almoſt to the bottom. The flower is of one leaf, of the grining kind, having a long cylindrical tube, divided at the top into two lips, the upper one being divided into two parts, whoſe edges are reflexed. The lower lip is ſlightly cut into three parts which are obtuſe; the two lips join cloſe together, ſo as to form a kind of ſnout. It hath four ſtamina, two of which are longer than the other; in the center is placed a round germen ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward turns to a round huſk, divided into two cells, which are full of roundiſh ſeeds.

This genus of plants is by Dr. Linnæus joined to his genus of Antirrhinum, which is ranged in the ſecond ſection of his fourteenth claſs, titled Didynamia Angioſpermia, the flowers having two long and two ſhorter ſtamina, and the ſeeds having a capſule.

The Species are,

1. Asarina (*Procumbens*) caule decumbente foliis oppoſitis reniformibus crenatis. *Baſtard Aſarum with a trailing ſtalk, and kidney-ſhaped leaves growing oppoſite, which are indented on their edges.* Aſarina hederula ſaxatilis. Lob. Icon. 601. *Aſarina, or Rock Ground-ivy.*
2. Asarina (*Erecta*) caule erecto foliis lanceolatis amplexicaulibus paniculâ dichotomâ. *Upright Baſtard Aſarum with ſpear-ſhaped leaves which embrace the ſtalks, and ſpikes of flowers coming out from the diviſion of the branches.* Penſtemon. Mitch. Gen. 14.

The firſt ſort is a low trailing annual plant, the branches extend little more than a foot each way, and are weak, ſo that unleſs they are ſupported, they lie upon the ground; theſe are garniſhed with leaves like thoſe of Ground-ivy, which grow by pairs; at the wings of the leaves the flowers come out ſingly on each ſide the ſtalk, which are ſhaped like thoſe of Snap-dragon, but have a long tube; they are of a worn-out purple colour at the top, but below of an herbaceous colour. Theſe come out in June, and the ſeeds ripen in September, which ſhould be ſown ſoon after, or permitted to ſcatter, for when they are ſown in the ſpring they ſeldom grow. The plants ſhould remain where they are ſown, and require no other care but to keep them clean from weeds, and thin them where they grow too cloſe. As there is not much beauty in this plant, two or three of them will be enough in a garden, for the ſake of variety. It grows naturally in Italy and the ſouth of France.

The ſecond ſort grows naturally in North America. This plant hath upright ſtalks, which grow a foot and a half high, and put out ſeveral ſide branches, garniſhed with oblong ſpear-ſhaped leaves ending in a point, which grow oppoſite, and embrace the ſtalks at their baſe; the flowers come out in ſhort looſe ſpikes from the diviſions of the ſtalks, which are ſhaped like thoſe of the former, but are leſs, and of a purple colour. They appear in June and July, and their ſeeds ripen in September.

The ſeeds of this ſort ſhould be ſown in the autumn, for thoſe which are ſown in the ſpring, ſeldom grow the ſame year, but remain in the ground till the following ſpring. When the plants are grown ſtrong enough to remove, they ſhould be tranſplanted into a ſhady border, which will prevent their flowering the ſame year; and in the autumn they may be planted in the borders of the flower-garden, where they will add to the variety. The roots ſeldom laſt above two or three years, ſo that young plants ſhould be annually raiſed.

ASARUM [from α privative, and σαίρω, *Gr.* to adorn, as much as to ſay, a plant not fit for ornament,] Aſarabacca.

The Characters are,

The flowers hath a thick bell-ſhaped empalement of one leaf, which is coloured, and ſlightly cut at the brim into three parts, which are reflexed. It hath no petals, but twelve ſhort awl-ſhaped ſtamina, crowned by oblong ſummits, which are faſtened in the middle to the ſtamina; at the bottom of the empalement is incloſed a thick germen, ſupporting a ſhort cylindrical ſtyle, crowned by a reflexed ſtigma, cut into ſix parts. The germen afterward turns to a thick capſule having ſix cells, containing ſeveral oval ſeeds.

This genus of plants is ranged in Linnæus's eleventh claſs, entitled Dodecandria Monogynia, the flowers having twelve ſtamina and one ſtyle.

The Species are,

1. Asarum (*Europæum*) foliis reniformibus obtuſis binis. Lin. Sp. Pl. 442. *Aſarabacca with kidney-ſhaped leaves, which have two blunt points.* Aſarum. C. B. P. 197. *Common Aſarabacca.*
2. Asarum (*Canadenſe*) foliis reniformibus mucronatis. Lin. Sp. Plant. 442. *Aſarabacca with kidney-ſhaped leaves ending in a point.* Aſarum Canadenſe. Cornut. Canad. 24. *Canada Aſarabacca.*
3. Asarum (*Virginicum*) foliis cordatis obtuſis glabris petiolatis. Flor. Virg. 162. *Aſarabacca with ſmooth, blunt, heart-ſhaped leaves having foot-ſtalks.* Aſarum Virginianum piſtolochiæ foliis ſubrotundis cyclaminis more maculatis. Pluk. Alm. 53.

The firſt ſort hath thick fleſhy roots which are jointed, and ſend out fibres from every part; the leaves grow ſingly upon ſhort foot-ſtalks, ariſing immediately from the root; theſe are kidney-ſhaped, eared at the foot-ſtalk, and rounded at the top, where they are indented; they are ſmooth, and of a ſhining green colour: the flowers grow upon very ſhort foot-ſtalks cloſe to the ground, ſo are hid under the leaves. They are compoſed of a bell-ſhaped empalement, of a worn-out purple colour, which is cut into three at the top, where it turns backward: in the bottom is ſituated the germen, attended by twelve ſhort ſtamina, which afterward turns to a leathery ſeed-veſſel, divided into ſix cells, which contain ſeveral roundiſh ſeeds.

The leaves of the ſecond ſort are much larger than thoſe of the firſt, and ſtand on longer foot-ſtalks; theſe are pointed and hairy. The flowers are like thoſe of the other ſort, growing cloſe to the root, but are ſomewhat inclining to green on their outſide, in all other reſpects they agree.

The third ſort hath ſmooth blunt heart-ſhaped leaves, ſtanding on longer foot-ſtalks; theſe are veined and ſpotted on their upper ſurface like thoſe of the autumnal Cyclamen; the flowers of this are ſhaped like the others, but ſtand on longer foot-ſtalks, and are of a darker purple colour. Theſe flower in April and May, and their ſeeds ripen in July and Auguſt.

The firſt of theſe ſorts is very common, and hath been found wild in ſome parts of England, though but rarely; it delights in a moiſt ſhady place, and is increaſed by parting the roots in autumn. This is the ſort which is uſed in medicine.

The Canada ſort is equally hardy, ſo will endure our common winters in the open ground, being rarely hurt by froſts, if planted in a dry ſoil, for too much wet often occaſions the roots to rot in winter. This is propagated as the other.

The third ſort will alſo live in the open air in England, being ſeldom injured by froſt; but if the plants are too much expoſed to the ſun in ſummer, they ſeldom thrive well; therefore they ſhould be planted in a border where they may have only the morning ſun, in which ſituation they will ſpread and increaſe. Theſe two laſt grow naturally in ſeveral parts of North America.

ASCLEPIAS [ſo called from Æſculapius the firſt inventor of phyſic; it is alſo called Vincetoxicum, from vincere, to ovecome, and τοξικὰ, poiſons, q. d. a plant overcoming poiſons,] Hirundinaria, or Swallow-wort.

The CHARACTERS are,

The empalement is of one leaf, which is cut into five acute ſegments; the petal of the flower is alſo of one leaf, divided into five oval parts, which are reflexed; in the center is ſituated five nectarii which encompaſs ihe parts of generation; theſe have horns which turn toward the ſtamina, and are joined in a truncated body incloſed by five ſcales, which open every way. There are five ſtamina which are ſcarce viſible, which have five ſummits, ſituated between the nectarii, and incloſed by the ſcales of the truncated body. It hath two oval pointed germen, ſupporting two ſhort ſtyles crowned by a ſingle ſtigma. The germen afterward becomes two large, oblong, ſwelling pods ending in a point, having one cell, which opens with two valves filled with compreſſed ſeeds, lying over each other like tiles on a houſe, and are crowned with a ſoft down.

This genus of plants is ranged in Linnæus's ſecond ſection of his fifth claſs, entitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The SPECIES are,

1. ASCLEPIAS (*Alba*) foliis ovatis baſi barbatis caule erecto umbelulis proliferis. Lin. Sp. Plant. 314. *Swallow-wort with oval leaves bearded at their baſe, an upright ſtalk, and a proliferous umbel.* Aſclepias albo flore. C. B. P. 303.
2. ASCLEPIAS (*Nigra*) foliis ovatis baſi barbatis caule ſupernè ſubvolubili. Lin. Sp. Plant. 216. *Swallow-wort with oval leaves bearded at their baſe, and the upper part of the ſtalk twining.* Aſclepias nigro flore. C. B. P. 303.
3. ASCLEPIAS (*Lutea*) foliis ovatis acutis caule infirmo, umbellis ſimplicibus. *Swallow-wort with oval pointed leaves, a weak ſtalk, and ſingle umbels.* Aſclepias anguſtifolia flore flaveſcente. H. R. Par.
4. ASCLEPIAS (*Verticillata*) foliis revolutis linearibus verticillatis caule erecto. Lin. Sp. Plant. 217. *Swallow-wort with narrow twiſting leaves growing in whorles, and an upright ſtalk.* Apocynum Marianum erectum linariæ anguſtiſſimis foliis umbellatum. Pluk. Mant. 17.
5. ASCLEPIAS (*Syriaca*) foliis ovalibus ſubtus tomentoſis caule ſimpliciſſimo umbellis nutantibus. Lin. Sp. Plant. 214. *Swallow-wort with oval downy leaves, a ſingle ſtalk, and nodding umbels.* This is the Apocynum majus Syriacum erectum. Corn. Canad. *Greater upright Syrian Dogſbane.*
6. ASCLEPIAS (*Amœna*) foliis ovatis ſubtus piloſiuſculis caule ſimplici umbellis nectariiſque erectis. Lin. Sp. Plant. 214. *Swallow-wort with oval leaves, hairy on their under ſide, a ſingle ſtalk, with upright umbels and nectarii.* Apocynum floribus amœne purpureis corniculis ſurrectis. Hort. Elth. 31.
7. ASCLEPIAS (*Purpuraſcens*) foliis ovatis ſubtus villoſis caule ſimplici umbellis erectis nectariis reſupinatis. Lin. Sp. Plant. 214. *Swallow-wort with oval leaves, hairy on their under ſide, a ſingle ſtalk, and upright umbels with inclining nectarii.* Apocynum erectum Noveboracenſe foliis minùs incanis flore ex obſoleto dilutè purpuraſcente. Par. Bat. 33.
8. ASCLEPIAS (*Variegata*) foliis ovatis rugoſis nudis caule ſimplici umbellis ſubſeſſilibus pedicellis tomentoſis. Lin. Sp. Plant. *Swallow-wort with rough, naked, oval leaves, a ſingle ſtalk, umbels growing cloſe to the ſtalk, having woolly foot-ſtalks.* Apocynum vetus Americanum Wiſank dictum. Hort. Elth. 32.
9. ASCLEPIAS (*Incarnata*) foliis lanceolatis caule ſupernè diviſo, umbellis erectis. Lin. Sp. Plant. 215. *Swallow-wort with ſpear-ſhaped leaves, the upper part of the ſtalk divided, and erect double umbels.* Apocynum minùs rectum Canadenſe. Corn. Canad. 9.
10. ASCLEPIAS (*Decumbens*) foliis villoſis caule decumbente. Lin. Sp. Plant. 216. *Swallow-wort with hairy leaves, and a declining ſtalk.* Apocynum Carolinianum aurantiacum piloſum. Pet. H. Sicc. 90.
11. ASCLEPIAS (*Tuberoſa*) foliis alternis lanceolatis caule divaricato piloſo. Lin. Sp. Plant. 217. *Swallow-wort with ſpear-ſhaped leaves growing alternate, and a hairy divided ſtalk.* Apocynum Novæ Angliæ hirſutum tuberoſa radice floribus aurantiis. H. L. 649. *commonly called Orange Apocynum.*
12. ASCLEPIAS (*Glabra*) foliis lineari-lanceolatis glabris caule fruticoſo umbellis lateralibus. *Swallow-wort with ſmooth, narrow, ſpear-ſhaped leaves, a ſhrubby ſtalk, and umbels coming out of the ſides.* Apocynum erectum Africanum villoſo fructu ſalicis folio glabro anguſto. Par. Bat. 23.
13. ASCLEPIAS (*Fruticoſa*) foliis lanceolatis glabris umbellis ſimplicibus lateralibus caule fruticoſo. *Swallow-wort with ſmooth ſpear-ſhaped leaves, ſingle umbels coming from the ſides of the branches, and a ſhrubby ſtalk.* Apocynum erectum Africanum folio ſalicis lato glabro fructu villoſo. Par. Bat. 24.
14. ASCLEPIAS (*Villoſa*) foliis lanceolatis villoſis acutis umbellis ſimplicibus erectis caule fruticoſo. *Swallow-wort with hairy ſpear-ſhaped leaves, ſingle upright umbels, and a ſhrubby ſtalk.* Apocynum erectum Africanum villoſo fructu ſalicis folio lato ſubhirſuto. Par. Bat. 24.
15. ASCLEPIAS (*Rotundifolia*) caule erecto fruticoſo, foliis ſubrotundis amplexicaulibus, umbellis congeſtis. *Swallow-wort with an upright ſhrubby ſtalk, roundiſh leaves embracing it, and cloſe umbels.* Apocynum erectum fruticoſum folio ſubrotundo glauco. Par. Bat. 37.
16. ASCLEPIAS (*Nivea*) foliis lanceolatis glabris caule ſimplici umbellis erectis lateralibus ſolitariis. Lin. Sp. Plant. 215. *Swallow-wort with a ſingle ſtalk, ſmooth ſpear-ſhaped leaves, and upright ſingle umbels, proceeding from the wings of the leaves.* Apocynum Americanum foliis Amygdali longioribus. Plum. Cat. 2.
17. ASCLEPIAS (*Curaſſavica*) foliis lanceolatis petiolatis glabris caule ſimplici umbellis erectis ſolitariis. Lin.

Sp. Plant. 215. *Swallow-wort with ſmooth ſpear-ſhaped leaves, having foot-ſtalks, a ſingle ſtalk, and upright ſingle umbels.* Apocynum radice fibroſâ, petalis coccineis corniculis croceis. Hort. Elth. 34. *commonly called Baſtard Ipecacuana.*

18. Asclepias (*Gigantea*) foliis amplexicaulibus oblongo-ovalibus. Flor. Zeyl. 112. *Swallow-wort with oblong, oval leaves, embracing the ſtalks.* Apocynum erectum majus latifolium Indicum. Pluk. Alm. 35. tab. 175. f. 3.

19. Asclepias (*Scandens*) foliis oblongo-lanceolatis ſubhirſutis caule fruticoſo ſcandente umbellis lateralibus congeſtis. *Swallow-wort with oblong, ſpear-ſhaped, hairy leaves, a ſhrubby climbing ſtalk, and compact umbels proceeding from the ſide.*

The firſt ſort is the common Swallow-wort of the ſhops. This is called Vincetoxicum & Hirundinaria, in Engliſh Swallow-wort, or tame poiſon, from its ſuppoſed virtue, being accounted a mighty counter poiſon. The root is the only part which is uſed: it is compoſed of many ſtrong fibres, which are connected at the top, like thoſe of Aſparagus, from which ariſe many foot-ſtalks, in number proportional to the ſize of the roots; which grow near two feet high, are very ſlender at the top; the leaves are oval, ending in a point, and placed by pairs. The flowers are white, growing in umbels near the top of the ſtalk, from which are ſent out ſmaller umbels; the flowers are of one leaf, cut into five parts, in the center of which are placed five horned nectarii, among which the ſtamina and ſtyles are ſituated. After the flower is paſt, the two germen become two long pointed pods, incloſing many compreſſed ſeeds, which are crowned with a ſoft white down. The flowers appear in June, and the ſeeds ripen in September. This ſort grows naturally in the ſouth of France, Spain, and Italy.

The ſecond ſort agrees with the firſt, in the ſhape of its roots, leaves, and flowers, but the ſtalks extend to a greater length, and toward their upper part twiſt round any ſticks, or other plants near them, and the flowers of this are black. This flowers at the ſame time with the firſt, and ſeldom fails to ripen its ſeeds in England.

The third differs from both the other in the narrowneſs of its leaves, and weakneſs of its ſtalks; the umbels of flowers are ſingle, and of a yellow colour. This flowers at the ſame time with the two former ſorts, and generally perfects ſeeds in England. There is a variety of this with broader leaves, which may have come from the ſeeds of this.

Theſe plants are common in the Engliſh gardens, and natives of the ſame countries. They are generally propagated by parting their roots, eſpecially the firſt ſort, which ſeldom produces ſeeds in England. The beſt time for this is in autumn, when their ſtalks begin to decay. They ſhould not be planted nearer together than three feet, for the fibres of their roots extend to a conſiderable diſtance. They are very hardy plants, ſo will thrive in any ſituation, but love a dry ſoil. Their ſtalks die in autumn, and new ones riſe in the ſpring.

The fourth ſort grows naturally in North America; this riſes with ſlender upright ſtalks, garniſhed with very narrow leaves, growing in whorles round the ſtalks, at the top of which grow umbels of ſmall, white, ſtarry flowers. Theſe appear in July, but are never ſucceeded by pods in England, ſo are only propagated by parting their roots; which ſhould be done in the ſpring, before they put out new ſhoots. The roots ſhould be planted in a warm border and dry ſoil, and in winter covered with old tan, to prevent the froſt from penetrating the ground.

The fifth ſort creeps greatly at the root, ſo that it will ſoon ſpread over a large ſpot of ground; this ſends up ſtrong ſtems upward of four feet high, which have thick oval leaves placed oppoſite, hoary on their under ſides. Toward the top of the ſtalks the umbels of flowers come out on the ſide; theſe are of a worn-out purple colour, ſmelling ſweet, and nod downward; ſometimes theſe are ſucceeded by large oval pods, filled with flat ſeeds, crowned by a long ſoft down; it flowers in July. This propagates faſt enough by its creeping root, and will grow in any ſoil or ſituation. It may be tranſplanted any time after the ſtalks decay, or before the roots ſhoot in the ſpring.

The ſixth ſort hath a perennial root, which ſends up ſeveral upright ſtalks in the ſpring, about two feet high, garniſhed with oval leaves growing oppoſite; at the top of the ſtalks the umbels of flowers are produced, which are of a bright purple colour, making a pretty appearance in July, but are not ſucceeded by pods in England; this muſt be treated as the fourth ſort. I was favoured with this by Mr. Peter Collinſon, F. R. S.

The ſeventh ſort grows naturally in North America. This hath a perennial root, which ſends out ſingle ſtalks near three feet high, garniſhed with oval leaves, hairy on their under ſide, placed oppoſite; the flowers grow in erect umbels at the top, and the nectarii are declining. They are of a worn-out purple colour reſembling thoſe of the fifth; it is very hardy, and propagates faſt by its creeping roots, but never produces ſeeds in England. This will grow in any ſoil or ſituation, and may be tranſplanted when the ſtalks decay.

The eighth ſort reſembles the ſeventh, but the leaves are rough, and the umbels of flowers are more compact, and come out on the ſide of the ſtalk; theſe are of an herbaceous colour, and are not ſucceeded by pods in this country, but is propagated by roots as the former ſort.

The ninth ſort came firſt from Canada, but hath ſince been found growing naturally in ſeveral other parts of America. This hath a perennial root, which puts out ſeveral upright ſtalks about two feet high, which have oblong ſmooth leaves placed by pairs; at the top are produced cloſe umbels of purple flowers; theſe appear in Auguſt, but are not ſucceeded by ſeeds here, ſo is only propagated by parting the roots, which do not increaſe very faſt, therefore the plant is not very plenty in the gardens; it is hardy enough to live abroad, if it is planted in a dry ſoil.

The tenth ſort is a native of North America, but is hardy enough to live abroad in England, if it is planted in a warm ſituation and a dry ſoil. This hath declining ſtalks, which are hairy, a foot and a half long; the leaves are narrow, hairy, and placed oppoſite; the umbels grow at the extremity of the branches, which are compact, the flowers are of a bright Orange colour. It is propagated by ſeeds, which ſhould be ſown in pots, and plunged into a moderate hot-bed to bring up the plants, which ſhould be inured to the open air ſo ſoon as the weather will permit; for if they are drawn up weak, they ſeldom recover it. When they are of a proper ſtrength to remove, they ſhould be ſhaken out of the pots, and planted in a warm border ſix inches aſunder, being careful to ſhade them from the ſun until they have taken freſh root, but they muſt have very little water given them, for they are milky plants, which rot with much wet. During the ſummer they muſt be kept clean from weeds, and when their ſtalks decay in autumn, ſome rotten tan ſhould be laid over the ground to keep out the froſt, which ſhould be removed in the ſpring before the plants put out new ſhoots; the following ſummer they will require no other care than before, and alſo the next winter they muſt be covered as in the former. The ſecond ſpring the roots may be tranſplanted where they are to remain; the roots will then be ſtrong enough to flower in ſummer, and will laſt ſeveral years, eſpecially if they are covered with tan to keep out the froſt, but they ſhould not be afterward removed; for when the roots are large, they will not bear tranſplanting.

The eleventh ſort is a native of the ſame countries, and is much like the former, but differs in having upright ſtalks, and the leaves growing alternate. The roots of this grow to a large ſize, ſo will not bear tranſplanting after the plants are two years old. It is propagated by ſeeds, which ſhould be treated in the manner directed for the former. Theſe flower the latter end of July and in Auguſt; and in warm ſeaſons, ſometimes ripen their ſeeds in England. Neither of theſe plants will live long in pots, for which reaſon I have recommended their being planted in the full ground; but they ſhould have a warm ſituation.

The twelfth, thirteenth, and fourteenth ſorts grow naturally at the Cape of Good Hope. I have alſo received ſeeds of the thirteenth ſort from Alexandria; and Mr. Peter Collinſon, F. R. S. gave me ſome ſeeds of it, which were ſent him from Minorca; but it is not certain that it grows naturally there, but may have been carried thither from Africa.

Theſe riſe with upright ſhrubby ſtems to the height of ſeven or eight feet, and divide into many branches; thoſe of the twelfth ſort are garniſhed their whole length with long, narrow, ſmooth leaves, ending in a point; from the wings of the leaves the umbels of flowers are produced, upon long foot-ſtalks; the flowers are white, and grow looſely on the umbel; theſe are frequently ſucceeded by ſhort, thick, ſwelling pods, ending in a point, which are thick ſet with hairs, and filled with compreſſed ſeeds, crowned with a ſoft down. This flowers from June to October, and the ſeeds ripen in winter.

The thirteenth ſort differs from the twelfth, in having much broader leaves, which are of a darker green; the umbels of flowers are ſmaller, grow upon ſhorter foot-ſtalks, and the ſingle flowers are larger. This flowers at the ſame time with the former.

The fourteenth ſort doth not riſe ſo high as either of the former, and the branches grow at a much greater diſtance; the leaves are ſhorter, and are covered on both ſides with ſhort hairs. The flowers grow in ſmall looſe umbels, and are white; theſe appear in the ſame ſeaſon with the former.

Theſe are propagated by ſeeds, which may be ſown in April on a bed of light earth in the open air, and when the plants are three or four inches high, they ſhould be each planted in a ſmall pot filled with light earth, and ſhaded until they have taken new root, then they may be placed with other exotic plants in a ſheltered ſituation till October, when they muſt be removed into the green-houſe, and during the winter ſhould have but little water; for as they abound with a milky juice, much wet will rot them. The only care theſe will require, is to ſhift them into larger pots as they advance in their growth; but care ſhould be taken not to put them in pots too large, and in the ſummer to place them abroad with other plants from the ſame country.

Theſe three ſorts may alſo be propagated by cuttings, which if planted in July or Auguſt, in a ſhady border, will ſoon take root, and may ſoon after be taken up and planted in pots, and managed as the ſeedling plants. The thirteenth ſort hath lived in the open air in mild winters in the Chelſea garden, but in cold winters they are conſtantly deſtroyed.

The fifteenth ſort grows with an upright ſhrubby ſtalk to the height of ſix or ſeven feet, dividing toward the top into three or four branches, garniſhed their whole length with ſtiff roundiſh leaves, which cloſely embrace them. Toward the upper part, the flowers are produced on their ſides, growing in ſhort compact umbels. Theſe are of an herbaceous colour, ſo make but little appearance; they come out chiefly in autumn and winter. This grows naturally at the Cape of Good Hope, and requires the ſame culture as the former ſorts. There is a variety of this with deep green leaves, which ſome have ſuppoſed to be a different ſpecies, but I have raiſed it from the ſame ſeeds.

The ſixteenth ſort grows naturally in the warm parts of America, the ſeeds were ſent me from La Vera Cruz. This riſes with ſingle ſtalks four feet high, garniſhed with ſmooth ſpear-ſhaped leaves, ending in a point; toward the top of the ſtalk the umbels of flowers are produced from the wings of the leaves, which are white, and ſtand erect; theſe are ſucceeded by oblong pointed pods, filled with compreſſed ſeeds, crowned with ſoft down. It flowers in June and July, and the ſeeds ripen in October.

This plant is tender, ſo muſt be raiſed in a hot-bed, and tranſplanted into pots filled with rich earth, and plunged into the tan-bed in the ſtove. It muſt have but little water, and conſtantly remain in the ſtove, otherwiſe the plants will not thrive here.

The ſeventeenth ſort is alſo a native of the warm parts of America, the roots of which have been ſent to England for Ipecacuana, from which it may be eaſily diſtinguiſhed by its form, this being compoſed of a great number of ſmall fibres; whereas the true Ipecacuana hath jointed roots, which run deep into the ground, and are fleſhy. There have been may accounts of the bad effects of the uſe of theſe roots, as alſo of the poiſonous quality of the plant; ſo that the public ſhould be cautioned not to make uſe of it, and alſo to be careful not to let the milky juice of the plant mix with any thing which is taken inwardly.

This plant riſes five or ſix feet high, with upright ſtems, garniſhed with ſmooth oblong leaves, placed oppoſite; toward the top of the branches the umbels of flowers come out, which are ſingle, and grow erect; the petals of the flowers are of a ſcarlet colour; and the horny nectarii in the middle are of a bright Saffron colour, which make a pretty appearance; there is commonly a ſucceſſion of theſe flowers on the ſame plant from June to October. The flowers are ſucceeded by long taper pods filled with ſeeds crowned by a ſoft down, which ripen late in the autumn.

It is propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring, and the plants ſhould be treated in the ſame manner as is before directed for the former ſort; the roots of this may be continued three or four years, but after the ſecond year the plants grow naked, and do not produce ſo many flowers as before; ſo that it is much better to raiſe young plants to ſucceed the other, eſpecially as they produce plenty of ſeeds in England.

The eighteenth ſort riſes with upright ſtems ſix or ſeven feet high, which are garniſhed with thick oval leaves placed oppoſite. The umbels of flowers are ſingle; the flowers are white, of a ſtar figure, having five points; the pods of this ſort are very large, in ſhape like an ox's teſticles, and are filled with flat ſeeds, lying over each other like tiles on a houſe. I received the ſeeds of this ſort from the Right Hon. the Earl of Northumberland, who procured it from India.

This plant is tender, ſo muſt be preſerved conſtantly in the ſtove, and treated in the ſame manner as the two former ſorts, and ſhould have very little wet, eſpecially in the winter.

The nineteenth ſort I received from Carthagena; this hath climbing ſtalks, which faſten themſelves to the neighbouring plants, and riſe to the height of ten or twelve feet; the joints of the ſtalks are pretty diſtant from each other; at each are produced two oblong, ſpear-ſhaped, hairy leaves, growing oppoſite, upon very ſhort foot-ſtalks; the umbels of flowers come out from the wings of the leaves, which are very compact, and the flowers are of a ſulphur colour. Theſe appear in Auguſt, but have not been ſucceeded by ſeeds in England.

This plant is tender, ſo muſt be conſtantly preſerved in the ſtove, and treated in the ſame way as is directed for the former ſorts.

ASCYRUM. Lin. Gen. Plant. 737. Hypericoides. Plum. Nov. Gen. 51. tab. 7. St. Petersfwort.

The Characters are,

The empalement is four leaved, the two outer being narrow and oppoſite, the two inner are broad, heart-ſhaped, and erect. The flower hath four oval petals, the two outer are large and placed oppoſite, the two inner are ſmall. In the center is ſituated an oblong germen, with a very ſhort ſtyle, crowned by a ſingle ſtigma. This is attended by a great number of briſtly ſtamina, which are *joined at their baſe into four bodies, and are crowned with round ſummits. The germen afterward becomes an oblong pointed ſeed-veſſel, opening in two valves, and filled with ſmall round ſeeds. The ſeed-veſſel is incloſed by the two large leaves of the empalement.*

This genus of plants is ranged in the third ſection of Linnæus's eighteenth claſs, entitled Polyadelphia Polyandria, the flowers having many ſtamina, which are joined in ſeveral bodies.

The SPECIES are,

1. ASCYRUM (*Crux Andreæ*) foliis ovatis caule tereti paniculâ dichotomâ. Lin. Sp. Plant. 787. *St. Peterſwort with oval leaves, a taper ſtalk, and flowers growing in looſe ſpikes from the diviſions of the branches.* Hypericoides ex terrâ marianâ floribus exiguis luteis. Pluk. Mant. 104. *called St. Andrew's Croſs.*
2. ASCYRUM (*Villoſum*) foliis hirſutis caule ſtricto. Lin. Sp. Plant. 788. *St. Peterſwort with hairy leaves and a ſtiff ſlender ſtalk.* Hypericum Virginianum fruteſcens piloſiſſimum. Pluk. Alm. 189.
3. ASCYRUM (*Hypericoides*) foliis oblongis, ramis ancipitibus. Lin. Sp. 1108. *St. Peterſwort with oblong leaves and a flatted ſtalk.* Hypericoides fruteſcens erecta flore luteo. Plum. Nov. Gen. 51.

The firſt ſort is a low plant, whoſe ſtalks ſeldom riſe more than ſix inches high, garniſhed with ſmall oval leaves, placed by pairs; the ſtalks are ſlender, and divide into two toward the top. From between the diviſion of the branches, the looſe ſpikes of yellow flowers are produced very ſmall, ſo make no appearance; therefore the plant is ſcarce worthy of a place in gardens, except for the ſake of variety. The root is perennial, and the plant may be propagated by laying down its branches; it loves a moiſt ſoil and a ſhady ſituation. This grows naturally in North America; I was favoured with this plant by the Right Hon. the Earl of Northumberland, who procured it from thence.

The ſecond ſort grows about three feet high, with upright ſtalks, garniſhed with hairy oblong leaves; the flowers are produced at the ends of the ſtalks, which are of the ſhape and colour with common St. Johnſwort, but have only four leaves. This hath a perennial root, but the ſtalks decay every autumn. It may be propagated by parting the roots in autumn, when the ſtalks decay, and ſhould be planted in a loamy ſoil; this ſome years will produce ſeeds in England. It grows naturally in Virginia.

The third ſort grows naturally in South Carolina, from whence I received the ſeeds. This plant riſes a foot and a half high, with flat ſtalks, garniſhed with oval ſmooth leaves growing oppoſite; the ſtalks are terminated by three or four yellow flowers, growing cloſe together, which are larger than thoſe of the common St. Johnſwort, and the petals of the flowers are hollow. This ſort rarely produces ſeeds in England, but it may be propagated by cuttings made of the young ſhoots in May, which, if planted in pots, and plunged into a very moderate hot-bed, will take root in five or ſix weeks, when they may be tranſplanted into a warm border, where they will endure the cold of our ordinary winters; but in ſevere froſts they are frequently deſtroyed, unleſs the roots are covered with tan to keep out the froſt.

Theſe plants have little beauty, ſo are ſeldom cultivated but in botanic gardens for the ſake of variety.

ASCYRUM BALEARICUM.
ASCYRUM MAGNO FLORE. } See HYPERICUM.
ASCYRUM VULGARE.

ASH-TREE. See FRAXINUS.

ASHES are eſteemed a good ſuperficial dreſſing for corn and meadow land, as they give a new ferment to ſuch lands as are in any degree ſluggiſh and inactive, and enrich thoſe which are jejune and ſlow, being endowed with ſingular qualities to make them prolific.

All ſorts of aſhes, indeed, contain in them a very rich fertile ſalt, and are the beſt manure of any to lay upon cold wet land; but then they ought to be kept dry, that the rain may not waſh away their ſalt. Experience has ſhewn, that the aſhes of any ſort of vegetable are very advantageous to land, by the improvement that has been made in moſt places in England, by burning bean-ſtalks, fern, furze, heath, ſedge, ſtraw, ſtubble, &c.

Coal aſhes, or ſuch as are made of Newcaſtle, Scotch, and other pit-coal, are much recommended by ſome; but the firſt are moſt approved of, becauſe they contain a greater quantity of nitrous and ſulphureous matter than the others, though the reſt are good.

There is no dreſſing ſo good for graſs ground as the ſea-coal aſhes, eſpecially for cold wet land, and where it is ſubject to ruſhes or moſs; for theſe will deſtroy both, and occaſion the graſs to be much finer: but this dreſſing ſhould be laid on the land early in winter, otherwiſe they will do harm the firſt ſummer; for when they are laid on the ground in the ſpring, they will cauſe the graſs to burn as ſoon as the warmth comes on; whereas thoſe that were put on early enough to receive the winter's rain, will be waſhed into the ground before the warm ſeaſon, whereby the graſs will have the benefit of it the firſt year. Where the land is poor and ſour, producing ruſhes and moſs only, there ſhould be at leaſt twenty loads of aſhes laid upon each acre; for a ſlight dreſſing will not anſwer the deſign of killing weeds and moſs, nor will it be ſufficient to enrich land which is cold and ſluggiſh, therefore it will be better to lay a good dreſſing at firſt, than to do it at ſeveral intervals; for one ſubſtantial dreſſing will continue the land longer in heart than three ſlight ones, beſides the advantage before-mentioned.

But theſe ought to be applied ſuperficially, and not too near the roots of plants; and if ſo, there are few plants but will receive benefit by them, by their nitrous and ſulphureous qualities being waſhed down by the rain, which will open by the ſtrength of water, and cauſe it to heave, in ſome degree, as lime will do when water is thrown upon it.

Wood-aſhes are commended as the principal of ſuperficial dreſſings for land, in that they contain a vegetative kind of ſalt.

Kiln-aſhes, i. e. ſuch as are made of ſtraw, furze, &c. are, by ſome, accounted as good as any of the ſpirituous improvements of lands that are lightiſh; but for ſuch as are heavy, they are looked upon as ſcarce ſolid and ponderous enough. Theſe aſhes the maltſters in the weſt country ſift over their corn and graſs, which are ſuppoſed, by their heat, to cauſe a fermentation, a hollowneſs and looſeneſs in the mould; by which means the rains enter it the more eaſily, and diſpoſe the earth for giving up an aſſumption of its vegetative augment.

But theſe being light, ought never to be ſtrewed nor ſifted in windy weather, becauſe they would be blown away; and if it could be ſo ordered as to be done juſt before ſnow or rain, it would be the better.

Soap-aſhes (i. e. after the ſoap-boilers have done with them) are very proper for lands that are very cold and ſour, and to kill weeds of all ſorts: and Sir Hugh Plat mentions one at Ware, who having a piece of land over-run with broom and furze, manured it with ſoap-aſhes, and had an incredible crop of wheat for ſix years ſucceſſively.

Pot-aſhes, after the pot-aſh men have done with them, are eſteemed good for moſt ſorts of land; but as they have been wet, and moſt of the ſalt drawn off by the lee, they ought to be laid on much thicker than other aſhes.

Turf-aſhes are very good for all ſorts of land, but eſpecially for clay lands, but will be much better if mixed with lime.

But all theſe aſhes ought to be kept dry, from the time they are made till they are uſed, elſe the rains will both waſh away their goodneſs, and alſo make them clod, eſpecially ſome of the laſt mentioned; which will prevent their ſpreading.

And beſides, one load of aſhes that has been kept dry, will go as far as two that have been expoſed to the rain: and coal-aſhes, if moiſtened with chamber-lye or ſoap-ſuds, will greatly add to their ſtrength.

All calcined vegetables cauſe a fiery heat and vegetation, and, when wet comes, ſet the ground to work, by a ſubtle inſinuation unlocking the clods, and quickening the ſluggiſhneſs of the earth, according to that eſtabliſhed maxim among naturaliſts, That all fermentation is cauſed by the interpoſition or mixture of different qualities one with the other.

It is after this manner that coal-aſhes operate ſo admirably in looſening and mouldering ſtiff clayey grounds, and, as it is uſually termed, making it rough, aſhy, or ſandy-like: and after the ſame manner, ſand mixed with clay does well, eſpecially when it is impregnated with ſaline qualities.

ASPALATHUS. Lin. Gen. Plant. 767. African Broom.

The Characters are,

The empalement is of one leaf, which is cut into five equal ſegments at the top; the flower is of the butterfly kind. The ſtandard is hairy, compreſſed, and blunt-pointed; the wings are blunt, moon-ſhaped, and ſpread open, being ſhorter than the ſtandard; the keel is bifid, and of the ſame length as the wings. It hath ten ſtamina, nine of which are joined and covered by the ſtandard, the other ſtanding ſeparate; theſe are crowned by oblong ſingle ſummits. In the bottom is ſituated an oval germen ſupporting a ſingle ſtyle, crowned by a pointed ſtigma. The germen afterward becomes an oval oblong pod, incloſing one or two kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Dr. Linnæus's ſeventeenth claſs, entitled Diadelphia Decandria, the flowers having ten ſtamina joined in two bodies.

The Species are,

1. Aspalathus (*Chenopoda*) foliis confertis ſubulatis mucronatis hiſpidis floribus capitatis. Lin. Sp. Plant. 711. *Aſpalathus with rough, pointed, awl-ſhaped leaves, growing in cluſters, and flowers in heads.* Geniſta Africana lutea, floribus hirſutis in capitula lanuginoſa conglobatis foliis corrodæ aculeatis ſubhirſutis. Herm. Cat. 11. *Yellow African Broom.*
2. Aspalathus (*Indica*) foliis quinatis ſeſſilibus pedunculis unifloris. Lin. Sp. Plant. 712. *Five-leaved Aſpalathus growing cloſe to the branches, and one flower on a foot-ſtalk.* Dorycnium Indicum floribus ſingularibus rubris in pedicellis oblongis ſiliquis perexiguis. Raii Supp. 471.
3. Aspalathus (*Argentea*) foliis trinis linearibus ſericeis ſtipulis ſimplicibus mucronatis floribus ſparſis tomentoſis. Lin. Sp. Plant. 713. *Aſpalathus with three narrow ſilky leaves, ſingle-pointed ſtipulæ, and woolly flowers growing thinly.* Cytiſus Africanus anguſtifolius ſericea lanugine argentatus ſpicâ lagopoide. Pluk. Mat. 63.

Theſe plants grow naturally about the Cape of Good Hope, from whence I have received their ſeeds. The firſt is a low ſhrub growing about three feet high, with ſlender branches, garniſhed with many trifoliate leaves growing in cluſters, which are awl-ſhaped, pointed, and rough; at the ends of the branches the flowers come out, which are yellow, collected in woolly heads; theſe are rarely ſucceeded by pods in England. It is propagated by ſeeds, which muſt be obtained from the country where the plants grow naturally, and ſhould be ſown in pots filled with light earth as ſoon as they arrive: if this happens in the autumn, the pots ſhould be plunged into an old tan-bed whoſe heat is ſpent, where they may remain till ſpring, when they ſhould be removed into a moderate hot-bed, which will bring up the plants. But when the ſeeds arrive in the ſpring, the pots in which the ſeeds are ſown ſhould be then plunged into a moderate hot-bed; and in warm weather the glaſſes muſt be ſhaded in the middle of the day, and the pots frequently refreſhed with water. Thoſe ſeeds which are ſown in the ſpring, ſeldom grow the ſame year, therefore in the autumn the pots ſhould be put into an old tan-bed, as was directed for thoſe ſown in autumn, and afterward put in a hot-bed the following ſpring. When the plants come up, and are ſtrong enough to remove, they ſhould be each planted into a ſeparate ſmall pot filled with light earth, and plunged into a moderate hot-bed, to encourage their rooting again; and ſo ſoon as they are eſtabliſhed in the pots, they ſhould by degrees be inured to the open air, into which they ſhould be removed in ſummer, placing them in a ſheltered ſituation, where they may remain till autumn, when they muſt be carried into the green-houſe, and in winter ſhould have but little water.

The ſecond ſort grows about five feet high, with ſlender branches, garniſhed with leaves growing by fives cloſe to the branches; the flowers come out ſingly upon long foot-ſtalks, which are of a pale red colour; theſe appear in Auguſt, but ſeldom are ſucceeded by pods here. This is propagated as the former, and requires the ſame treatment.

The third ſort riſes about four feet high, with a ſhrubby ſtalk dividing into ſlender branches, garniſhed with ſilky leaves, coming out by threes; the flowers are purple, downy, and grow thinly on the branches. This is propagated as the two former, and muſt be treated in the ſame way as is directed for the firſt ſort. It flowers late in the ſummer.

ASPARAGUS, the firſt ſprigs of herbs before unfolded into leaves, and the youngeſt and tendereſt branches that are eatable, are called Aſparagus.

ASPARAGUS [Ἀσπάραγος, *Gr.* ſignifies a young ſhoot putting forth,] Aſparagus, Sparagus, corruptly called Sparrowgraſs.

The Characters are,

There are male and hermaphrodite flowers upon different roots; the male flowers are tubulous, compoſed of ſix narrow petals, which do not ſpread open, having ſix ſhort ſtamina, but no ſtyle or ſtigma; theſe are barren: the hermaphrodite flowers have ſix petals which ſpread open, ſix ſtamina ſurrounding the germen, and a ſhort ſtyle crowned by an obtuſe ſtigma which is prominent. The germen afterward becomes a round berry, having three cells, each including one or two ſeeds, rounded on their outſide, but angular where they join.

This genus of plants is ranged by Dr. Linnæus in the firſt ſection of his ſixth claſs, titled Hexandria Monogynia, but with more propriety ſhould be placed in the ſecond order of his twenty-firſt claſs, which includes thoſe plants as have the Polygamia on different roots.

The Species are,

1. Asparagus caule herbaceo erecto, foliis ſetaceis, ſtipulis duabus interioribus, una exteriore. Flor. Suec. 272. *Aſparagus with an upright herbaceous ſtalk, briſtly leaves, having two inner and one outer ſtipula.* Aſparagus ſativa. C. B. P. 489. *Garden Aſparagus.*
2. Asparagus (*Maritimus*) caule inermi herbaceo foliis teretibus longioribus faſciculatis. *Aſparagus with a ſmooth herbaceous ſtalk, and longer taper leaves growing in cluſters.* Aſparagus maritimus craſſiore folio. C. B. P. 490.
3. Asparagus (*Acutifolius*) caule inermi fruticoſo, foliis aciformibus rigidulis perennantibus mucronatis æqualibus. Lin. Sp. 449. *Aſparagus with a ſhrubby ſmooth ſtalk and rigid leaves, with points which abide in winter.* Aſparagus foliis acutis. C. B. P. 490.
4. Asparagus (*Albus*) ſpinis retroflexis, ramis flexuoſis, foliis faſciculatis angulatis muticis deciduis. Lin. Sp. 449. *Aſparagus with flexible branches and chaffy leaves growing in cluſters, which fall off in winter.* Aſparagus aculeatis ſpinis horridus. C. B. P. 490.
5. Asparagus (*Retrofractus*) aculeis ſolitariis ramis reflexis retrofractiſque, foliis faſciculatis. Lin. Sp. Plant. 313. *Aſparagus with ſingle ſpines, reflexed branches, and leaves growing in cluſters.* Aſparagus Africanus tenuifolius, viminalibus virgis, foliis laricis ad inſtar ex uno puncto numeroſis ſtellatim poſitis. Pluk. Alm. 40. tab. 375.
6. Asparagus (*Aphyllus*) aphyllus ſpinis ſubulatis ſtriatis inæqualibus divergentibus. Hort. Cliff. 122. *Aſparagus without leaves, and awl-ſhaped unequal ſpines which ſpread from each other.* Aſparagus aculeatus

alter, tribus aut quatuor ſpinis ad eundem exortum. C. B. P. 490.

7. ASPARAGUS (*Declinatus*) caule inermi ramis declinatis foliis ſetaceis. Prod. Leyd. 29. *Aſparagus with a ſmooth ſtalk, declining branches, and briſtly leaves.*
8. ASPARAGUS (*Aſiaticus*) aculeis ſolitariis caule erecto foliis faſciculatis, ramis filiformibus. Lin. Sp. Plant. 313. *Aſparagus with ſingle ſpines, an upright ſtalk, leaves growing in cluſters, and very ſlender branches.*
9. ASPARAGUS (*Capenſis*) ſpinis lateralibus terminalibuſque, ramis aggregatis foliis faſciculatis. Lin. Sp. Plant. 314. *Aſparagus with ſpines growing on the ſides and ends of the branches, which are in bunches, and leaves coming out in cluſters.*
10. ASPARAGUS (*Sarmentoſus*) foliis ſolitariis lineari lanceolatis caule flexuoſo aculeis recurvis. Flor. Zeyl. 124. *Aſparagus with ſingle, narrow, ſpear-ſhaped leaves, a flexible ſtalk, and recurved ſpines.* Aſparagus aculeatus Zeylanicus maximus ſarmentoſus. H. L. 62.

The firſt ſort is the common Aſparagus, which is cultivated for the uſe of the table, and may have probably been brought by culture to the perfection it now is, from the wild ſort, which grows naturally in the fens of Lincolnſhire, where the ſhoots are no larger than ſtraws; but if ſo, it muſt have been from very long culture and good management; for a friend of mine, who procured ſome ſeeds of the wild ſort, which he cultivated with great care, in very rich ground, yet could not bring the roots to produce ſhoots more than half the ſize of the garden kind, which grew on the ſame ground; but he always found the wild ſort came up a week or ten days earlier in the ſpring, and the ſhoots were exceeding ſweet.

I have lately had ſome doubt, whether the ſort of Aſparagus which grows naturally in England, was the ſame with that mentioned by Caſper Bauhin, becauſe Tournefort and Vaillant both aſſert that they had cultivated that wild ſort in the royal garden at Paris ſeveral years, and it had never altered, therefore I procured ſpecimens of that, which I find to be extremely different from the Engliſh ſort. The leaves are much finer and ſhorter, and are produced in much larger cluſters; the branches grow much cloſer together, and the foot-ſtalks of the flowers are longer; therefore I believe it to be a diſtinct ſpecies from our wild ſort, which appears to me undoubtedly the ſame as the Garden Aſparagus.

The Garden Aſparagus is propagated by ſeeds, in the procuring of which, there ſhould be particular care to get it from a perſon of ſkill, who may be depended upon for his choice of the ſhoots, and integrity in ſupplying with his beſt ſeeds. But where a perſon is in poſſeſſion of ſome good beds of Aſparagus, it is much the beſt way to ſave it himſelf; in order to which, a ſufficient number of the faireſt buds ſhould be marked early in the ſpring, and permitted to run up for ſeeds; becauſe thoſe which run up after the ſeaſon for cutting the Aſparagus is over, are generally ſo backward, as not to ripen the ſeeds unleſs the ſummer is warm, and the autumn very favourable. In the choice of the buds to be left for ſeeds, there muſt be great regard had to their ſize and roundneſs, never leaving any that are inclinable to be flat, or that ſoon grow open headed, always chooſing the roundeſt, and ſuch as have the cloſeſt tops. But as ſeveral of theſe produce only male flowers which are barren, a greater number of buds ſhould be left, than might be neceſſary, if there could be a certainty of their being all fruitful. When the buds are left, it will be proper to thruſt a ſtick down by each, but there muſt be care had in doing this, not to injure the crown of the root. Theſe ſticks will ſerve as marks to diſtinguiſh them from the others when they are all run up. Toward the end of September the berries will be fully ripe, when the ſtalks ſhould be cut off, and the berries ſtripped into a tub, in which they may remain three weeks or a month to ſweat, by which means the outer huſks will be rotten; then fill the tub with water, and with your hands break all the huſks by ſqueezing them between your hands. Theſe huſks will all ſwim upon the water, but the ſeeds will ſink to the bottom; ſo that by pouring off the water gently, the huſks will be carried along with it, and by putting freſh water two or three times, and ſtirring your ſeed about, you will make it entirely clean: then ſpread the ſeed upon a mat or cloth, and expoſe it to the ſun and air in dry weather, until it is perfectly dry, when it may be put into a bag, and hanged up in a dry place till the beginning of February, which is the proper ſeaſon for ſowing it; at which time you muſt prepare a bed of good rich earth made very level, whereon you muſt ſow your ſeeds (but not too thick, which will cauſe the plants to be ſmall;) then tread the bed all over to bury the ſeed in the ground, and rake it over ſmooth.

The following ſummer keep the ground diligently cleared from weeds, which will greatly add to the ſtrength of the plants; and toward the latter end of October, when the haulm is quite withered, you may ſpread a little rotten dung over the ſurface of the ground, about two inches thick, which will preſerve the young buds from being hurt with the froſts, &c.

The ſpring following the plants will be fit to plant out for good (for plants of more than one year's growth are unfit to remove, as I have often experienced; for young plants are much better than old, and will produce finer roots:) you muſt therefore prepare your ground by trenching it well, burying therein a good quantity of rotten dung at the bottom of each trench, that it may lie at leaſt ſix inches below the ſurface of the ground; then level the whole plot very exactly, taking out all large ſtones: but this ſhould not be done long before you intend to plant your Aſparagus, in which you muſt be governed according to the nature of your ſoil or the ſeaſon; for if your ſoil is dry and the ſeaſon forward, you may plant early in March; but in a wet ſoil, it is better to wait till the end of that month, or the beginning of April, which is about the ſeaſon that the plants are beginning to ſhoot. I know many people have adviſed the planting of Aſparagus at Michaelmas, but this I have experienced to be very wrong; for in two different years I was obliged to tranſplant large quantities at that ſeaſon, but I had better have thrown away the plants; for upon examination in the ſpring, I found moſt of the roots were grown mouldy, and decaying, and I am ſure, not one in five of them ſucceeded, and thoſe which did were ſo weak, as not to be worth their ſtanding.

The ſeaſon being come for planting, you muſt, with a narrow pronged dung-fork, carefully fork up the roots, ſhaking them out of the earth, and ſeparating them from each other, obſerving to lay their heads even, for the more convenient planting them, which muſt be performed in this manner:

The plot of ground being levelled, you muſt begin at one ſide thereof, ranging a line very tight croſs the piece, throwing out a trench exactly ſtrait, by the line about ſix inches deep, being careful not to turn up the dung; into which trench you may lay your roots, ſpreading them with your fingers, and placing them upright againſt the back of the trench, that the buds may ſtand forward, and be about two inches below the ſurface of the ground, and at twelve inches diſtance from each other; then with a rake, draw the earth into the trench again, laying it very level, which will preſerve the roots in their right poſition; then remove the line a foot farther back, and make another trench in the like manner, laying therein your plants as before directed, and continuing the ſame diſtance row from row, only obſerving between every four rows, to leave a diſtance of two feet four inches for an alley to go between the beds to cut the Aſparagus, &c.

The plot of ground being finiſhed and levelled, you may ſow thereon a ſmall crop of Onions, which will not hurt the Aſparagus, provided the Onions are not too cloſe, and tread in the ſeeds, raking the ground level.

There are ſome perſons who plant the ſeeds of Aſparagus in the place where the roots are to remain, which is a very good method, if it is performed with care. The way is this: after the ground has been well trenched and dunged, they lay it level, and draw a line croſs the ground (in the ſame manner as is practiſed for planting of the young plants;) then with a dibble make holes at a foot diſtance, into each of which they drop two ſeeds, for fear one ſhould miſcarry; theſe holes ſhould not be more than half an inch deep; then cover the ſeeds, by ſtriking the earth in upon it, and go on removing the line a foot back for another row; and after four rows are finiſhed, leave a ſpace for an alley between the beds, if it is deſigned to ſtand for the natural ſeaſon of cutting; but if it is to be taken up for hot-beds, there may be ſix rows planted in each bed, and the diſtance in the rows need not be more than nine inches. This ſhould be performed by the middle of February, becauſe the ſeeds lie long in the ground; but if Onions are intended to be ſown upon the ground, that may be performed a fortnight or three weeks after, provided the ground is not ſtirred ſo deep as to diſturb the Aſparagus-ſeeds, in raking the Onion-ſeeds into the ground.

As the roots of Aſparagus always ſend forth many long fibres which run deep into the ground, ſo when the ſeeds are ſown where they are to remain, the roots will not be broken or injured, as thoſe muſt be which are tranſplanted; therefore will ſhoot deeper into the ground, and make much greater progreſs, and the fibres will puſh out on every ſide, which will cauſe the crown of the root to be in the center; whereas in tranſplanting, the roots are made flat againſt the ſide of the trench.

When the Aſparagus is come up, and the Onions have raiſed their ſeed-leaves upright (which will be in ſix weeks after planting) you muſt with a ſmall hoe cut up all the weeds, and thin the crop of Onions where they may have come up in bunches: but this muſt be done carefully, and in dry weather, that the weeds may die as faſt as they are cut up, being careful not to injure the young ſhoots of Aſparagus, as alſo to cut up the Onions which grow near the ſhoots. This work muſt be repeated about three times, which, if well done, and the ſeaſon not too wet, will keep the ground clear from weeds until the Onions are fit to be pulled up, which is commonly in Auguſt, and is known when their greens fall down and begin to wither. When you have drawn off the Onions, it will be neceſſary to clean the ground well from weeds, which will keep it clean till the alleys are dug to earth the beds, which muſt be done in October, when the haulm is decayed; for if you cut off the haulm while green, the roots will ſhoot freſh again, which will greatly weaken them. This young haulm ſhould be cut off with a knife, leaving the ſtems two inches above ground, which will be a guide for you to diſtinguiſh the beds from the alleys; then with a hoe clear off the weeds into the alleys, and dig up the alleys, burying the weeds in the bottom, and throw the earth upon the beds, ſo that the beds may be about four or five inches above the level of the alleys: then a row of Coleworts may be planted in the middle of the alleys, but never ſow or plant any thing upon the beds, which would greatly weaken the roots; nor would I ever adviſe the planting of Beans in the alleys, as is the practice of many; for that greatly damages the two outſide rows of Aſparagus. In this manner it muſt remain till ſpring, when ſome time in March, the beds ſhould be hoed over, to deſtroy all young weeds; then rake them ſmooth, and obſerve all the ſucceeding ſummer to keep them clear from weeds, and in October dig up the alleys again, as was before directed, earthing the beds, &c.

The ſecond ſpring after planting, ſome perſons begin to cut ſome of the buds of Aſparagus for uſe, though it would be much better to ſtay until the third year; therefore now the beds ſhould be forked with a flat-pronged fork made on purpoſe, which is commonly called an Aſparagus-fork: this muſt be done before the buds begin to ſhoot in the ſpring, and ſhould be performed with care, leſt you fork too deep, and bruiſe the head of the root; then rake the beds over ſmooth, juſt before the buds appear above ground, which will deſtroy all young weeds, and keep your beds clean much longer than if left unraked, or if done ſo ſoon as forked. When the buds appear about four inches above ground, you may then cut them; but it ſhould be done ſparingly, only taking the large buds, and ſuffering the ſmall to run up to ſtrengthen the roots; for the more you cut, the greater will be the increaſe of buds, but they will be ſmaller and the roots ſooner decay. In cutting the buds, you muſt open the ground with your knife (which ſhould be very narrow-pointed, and long in the blade, and filed with teeth like a ſaw) to ſee whether any more young buds are coming up cloſe by it, which might be either broken or bruiſed in cutting the other, then with the knife ſaw it off about two inches under ground. This may appear a very troubleſome affair to people unacquainted with the practical part, but thoſe who are employed in cutting Aſparagus, will perform a great deal of this work in a ſhort time; but care in doing it is abſolutely neceſſary to be obſerved by all who cut Aſparagus.

The manner of dreſſing the Aſparagus-beds is every year the ſame as directed for the ſecond, viz. keeping them clean from weeds in ſummer, digging the alleys in October, and forking the beds toward the end of March, &c. only obſerve every other year to lay ſome rotten dung (from a Melon or Cucumber-bed) all over the beds, burying ſome in the alleys alſo, at the time for digging them up. This will preſerve the ground in heart to maintain the roots in vigour, and by this management, a plot of good Aſparagus may be continued for ten or twelve years in cutting, and will produce good buds, eſpecially if it is not cut too long each ſeaſon; for when it is not left to run up pretty early in June, the roots will be greatly weakened, and the buds will be ſmaller: therefore, in thoſe families where Aſparagus is required late in the ſeaſon, a few beds ſhould be ſet apart for that purpoſe, which will be much better than to injure the whole plantation, by cutting it too long.

I cannot help taking notice of a common error that has long prevailed with many people, which is, that of not dunging the ground for Aſparagus, believing that the dung communicates a ſtrong rank taſte to the Aſparagus, which is a great miſtake, for the ſweeteſt Aſparagus is that which grows upon the richeſt ground; for poor land occaſions that rank taſte ſo often complained of, the ſweetneſs of Aſparagus being occaſioned by the quickneſs of its growth, which is always proportionable to the goodneſs of the ground, and the warmth of the ſeaſons. In order to prove this, I planted two beds of Aſparagus, upon ground which had dung laid a foot thick; and theſe beds were every year dunged extremely thick, and the Aſparagus produced from theſe beds was much ſweeter than any I could procure, though they were boiled together in the ſame water.

The quantity of ground neceſſary to be planted with Aſparagus, to ſupply a ſmall family, ſhould be at leaſt eight rods, leſs than that will not do; for if you cannot cut one hundred at a time, it will ſcarcely be worth while, for you muſt be obliged to keep it after it is cut two or three days, eſpecially in cold ſeaſons, to furniſh enough for one meſs; but for a larger family, ſixteen rods of ground ſhould be planted, which, if a good crop, will furniſh two or three hundred each day in the height of the ſeaſon.

But as there are ſeveral people who delight in having early Aſparagus, which is become a very great trade in the kitchen-gardens near London, I ſhall give proper directions for the obtaining it any time in winter.

You muſt firſt be provided with a quantity of good roots (either of your own raiſing, or purchaſed from ſuch gardeners as plant for ſale,) ſuch as have been two or three years planted out from the ſeed-bed; and having fixed upon the time you would willingly have your Aſparagus fit to cut, about ſix weeks before, you ſhould prepare a quantity of new ſtable horſe-dung, which ſhould be thrown in a heap for ten days or more, to ferment, mixing ſome ſea-coal aſhes with it; then it ſhould be turned over into a heap, where it muſt lie another week, when it will be fit for uſe. Then dig out a trench in the ground where you intend to make the bed, the width of the frames that are deſigned to cover it, and the length in proportion to the quantity you intend to have (which if deſigned only to ſupply a ſmall family, three or four lights at a time will be ſufficient,) but for a larger family, ſix or eight lights will not be too much: then lay down your dung into the trench, working it very regularly, and beat it down very tight with a fork, laying it at leaſt three feet in thickneſs or more, when the beds are made in December; then put your earth thereon about ſix inches thick, breaking the clods and laying it level; and at one end, begin laying your roots againſt a little ridge of earth, raiſed about four inches high: your roots muſt be laid as cloſe as poſſible one to the other, in rows, with their buds ſtanding upright; and between every row lay a ſmall quantity of fine mould, obſerving to keep the crown of the roots exactly level. When you have finiſhed laying your bed with roots, you muſt lay ſome ſtiff earth up to the roots, on the outſides of the bed, which are bare, to keep them from drying; and thruſt two or three ſharp-pointed ſticks, about two feet long, down between the roots, in the middle of the bed, at a diſtance from each other. The uſe of theſe ſticks is to inform you what temper of heat the bed is in, which you may find by drawing up the ſticks, and feeling the lower part; and if, after the bed has been made a week, you find it doth not heat, you may lay a little ſtraw or litter round the ſides, and alſo upon the top, which will greatly help it; or if you find it very hot, ſo as to endanger ſcorching of the roots, it will be adviſable to let it remain wholly uncovered, and to thruſt a large ſtick into the dung, on each ſide of the bed, in two or three places, to make holes for the great ſteam of the bed to paſs off, which in a ſhort time will reduce the bed to a moderate heat.

After the bed has been made a fortnight, you muſt cover the crowns of the roots with fine earth, about two inches thick; and when the buds begin to appear above ground through that earth, you muſt again lay on a freſh quantity, about three inches thick; ſo that in the whole, it may be five inches above the crowns of the root, which will be ſufficient.

Then you muſt make a band of ſtraw (or long litter,) about four inches thick, which muſt be faſtened round the ſides of the bed, that the upper part may be level with the ſurface of the ground: this muſt be faſtened with ſtrait ſticks about two feet long, ſharpened at the points, to run into the bed; and upon this band you muſt ſet your frames, and put your glaſſes thereon; but if, after your bed hath been made three weeks, you find the heat decline, you muſt lay a good lining of freſh hot dung round the ſides of the bed, which will add a freſh heat thereto; and in bad weather, as alſo every night, keep the glaſſes covered with mats and ſtraw; but in the day time, let it be all taken off, eſpecially whenever the ſun appears; which, ſhining through the glaſſes, will give a good colour to the Aſparagus.

A bed thus made, if it works kindly, will begin to produce buds for cutting, in about five or ſix weeks, and will hold about three weeks in cutting; which, if rightly planted with good roots, will produce, in that time, about three hundred buds in each light; ſo that where Aſparagus is propoſed to be continued until the ſeaſon of the natural being produced, a freſh bed ſhould be made every three weeks, until the beginning of March, from the time of the firſt bed being made; for if the laſt bed is made about a week in March, it will laſt till the ſeaſon of natural Aſparagus; for the laſt beds will come a fortnight ſooner to cut after making, than thoſe made about Chriſtmas; and the buds will be larger, and better coloured, as they will then enjoy a greater ſhare of the ſun.

Where this method of forcing early Aſparagus is intended, there ſhould be every year ſuch a quantity planted, which you ſhall judge neceſſary (unleſs you intend to buy the roots from ſome other garden;) the quantity of roots neceſſary to plant one light, is commonly known by the meaſure of the ground where they grow; for where there is a good crop, and few roots are miſſing, one rod of ground will furniſh enough for a light; but this calculation is made from the ground planted with roots, which are deſigned to be taken up after two or three years growth for forcing, in which there are ſix rows in a bed, at but ten inches diſtance, and the plants eight or nine inches aſunder in the rows; but where there is a greater ſpace between the rows, and fewer rows in a bed, then there muſt be a greater quantity of ground allotted for each light. Moſt of the kitchen-gardeners about London, take up their Aſparagus roots after two years growth from planting; but where the land is not very good, it will be better to let it have three years growth, for if the roots are weak, the buds of Aſparagus will be very ſmall, ſo not worth the trouble of forcing. The beſt ground for planting Aſparagus, to have large roots for hot-beds, is a moiſt rich ſoil; but for thoſe that are to remain for a natural produce, a middling ſoil, neither too wet nor too dry; but a freſh ſandy loam, when well dunged, is preferable to any other.

The ſecond ſort is mentioned to grow naturally in Wales, and alſo near Briſtol: I have received ſeeds from the iſland of Portland, which have ſucceeded in the Chelſea garden, by which I am convinced it is a different ſpecies from the Garden Aſparagus; and alſo from the wild ſort which grows naturally at Gibraltar, and alſo near Montpelier, is different from both; Mr. Magnol, of Montpelier, was alſo of the opinion that it was a different ſpecies, for he ſays, the common wild Aſparagus and this grew near each other in the neighbourhood of Montpelier, and the young ſhoots of the former were ſweet, whereas thoſe of the latter were bitter. The ſame has been confirmed to me by ſeveral gentlemen, who have reſided many years at Gibraltar and Minorca, where the ſecond ſort grows naturally in plenty.

This ſort is propagated by ſeeds in the ſame manner as the garden kind, but muſt have a warmer ſituation; and the roots ſhould be well covered in winter, to prevent the froſt from penetrating the ground, which will deſtroy it.

The third ſort hath white, crooked, ſhrubby ſtalks, which riſe four or five feet high, but have no ſpines on them; the leaves come out in cluſters from the ſame point, like thoſe of the Larch-tree; theſe are very ſhort, and end in ſharp prickles, ſo that they are troubleſome to handle. This ſort grows naturally in the South of France, Spain, and Portugal. It is propagated by ſeeds as the former ſorts, but is too tender to live abroad in England, ſo the roots ſhould be planted in pots, or near a ſouth wall, and ſheltered in winter.

The fourth ſort grows with ſhrubby ſtalks three or four feet high, with very white bark, and are armed with thorns which are ſingle, coming out juſt below each turf of leaves. Theſe ſtalks continue ſeveral years, and put out many branches, garniſhed with narrow ſhort leaves. Theſe continue green all the winter, if the plants are ſcreened from ſevere froſt.

It is propagated by ſeeds as the former, which may be procured from the Mediterranean, where it grows naturally; ſome of the plants ſhould be kept in pots, that they may be ſheltered in winter, and the others may be planted in the full ground in a warm ſituation, and in hard froſts covered, otherwiſe it will not live abroad in this country.

The fifth ſort grows naturally at the Cape of Good Hope. This hath very crooked irregular ſtalks, which are ſhrubby, and riſe eight or ten feet high, putting out ſeveral weak ſide branches, garniſhed with long narrow leaves, coming out in cluſters like thoſe of the Larch-tree; under each of theſe cluſters is placed a ſingle ſharp thorn. The ſtalks continue ſeveral years, and the leaves keep green all the winter. This is commonly propagated by parting the roots, becauſe the plants rarely produce ſeeds in this country; the beſt time for this is in April. The roots muſt be planted in pots, and removed into the green-houſe in the autumn, for theſe plants will not live abroad in England.

The ſixth ſort grows naturally in Spain, Portugal, and Sicily, generally in rocky places. This ſends up many weak irregular ſhoots, which have no leaves, but inſtead thereof, are armed with ſhort ſtiff thorns, which come out four or five together from the ſame point, and ſpread from each other every way. The flowers are ſmall, of an herbaceous colour; the berries are larger than thoſe of the common ſort, and are black when ripe. This is tender, ſo muſt be treated as the third ſort.

The ſeventh ſort grows naturally at the Cape of Good Hope. This ſends up from the root ſeveral ſlender ſtalks, which put out weak branches, declining downward; theſe are cloſely garniſhed with briſtly leaves, like thoſe of Garden Aſparagus, which continue green through the year. It hath not produced any ſeeds in England, ſo is only propagated by parting the roots, as the fifth ſort, and the plants ſhould be treated in the ſame manner.

The eighth ſort grows naturally at the Cape of Good Hope; this ſends up many weak ſhoots growing in cluſters, which are armed with ſharp ſpines, both on the ſide and ends of the ſhoots; the leaves come out in ſmall cluſters, which continue green all the year. This doth not produce ſeeds in England, ſo is propagated as the fifth ſort, and requires the ſame treatment.

The tenth ſort ſends out from the root many weak climbing branches which riſe five or ſix feet high, garniſhed with narrow ſpear-ſhaped leaves coming out ſingle; the ſhoots are armed with ſhort crooked ſpines, which render it very troubleſome to handle the plants; for they are ſo cloſely ſet on, that it is difficult to touch the branches. This is propagated by parting the root; but the plants muſt be placed in a moderate ſtove, otherwiſe it will not thrive in this country. It grows naturally in the iſland of Ceylon.

Theſe plants are preſerved in the gardens of the curious, where they add to the variety; being not difficult to manage, where there is conveniency to houſe them in winter. They ſhould have a place among other exotic plants.

ASPARAGUS SCANDENS. See Medeola.

ASPEN-TREE. See Populus.

ASPERIFOLIOUS plants [aſperifolius, of aſper, rough, and folium, *Lat.* a leaf] are ſuch plants as are rough-leaved, having their leaves placed alternately, or without any certain order, on their ſtalks: the claſs of plants ſo denominated by Mr. Ray, have a monopetalous flower, cut or divided into five parts; after every flower there ſucceed commonly four ſeeds. Of this claſs are Bugloſs, Borage, Comfrey, Hounds Tongue, &c.

ASPERUGO, ſmall Wild Bugloſs.

The Characters are,

The empalement is of one leaf, cut ſlightly at the top into five equal parts; the flower is of one leaf, having a ſhort cylindrical tube, cut at the top into five ſmall blunt parts, which are cloſed at their baſe: it hath five ſhort ſtamina, crowned by oblong ſummits; in the center there are four compreſſed germen, ſupporting a ſhort ſlender ſtyle, crowned by a blunt ſtigma. The germen afterward become four oblong ſeeds, incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, entitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

We know but one Species of this genus, which is, Asperugo. Flor. Lapp. 76. *Small Wild Bugloſs, Great Gooſe Graſs, or German Madwort.* Bugloſſum ſylveſtre caulibus procumbentibus. C. B. P. 257.

This is an annual plant, which is found wild in ſome parts of England, as near Newmarket, at Boxley in Suſſex, and in Holy Iſland. It is preſerved in botanic gardens for variety, and may be eaſily propagated by ſeeds, which ſhould be ſown in autumn; for if the ſeeds are kept out of the ground till ſpring, they do not ſucceed ſo well. When the plants come up, they require no other culture but to keep them clear from weeds, and in May they will flower: in June their ſeeds will be perfected, which, if ſuffered to ſcatter, will grow again in autumn; ſo that when this plant is once brought into a garden, it will maintain itſelf, provided it be allowed a place.

ASPERULA, Woodroof.

This plant grows wild in ſhady woods in many parts of England, and flowers in April or May, and is ſometimes uſed in medicine.

Dr. Linnæus has joined to this genus the Gallium album, Gallium montanum, and Rubia ſynanchica Saxatilis. C. B. But as theſe grow wild in England, and are rarely admitted into gardens, I ſhall paſs them over with juſt mentioning them.

ASPHODELUS ['Ασφόδελος, *Gr.* by Pliny it is called Haſtula, or Baccillus Regius, becauſe when it flowers, the ſtalk reſembles a royal ſcepter.] King's Spear.

The Characters are,

The flower has no empalement; it is of one leaf, cut into ſix parts, which ſpread open; at the bottom is inſerted a globular nectarium, having ſix valves; it hath ſix awl-ſhaped ſtamina, which are inſerted in the valves of the nectarium, and are crowned by oblong ſummits, which are proſtrate, and turn upward; between the nectarium is placed a globular germen, ſupporting an awl-ſhaped ſtyle, crowned by a club-like ſtigma: the empalement afterward becomes a fleſhy globular ſeed-veſſel, having three cells, which are filled with triangular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, entitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle.

The Species are,

1. Asphodelus (*Luteus*) caule folioſo, foliis triquetris fiſtuloſis. Hort. Cliff. 127. *King's Spear with a leafy ſtalk, and triangular fiſtular leaves.* Aſphodelus luteus & flore & radice. C. B. P. 28.
2. Asphodelus (*Ramoſus*) caule nudo foliis enſiformibus carinatis lævibus. Lin. Mat. Med. 172. *King's Spear with a naked branching ſtalk, and ſmooth, ſword-ſhaped, carinated leaves.* Aſphodelus albus ramoſus mas. C. B. P. 28.
3. Asphodelus (*Albus*) caule nudo ſimplici foliis lineari-enſiformibus. *King's Spear with a ſingle naked ſtalk, and narrow ſword-ſhaped leaves.* Aſphodelus albus non ramoſus. C. B. P. 28.
4. Asphodelus (*Fiſtuloſus*) caule nudo foliis ſtrictis ſubulatis ſtriatis ſubfiſtuloſis. Hort. Cliff. 83. *King's Spear with a naked ſtalk, fiſtular awl-ſhaped leaves, and an annual root.* Phalangium parvo flore ramoſum foliis fiſtuloſis annuum. H. L.

The firſt ſort is the yellow Aſphodel, which is directed for uſe in medicine; this hath roots compoſed of many thick, fleſhy, yellow fibres, joined into a head at the top; from whence ariſe ſtrong, round, ſingle ſtalks, near three feet high, garniſhed their whole length with long triangular leaves, which are boat-ſhaped, of a ſea-green colour; the upper part of the ſtalk is adorned half way with yellow ſtar-ſhaped flowers, which begin opening from the bottom, and are followed by others above; ſo that on the ſame ſpike, there is often a ſucceſſion of flowers for a month. It flowers in June, and the ſeeds ripen in autumn.

There is a variety of this with a larger flower, mentioned in the catalogue of the Royal Garden at Paris, by the title of Aſphodelus ſpiralis luteus Italicus magno flore, the ſeeds of which I received from the garden at Piſa, ſome years ago; and the firſt year of the plants flowering in Chelſea garden, the flowers were larger, and the ſpikes longer than thoſe of the common

common ſort; but in two years time, they were ſo like the common ſort as not to be diſtinguiſhed from it, as were alſo the young plants which were raiſed from the ſeed ſaved at Chelſea, therefore it ſhould be eſteemed an accidental variety.

The ſecond ſort hath roots compoſed of many thick fleſhy fibres; to each of which is faſtened an oblong tuber, as large as ſmall potatoes; the leaves are long and flexible, having acute edges; theſe grow in irregular cluſters, from the crown of the root; between theſe come out the ſtalks, which riſe more than three feet high, ſending out ſeveral ſide branches, which are naked; the upper part of theſe are adorned with many white ſtar-ſhaped flowers, conſiſting of one leaf cut into ſix parts, each having a purple line running lengthways on the outſide of each ſegment. The flowers grow in long ſpikes, flowering gradually upward. They appear the beginning of June, and the ſeeds ripen in autumn.

The third ſort hath roots like the ſecond, but the leaves are longer and narrower; the ſtalks of this are ſingle, never putting out any ſide branches; the flowers are of a purer white, and grow in longer ſpikes. This flowers at the ſame time with the former.

The fourth ſort is an annual plant; the roots of this are compoſed of many fleſhy yellow fibres, the leaves are ſpread out from the crown of the root, cloſe to the ground, in a large cluſter; they are convex on their under ſide, but plain above, and hollow like a pipe; the flower-ſtalks riſe immediately from the root, and grow about two feet high, dividing into three or four branches upward, which are adorned with white ſtarry flowers, with purple lines on the outſide. Theſe flower in July and Auguſt, and their ſeeds ripen in October, ſoon after which the Plants decay. It grows naturally in the ſouth of France, Spain, and Italy.

The firſt ſort grows naturally in many of the iſlands of the Archipelago, and alſo in Sicily. The ſecond, third, and fourth ſorts grow naturally in Portugal, Spain, and Italy; the third ſort is not quite ſo hardy as either of the other, ſo in very ſevere froſt is ſometimes killed, unleſs the roots are covered in winter.

The yellow ſort multiplies very faſt by roots, and will ſoon overſpread a large border, if ſuffered to remain unremoved, or the ſide roots are not taken off; but the other ſorts are not ſo productive of ſhoots from their ſides, and are much better kept within bounds.

The ſecond and third ſorts do not increaſe very faſt by their roots, nor ſhould they be often tranſplanted, for that will weaken them, ſo that their flower-ſtems will not riſe ſo tall, or produce ſo many flowers, as when they are left undiſturbed for ſome years; therefore the beſt way is to propagate theſe by ſeeds.

Theſe three ſorts of Aſphodel are very pretty ornaments for a flower-garden, and, requiring very little trouble to cultivate them, are rendered more acceptable. They may be all propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, on a warm border of light freſh earth: in the ſpring the plants will appear, when you ſhould carefully clear them from weeds, and in dry weather they muſt be frequently watered: if this be duly obſerved, the plants will have acquired ſtrength enough to be tranſplanted by the Michaelmas following; at which time you muſt prepare a bed of freſh earth in the flower nurſery, into which you ſhould plant the roots, at about ſix inches diſtance every way; obſerving to plant them ſo low, as that the top of the roots may be three or four inches under the ſurface of the bed; and ſome old tan, or dung, ſhould be ſpread over the ſurface of the ground, to keep out the froſt: in this bed they may remain one year, during which time they ſhould be kept clear from weeds; by which time, the roots having acquired ſtrength enough to produce flowers the following year, they ſhould, in autumn, when their leaves are decayed, be carefully taken up, and tranſplanted into the flower-garden, obſerving to place them in the middle of the borders, amongſt other hardy kinds of flowers, where being properly intermixed, they will make an agreeable variety, and continue a long time in flower.

The fourth ſort is an annual plant, ſo is only propagated by ſeeds; theſe ſhould be ſown in the autumn, when they will more certainly grow than if ſown in the ſpring: when the plants are up, they will require no other trouble but to keep them clean from weeds, until they have put out four or five leaves, when they ſhould be carefully removed to the places where they are to remain for good. If the ſeeds of this plant are permitted to ſcatter, the plants will come up without care, and thoſe which are not removed, will be the ſtrongeſt plants, and produce a greater number of flowers.

ASPLENIUM, or Ceterach [is ſo called from ἀ privative, and σπλὴν the ſpleen, becauſe good againſt diſeaſes of the ſpleen.] Spleenwort or Milſtwaſte.

The Characters are,

The leaves are like thoſe of the Polypody, but leſs, and pretty round, notched toward the ſide; downy on their under ſide, having a ſquamous duſt, in which, by the help of a microſcope, membrancus capſulæ, or ſeed pods, lying cloſe to one another, are perceived, every one furniſhed with a little round cord, which by its conſtruction opening the fruit into two parts, pours forth certain very ſmall ſeeds: the root is fibrous. This plant thrives in ſtony places, as in walls, &c.

This plant is of the Fern kind, and grows upon old moiſt ſhady walls in divers parts of England; but is never cultivated in gardens. There are ſeveral ſpecies of this plant in America, but they have not been introduced into England.

ASTER [Ἀϛὴρ, *Gr.* a Star; ſo called becauſe the flower is radiated with little leaves after the manner of a ſtar.] Starwort.

The Characters are,

It hath a compound flower, compoſed of ſeveral female and hermaphrodite florets, included in one common ſcaly empalement; the rays or border of the flower is compoſed of ſeveral female florets, whoſe upper parts are ſtretched out on one ſide like a tongue, and indented in three ſegments at the end; the hermaphrodite florets form the diſk or middle; which are funnel-ſhaped, and divided at the top into five parts, ſpreading open, and have each five ſhort ſlender ſtamina, crowned with cylindrical ſummits; in the bottom is placed a crowned germen, ſupporting a ſlender ſtyle, crowned by a bifid ſtigma; the germen afterward becomes an oblong ſeed, crowned with down: the female flowers have a germen ſupporting a ſlender ſtyle, crowned by two oblong ſtigma, which turn backward. Theſe have no ſtamina, but in other reſpects are like the hermaphrodite flowers.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua, from the ſame flower having female and hermaphrodite florets included in the ſame empalement.

The Species are,

1. Aster (*Alpinus*) foliis lanceolatis hirtis, radicalibus obtuſis, caule ſimpliciſſimo unifloro. Lin. Sp. Plant. 872. *Starwort with hairy ſpear-ſhaped leaves, thoſe at the root blunt, and a ſingle ſtalk, having one flower.* Aſter montanus cæruleus magno flore foliis oblongis. C. B. P. 267.
2. Aster (*Amellus*) foliis lanceolatis obtuſis ſcabris trinerviis integris, pedunculis nudiuſculis corymboſis ſquamis calycinis obtuſis. Lin. Sp. Plant. 873. *Starwort with rough, blunt, ſpear-ſhaped leaves, which are entire, having three veins, naked foot-ſtalks, flowers in a corymbus, and blunt ſcales to the empalement.* Aſter atticus cæruleus vulgaris. C. B. P. 267. *vulgarly called Italian Starwort.*
3. Aster (*Tripolium*) foliis lanceolatis integerrimis carnoſis glabris ramis inæquatis, floribus corymboſis. Lin. Sp. Plant. 872. *Starwort with ſmooth, fleſhy, ſpear-ſhaped leaves, which are entire, unequal branches, and flowers in a corymbus.* Aſter maritimus Tripolium dictus. Raii Hiſt. 270.
4. Aster (*Linifolius*) foliis linearibus acutis integerrimis, caule corymboſo ramoſiſſimo. Hort. Cliff. 408. *Star-*

wort with narrow pointed leaves, which are entire, and a very branchy ſtalk growing in a corymbus. Aſter Tripolii flore anguſtiſſimo & tenuiſſimo folio. Mor. Hiſt. 3. 121.

5. Aster (*Novæ Angliæ*) foliis lanceolatis alternis integerrimis ſemiamplexicaulibus, floribus terminalibus. Hort. Cliff. 408. *Starwort with entire ſpear-ſhaped leaves, growing alternate, and half embracing the ſtalks, which are terminated by flowers.* Aſter Novæ Angliæ altiſſimus hirſutus floribus amplis purpuro-violaceis. Par. bat. 98.

6. Aster (*Undulatus*) foliis cordatis amplexicaulibus undulatis ſubtus tomentoſis, floribus racemoſis adſcendentibus. Hort. Cliff. 408. *Starwort with heart-ſpear-ſhaped waved leaves, woolly on their underſide, and flowers growing in aſcending ſpikes.* Aſter novæ Angliæ purpureus Virgæ aureæ facie & foliis undulatis. Par. bat. 96.

7. Aster (*Puniceus*) foliis ſemiamplexicaulibus lanceolatis ſerratis ſcabris, pedunculis alternis ſubunifloris calycibus diſcum ſuperantibus. Hort. Cliff. 408. *Starwort with rough, ſawed, ſpear-ſhaped leaves, half embracing the ſtalks, foot-ſtalks growing alternate, with a ſingle flower on each foot-ſtalk, whoſe empalement is higher than the diſk.* Aſter Americanus latifolius puniceis caulibus. H. L. 649.

8. Aster (*Miſer*) floribus ovatis diſco radiis longiore. Lin. Sp. Plant. 877. *Starwort with oval flowers, whoſe diſk is longer than the rays.* Aſter ericoides Mellioti agriæ umbone. Hort. Elth. 40.

9. Aster (*Novi Belgii*) foliis lanceolatis ſubſerratis ſeſſilibus caule paniculato ramulis unifloris ſolitariis calycibus ſquarroſis. Hort. Cliff. 408. *Starwort with ſpear-ſhaped jagged leaves, growing cloſe to the ſtalk, which is looſe and ſpiked, and branches having a ſingle flower with a rough empalement.* Aſter Novæ Belgiæ latifolius umbellatus floribus dilute violaceis. H. L. 66.

10. Aster (*Linarifolius*) foliis lanceolato-linearibus ſubcarnoſis integerrimis planis floribus corymboſis faſtigatis pedunculis folioloſis. Lin. Sp. Plant. 874. *Starwort with narrow, ſpear-ſhaped, fleſhy leaves, which are plain and entire, flowers gathered into a corymbus, and leafy foot-ſtalks.* Aſter Tripolii flore. C. B. P. 267.

11. Aster (*Concolor*) caule ſimpliciſſimo foliis oblongo-ovatis ſeſſilibus integerrimis racemo terminali. Flor. Virg. 178. *Starwort with ſingle ſtalks, oval entire leaves growing cloſe to the ſtalks, which end in a looſe ſpike.*

12. Aster (*Ericoides*) foliis linearibus integerrimis, caule paniculato, pedunculis racemoſis, pedicellis folioſis. Flor. Virg. 124. *Starwort with linear leaves, a paniculated ſtalk with branching leafy foot-ſtalks.* Aſter ericoides dumoſus. Hort. Elth. 40.

13. Aster (*Cordifolia*) foliis cordatis ſerratis petiolatis, caule paniculato. Hort. Cliff. 408. *Starwort with ſawed heart-ſhaped leaves, having foot-ſtalks, and a looſe ſpiked ſtalk.* Aſter latifolius autumnalis. Cornut. Canad. 64.

14. Aster (*Tenuifolius*) foliis ſub linearibus integerrimus pedunculis folioſis. Lin. Sp. 1227. *Starwort with narrow ſpear-ſhaped entire leaves, and leafy foot-ſtalks.* Aſter Americanus Belvidere foliis floribus ex cæruleo albicantibus ſpicis prælongis. Pluk. Phyt. tab. 78. f. 5.

15. Aster (*Grandiflorus*) caule corymboſo foliis lanceolatis reflexis, floribus ſolitaris, calycibus ſquarroſis. Flor. Leyd. 168. *Starwort with a corymbous ſtalk, ſpear-ſhaped, reflected leaves, and ſingle flowers with rough empalements.* Aſter Virginianus pyramidatus Hyſſopi folius aſperis calycis ſquamulis foliaceis. Mart. Cent. 19.

16. Aster (*Scabris*) foliis lanceolatis ſcabris integris, caule ramoſo, pedunculis folioſis, calycibus obtuſis. *Starwort with rough ſpear-ſhaped entire leaves, and a branching ſtalk, with leafy foot-ſtalks.* Aſter Atticus Alpinus alter. C. B. P. 267.

17. Aster (*Glabris*) foliis olongo-lanceolatis acutis ſerratis caule ramoſo floribus terminalibus calycibus linearibus erectis. *Starwort with oblong, ſpear-ſhaped, pointed ſawed leaves, and a branching ſtalk, terminated by flowers, whoſe empalements are very narrow, and erect.* Aſter Perſicæ foliis ſerratis glabris, floribus ſparſis pallidè cæruleis. Dillen. Cat. Oxon.

18. Aster (*Tradeſcanti*) foliis oblongis acutis baſi latioribus ſemiamplexicaulibus, caule ramoſo floribus terminalibus plerumque ſolitariis. *Starwort with oblong pointed leaves, broad at their baſe, half embracing the ſtalks, which are branchy, and terminated with flowers, for the moſt part ſingly.* Aſter cæruleus ſerotinus fruticeſcens Tradeſcanti. Raii Hiſt. 269. *commonly called Michaelmas Daiſy.*

19. Aster (*Præcox*) caule erecto hirſuto foliis oblongis acutis ſcabris acutè dentatis ſemiamplexicaulibus floribus corymboſis, calycibus hirſutis erectis. *Starwort with a hairy upright ſtalk, oblong pointed rough leaves, ſharply indented, half embracing the ſtalks, and flowers in a corymbus with hairy erect empalements.* Aſter Pyrenaicus precox flore cæruleo majori. H. R. Par.

20. Aster (*Altiſſimus*) caule altiſſimo hirſuto ſimpliciſſimo foliis oblongis acutis baſi latioribus ſemiamplexicaulibus floribus tribus ſeſſilibus terminalibus. *Starwort with a very tall, hairy, unbranched ſtalk, oblong pointed leaves, which are broader at the baſe, and half embrace the ſtalks, which are terminated by three flowers ſitting very cloſe.*

21. Aster (*Ramociſſimus*) caule ramociſſimo patulo, foliis lineari-lanceolatis rigidis, floribus ſerratim poſitis pedunculis folioſis. *Starwort with a very branching ſpreading ſtalk, narrow, ſpear-ſhaped, ſtiff leaves, flowers placed one above another, and leafy foot-ſtalks.*

22. Aster (*Umbellatus*) foliis lanceolatis acutis ſcabris, caule ſimplici floribus umbellatis terminalibus. *Starwort with rough pointed ſpear-ſhaped leaves, and a ſingle ſtalk, terminated by flowers, growing in an umbel.*

23. Aster (*Nervoſus*) foliis nervoſis lanceolatis acutis linearibus caule ſimplici floribus terminalibus quaſi umbellatum diſpoſitis. *Starwort with narrow, ſpear-ſhaped, pointed, nervous leaves, a ſingle ſtalk, terminated by flowers growing almoſt in an umbel.*

24. Aster (*Paniculatus*) foliis inferioribus ovatis baſi ſemiamplexicaulibus, ſuperioribus lanceolatis parvis caule paniculato ramis unifloris pedunculis folioſis. *Starwort with the lower leaves oval, whoſe baſe half embraces the ſtalks, the upper leaves ſmall and ſpear-ſhaped, a ſtalk terminated by a looſe ſpike, with a ſingle flower on each branch, and a leafy foot-ſtalk.*

25. Aster (*Rigidus*) floribus terminalibus ſolitariis foliis linearibus alternis. Flor. Virg. 98. *Starwort with ſingle flowers at the ends of the branches, and very narrow leaves placed alternately.*

26. Aster (*Latifolius*) foliis lineari-lanceolatis glabris trinerviis floribus corymboſis terminalibus. *Starwort with ſmooth ſpear-ſhaped leaves, with three veins, and flowers in a corymbus, which terminate the ſtalks.* Aſter latifolius Tripolii flore. H. R. Par.

27. Aster (*Dumoſus*) foliis linearibus integerrimis caule paniculatò. Hort. Cliff. 408. *Starwort with very narrow leaves, which are entire, and a looſe ſpike of flowers.* Aſter Novæ Angliæ linariæ foliis Chamæmeli flore. Par. Bat. Prod. 95.

28. Aster (*Annus*) foliis lanceolatis lateribus inferiorum crenatis, radice annuâ, caule corymboſo pedunculis nudis. Hort. Cliff. 409. *Starwort with ſpear-ſhaped leaves, the ſides of the lower leaves jagged, an annual root, and ſtalks ending with a corymbus of flowers, with naked foot-ſtalks.* Aſter ramoſus annuus Canadenſis. Mor. Hiſt.

29. Aster (*Fruticoſus*) foliis linearibus faſciculatis punctatis, pedunculis unifloris nudis, caule fruticoſo rugoſo. Hort. Cliff. 409. *Starwort with narrow pointed leaves growing in cluſters, naked foot-ſtalks with one flower, and a ſhrubby ſtalk.* Aſter Africanus fruteſcens foliis anguſtis & plerumque conjunctis. Hort. Amſt. 2. p. 53.

30. Aster (*Chinenſis*) foliis ovatis angulatis dentatis, petiolatis calycibus terminalibus patentibus folioſis. Hort. Cliff. 407. *Starwort with oval angular indented leaves, and the empalements terminated by ſpreading leaves.* Aſter Chenepodii folio annuus, flore ingenti ſpecioſo. Hort. Elth. 38.

31. **Aster** (*Aurantius*) foliis pinnatis. Hort. Cliff. 407. *Starwort with winged leaves.* Aſter Americanus foliis pinnatis & ſerratis floribus aurantis. Houſt. MSS.

32. **Aster** (*Procumbens*) foliis ovatis dentatis caule procumbente, pedunculis nudis axillaribus unifloris. *Starwort with oval indented leaves, a trailing ſtalk, and naked foot-ſtalks proceeding from the ſide with a ſingle flower.* Aſter Americanus procumbens bellidis minoris facie. Houſt. MSS.

33. **Aster** (*Mutabilis*) foliis lanceolatis ſerratis, calycibus ſquarroſis, panicula ſubfaſtigiata. Lin. Sp. 1230. *Starwort with ſawed ſpear-ſhaped leaves, rough flower-cups, and bundled panicles.* Aſter Novi Belgii latifolius paniculatus, floribus ſaturate violaceis. H. L. 65.

34. **Aster** (*Sibiricus*) foliis lanceolatis venoſis ſcabris extimoſerratis, caulibus ſtriatis, pedunculis tomentoſis. Lin. Sp. 1226. *Starwort with veined ſpear-ſhaped leaves, ſtriated ſtalks, and woolly foot-ſtalks.*

35. **Aster** (*Divaricatus*) ramis divaricatis, foliis ovatis ſerratis, floralibus integerrimis obtuſiuſculis amplexicaulibus. Flor. Virg. 123. *Starwort with forked branches, oval ſawed leaves, thoſe near the flowers are obtuſe, entire, and embrace the ſtalk.* Aſter Americanus latifolius albus, caule ad ſummum brachiato. Pluk. Alm. 56.

The firſt ſort grows naturally upon the Alps, where it ſeldom riſes more than nine inches high, and when tranſplanted into a garden, not above ſixteen. It ſends up ſingle ſtalks from the root, which are thinly garniſhed with oblong leaves; at the top of each ſtalk is one large blue flower, ſomewhat like thoſe of the Italian Starwort. This flowers in June; the root is perennial, but muſt be planted in a ſhady ſituation, and a moiſt ſoil. It is propagated by parting the roots, which ſhould be done in autumn.

The ſecond ſort is the Italian Starwort, which was ſome years paſt more common in the gardens than at preſent; for ſince the great variety of American Starworts have been introduced into England, this ſort hath not been ſo much cultivated, though it is by no means inferior to the beſt of them, and, in ſome reſpects, preferable to moſt of them; for it is not ſo ſubject to creep by the root, as many of the American ſorts do, whereby they often become troubleſome in ſmall gardens, nor do the ſtalks require ſupporting as they do, for theſe ſeldom grow more than two feet high, and the ſtalks are generally ſtrong, ſo are very rarely broken by the wind. Theſe grow in large cluſters from the root, and each of them branch at the top into eight or ten foot-ſtalks, each of which is terminated by a ſingle large flower, having blue rays, with a yellow diſk. It flowers in October, and, in mild ſeaſons, will often continue till the middle of November, during which time they are very ornamental plants in a garden. This ſort is propagated by parting the roots, the beſt time for this work is ſoon after they are out of flower, for thoſe which are removed in the ſpring will not flower ſo ſtrong the ſucceeding autumn. Theſe roots ſhould not be removed oftener than every third year, where they are expected to produce many flowers.

It grows naturally in the vallies of Italy, Sicily, and Narbonne, and is generally ſuppoſed to be the Amellus mentioned by Virgil in his fourth Georgick, to grow in the paſtures; the leaves and ſtalks being rough and bitter, the cattle ſeldom browſe upon it, ſo that whenever there are any of theſe roots in the fields, they ſend up a thick tuft of ſtalks, which, being left after the graſs is eaten bare, theſe being full of flowers, make a fine appearance, and therefore might engage the poet's attention.

The third ſort grows naturally in ſalt marſhes, which are flowed by the tides, and is ſeldom admitted into gardens. It flowers in July and Auguſt.

The fourth ſort is a native in North America, but has been many years in the Engliſh gardens. It ſends up many ſtrong ſhoots from the root every ſpring, which riſe between two and three feet high, garniſhed with oblong leaves, placed alternately, and half embrace the ſtalk with their baſe; from the main ſtalks, many ſide branches are put out, for near half their length, theſe are garniſhed with ſmaller leaves, which diminiſh in their ſize to the top, where there is a ſingle flower, terminating the ſtalk, of a blue colour. This flowers in Auguſt and September; it is eaſily propagated by parting the roots, ſoon after the flowers are paſt, and will thrive in almoſt any ſoil or ſituation.

The fifth ſort ſends up many ſtalks from the root, which riſe five feet high; garniſhed with ſpear-ſhaped leaves which are entire, and half embrace the ſtalks, which are terminated by large purple violet flowers, growing in a looſe panicle: it flowers in Auguſt, and is very hardy, ſo may be planted in any ſoil or ſituation, and is propagated by parting the roots.

The ſixth ſort grows naturally in North America. This hath broad heart-ſhaped waved leaves at the bottom, the ſtalks riſe between two and three feet high, which ſend out ſmall ſide branches, upon which the flowers come out in looſe ſpikes, which are of a very pale blue colour, inclining to white. This flowers in the ſame ſeaſon as the former, and may be propagated in the ſame manner.

The ſeventh ſort ſends up ſeveral ſtrong ſtalks, upward of two feet high, which are of a purple colour, garniſhed with ſpear-ſhaped ſmooth leaves, whoſe baſe embrace the ſtalks half round; the flowers grow upon ſingle foot-ſtalks, forming a corymbus at the top, and are of a pale blue colour; theſe appear the latter end of September. This comes from North America, and may be propagated in the ſame way as the former.

The eighth ſort riſes with ſlender ſtalks, upward of three feet high; ſending out many weak branches on every ſide, garniſhed with very ſmall leaves; the flowers come out on ſhort foot-ſtalks, on every ſide of the branches, theſe are ſmall, with white rays and a yellow diſk. They appear in November, and often continue part of December. This comes from the ſame country with the former, and may be propagated as is before directed for them.

The ninth ſort riſes near four feet high, having broad leaves at the bottom which diminiſh gradually to the top; the flowers are produced in a looſe kind of umbel at the top of the ſtalks, which are of a pale blue colour; theſe appear the latter part of Auguſt. This is hardy, and may be propagated as the former.

The tenth ſort grows naturally in the ſouth of France and Italy; the ſtalks of this divide into a great number of branches, which divide again toward the top into ſeveral ſmaller, fully garniſhed with very narrow leaves their whole length; the flowers grow in large cluſters at the top, forming a ſort of corymbus; they are of a pale bluiſh colour, and appear the beginning of Auguſt. This is hardy, and may be propagated by parting the roots, as the former.

The eleventh ſort riſes four feet high, with a ſingle ſtalk, and oval leaves growing cloſe to the ſtalks, which are terminated by ſlender looſe ſpikes of pale blue flowers, which appear about Michaelmas. This grows naturally in North America, and is propagated as the ſorts above-mentioned.

The twelfth ſort ſends up ſlender ſtalks three feet high, which ſend out ſlender ſide branches moſt of their length, ſo as to form a thick buſh; theſe are garniſhed with very narrow leaves their whole length, and are terminated by ſingle flowers.

The thirteenth ſort grows about two feet high, having ſlender ſtalks, garniſhed with oblong, pointed, heart-ſhaped leaves, which are ſharply ſawed on their edges; the upper part of the ſtalks is divided into ſeveral ſmall branches, which are terminated by white flowers growing in looſe panicles. This flowers in September, and may be propagated as the former.

The fourteenth ſort ſends up ſtalks five feet high, which put out many ſlender ſide branches, garniſhed with narrow ſpear-ſhaped leaves, and are terminated by ſpikes of ſmall white flowers, which appear the end of October. This ſort ſpreads greatly at the root, ſo is apt to over-run the borders.

The fifteenth ſort hath narrow, oblong, hairy leaves at the bottom; the ſtalks riſe three feet high, garniſhed with ſmall, narrow, rough leaves, which turn backward; the ſtalks ſend out many ſide branches, each being terminated by a ſingle large blue flower. This ſort flowers the end of October, and continues moſt part of November, when it makes a fine appearance. It doth not multiply faſt by its roots, but may be propagated in plenty, by cuttings made from the young ſhoots in May, which, if planted in a bed of light earth, and ſhaded from the ſun, will take root, and flower the ſame year. It is commonly called by the gardeners Cateſby's Starwort, from Mr. Cateſby, who brought it from Virginia.

The ſixteenth ſort ſends up ſeveral ſtalks a foot and a half high, garniſhed with rough ſpear-ſhaped leaves, ſending out many ſide branches which diverge from the ſtalk every way; theſe are terminated for the moſt part by one large blue flower, ſomewhat like thoſe of the Italian Starwort, but paler, and comes earlier to flower. It grows naturally on the Alps, and is propagated by parting the root.

The ſeventeenth ſort riſes to the height of five feet, with branching ſtalks, garniſhed with oblong ſpear-ſhaped leaves, which are ſawed on their edges. Each of the ſide branches are divided at the top into ſeveral foot-ſtalks, which are terminated by large, pale, blue flowers, and are in beauty in October. This is propagated by parting the roots, as the ſorts beforementioned. It grows naturally in North America.

The eighteenth ſort was brought from Virginia many years ago, by Mr. John Tradeſcant, who was a great collector of rarities; and from his garden it was ſoon diſperſed, and became common. It is generally known by the title of Michaelmas Daiſey, from its flowering about old Michaelmas day. The ſtalks of this ſort are numerous, and riſe about three feet and a half high, being fully garniſhed with oblong leaves ending in a point, whoſe baſe half embrace the ſtalks. Theſe ſhoot out many lateral branches, which are terminated by pretty large flowers, of a very pale bluiſh colour, tending to white. The roots of this multiply very faſt, and the ſeeds often are blown about, ſo that it propagates ſo much as often to be troubleſome; it will thrive in any ſituation.

The nineteenth ſort ſends up ſeveral ſtrong hairy ſtalks, which riſe a foot and a half high, having many oblong rough leaves ending in a point, whoſe baſe half embrace the ſtalks, which divide into many ſmall branches at the top, forming a kind of corymbus, each being terminated by one large blue flower, having a very hairy empalement. This flowers the latter end of July. It grows naturally on the Alps, ſo is very hardy, but ſhould have a moiſt ſoil and a ſhady ſituation. It is propagated by parting the roots.

The twentieth ſort riſes with ſtrong hairy ſtalks, to the height of eight or nine feet, which are upright, unbranched, and garniſhed with oblong hairy leaves, ending in a point; their baſe half ſurrounds the ſtalks, which are for the moſt part terminated by three large purple flowers inclining to red, and ſit cloſe to the top of the ſtalk, ſurrounded by a few narrow leaves. This ſort flowers in November. It came from Philadelphia, where it naturally grows, and is propagated by parting the roots; it delights in a moiſt ſoil.

The twenty-firſt ſort hath ſlender purpliſh ſtalks, which riſe about three feet high, ſending out many ſide branches almoſt the whole length, which ſpread horizontally, garniſhed with narrow, ſmall, ſpear-ſhaped leaves; the flowers are produced in a ſort of looſe ſpike, growing one above another on each ſide the ſtalk. Theſe are ſmall, of a pale purpliſh colour, and appear in November. It grows naturally in North America, and is eaſily propagated by parting the roots.

The twenty-ſecond ſort I received from Philadelphia, where it grows naturally. This ſends up ſtiff channelled ſtalks about two feet high, garniſhed with rough ſpear-ſhaped leaves ending in a point, placed alternately on every ſide the ſtalks; the flowers are white, and grow in a ſort of umbel at the top of the ſtalks. It flowers the end of September, and is propagated by parting the roots.

The twenty-third ſort I received from Mr. Peter Collinſon, F. R. S. who procured it from Penſylvania. This hath much the appearance of the former ſort, but the leaves are narrower, whiter on their under ſide, and have three longitudinal veins; the flowers are alſo larger and whiter. It grows about the ſame height, and flowers at the ſame time with the former.

The twenty-fourth ſort riſes four feet high, the bottom leaves are oval and half ſurround the ſtalk at their baſe; the upper leaves are ſmall and ſpear-ſhaped; the ſtalks put out ſide branches toward the top, which grow erect, forming a looſe ſpike, each being terminated by one large blue flower, with a leafy foot-ſtalk; this flowers about the end of October. It grows naturally in North America, and is propagated by parting the roots.

The twenty-fifth ſort ſends up from the root ſeveral ſlender ſtalks near three feet high, garniſhed by many very narrow leaves, and puts out ſide branches, each being terminated by one white flower. This grows naturally in Philadelphia; it flowers in November, and is eaſily propagated by parting the roots.

The twenty-ſixth ſort riſes about a foot and a half high; the ſtalks are garniſhed with narrow, ſpear-ſhaped, ſmooth leaves: the end of the ſtalks are terminated by foot-ſtalks on every ſide, each having one pale blue flower. This grows naturally in Canada, and is propagated by parting the roots. It is titled Aſter Canadenſis linariæ folio. Hort. R. Par.

The twenty-ſeventh ſort grows about two feet high, with erect ſtalks, garniſhed with narrow ſpear-ſhaped leaves, which come out irregularly in cluſters; from the upper part of the ſtalks, there are a few ſide branches produced, which are garniſhed with narrow leaves; the flowers are produced in a panicle, which are of a pale blue colour, and appear in September. This is propagated by parting the roots.

The twenty-eighth ſort is an annual plant, which when once introduced into a garden, the ſeeds will ſcatter, and the plants come up without care. This ſends up ſtrait ſtalks about two feet high, which are terminated by white flowers growing in form of a corymbus. It flowers in Auguſt, and the ſeeds ripen in October, and grows naturally in North America.

The twenty-ninth ſort grows naturally at the Cape of Good Hope. This riſes with a woody ſtem about three feet high, ſending out ſide branches which are ligneous, garniſhed with narrow leaves coming out in cluſters from one point, like thoſe of the Larch-tree; the flowers are produced from the ſide of the branches, upon long ſlender foot-ſtalks ſingly; theſe are of a pale blue colour, and appear the beginning of March; as this plant never produces ſeeds in Europe, it is only propagated by cuttings, which may be performed any time in ſummer. Theſe ſhould be planted in ſmall pots filled with light earth, and plunged into an old hot-bed; where, if they are ſhaded from the ſun, and gently watered, they will put out roots in ſix weeks, when they may be placed in the open air; and in about a month after they ſhould be ſeparated, each planted into a ſmall pot filled with light ſandy earth. In October theſe muſt be removed into the green-houſe, and placed where they may enjoy as much free air as poſſible, but be ſecured from froſt or damps, either of which will deſtroy them; ſo that they are much eaſier preſerved in a glaſs-caſe, where they will enjoy more light and air than in a green-houſe; but they muſt not be placed in a ſtove, for artificial heat will ſoon deſtroy the plants. This ſort is at preſent but in few Engliſh gardens.

The thirtieth ſort is a native of China, from whence the ſeeds were ſent to France by the miſſionaries, where the plants were firſt raiſed in Europe. In the year 1731, I received ſeeds of this, from which I raiſed plants with red, and ſome with white flowers; and in 1736, I received ſeeds of the blue flower, but theſe were all ſingle. They came by the title of La Reine Marguerette, or the Queen of Daiſies, by which title the French ſtill call it. In 1752, I received ſeeds of the double flowers both red and blue, and in 1753, the ſeeds of the double white ſort, from my worthy friend Dr. Job Baſter, F. R. S. of Zirkzee. Theſe have retained their difference from that time without variation, yet as they are generally ſuppoſed to be only varieties, I have not inſerted them as different ſpecies.

As theſe are annual plants, they are only propagated by ſeeds, which muſt be ſown in the ſpring upon a gentle hot-bed, juſt to bring up the plants; for they ſhould be inured to the open air as ſoon as poſſible, to prevent their being drawn up very weak: when the plants are big enough to remove, they ſhould be carefully taken up and planted in a bed of rich earth at ſix inches diſtance each way, obſerving to ſhade them from the ſun till they have taken new root; and if the ſeaſon proves dry, they muſt be often refreſhed with water. In this bed they may remain a month or five weeks, by which time they will be ſtrong enough to tranſplant into the borders of the flower-garden where they are deſigned to remain; the plants ſhould be taken up carefully, with large balls of earth to their roots, and the ground dug up and well broken with the ſpade, where the holes are made to receive the plants: after they are planted, and the earth cloſed about their roots, there ſhould be ſome water given them to ſettle the earth. This work ſhould, if poſſible, be done when there is rain, for then the plants will ſoon take new root, after which time they will require no other care but to keep them clear from weeds.

In Auguſt theſe plants will flower, by which time if the ground is rich in which they are planted, they will be two feet high, and furniſhed with many ſide branches, each of which is terminated by a large radiated flower, ſome white, ſome red, and others blue. Theſe are ſome of the greateſt ornaments in the flower-garden in autumn, during their time of flowering. The ſeeds ripen the beginning of October, which ſhould be gathered when it is perfectly dry; and in order to preſerve the kinds with double flowers, thoſe which grow upon the ſide branches, which are commonly fuller of leaves than the flowers on the main ſtem, ſhould always be preſerved for ſeeds.

The thirty-firſt ſort was diſcovered by the late Dr. Houſton in the year 1731, at La Vera Cruz in New Spain. This is an annual plant, which riſes with an upright ſtalk about one foot high, garniſhed the whole length with winged leaves, each conſiſting of two or three pair of lobes, terminated by an odd one: each of theſe lobes are heart-ſhaped, and ſawed on their edges; at the top of the ſtalk is produced one large Orange-coloured flower, having a ſingle empalement, cut into many ſlender ſegments which end in points. After the flower is paſt, each floret is ſucceeded by an oblong angular ſeed, crowned with long down. This is propagated by ſeeds, which ſhould be ſown on a moderate hot-bed in the ſpring; and when the plants are fit to remove, they muſt be each planted into a ſeparate ſmall pot filled with rich earth, and plunged into the tan-bed, obſerving to ſhade them until they have taken new root, as alſo to refreſh them with water, and in warm weather admit free air to the plants. When theſe pots are filled with their roots, the plants ſhould be carefully ſhaken out; and after paring off the outſide roots, put into larger pots, filled with light earth, and plunged into the hot-bed again, where they may remain to flower and perfect their ſeeds, for they will not thrive in the open air. This ſort flowers in July, and the ſeeds ripen in September.

The thirty-ſecond ſort was diſcovered by the late Dr. William Houſton, in the year 1729, growing in plenty in the ſandy ground about Vera Cruz, in America, where he drew the figure, and made a deſcription of the plant upon the ſpot; which he ſent to England with the ſeeds, ſome of which grew in the Chelſea garden, and the plants flowered the following ſummer, but did not perfect their ſeeds.

It hath buſhy fibrous roots, which creep in the ground, and ſend out many ſlender round ſtalks, which bend and incline to the ground. Theſe are about four or five inches long, deſtitute of leaves, each ſuſtaining one flower, in ſhape and ſize of thoſe of the common Field Daiſey, of a whitiſh purple colour, but the rays are narrower. The diſk is compoſed of ſeveral florets, which are ſucceeded by ſmall ſeeds crowned with a pappous down. The empalement which includes the flowers, is ſcaly.

As this plant is a native of a warm climate, it will not live in the open air in England; therefore the ſeeds muſt be ſown in a hot-bed, and the plants will require a ſtove to maintain them through the winter.

The thirty-third ſort is a native of North America. This hath upright ſtalks about three feet high, garniſhed with ſpear-ſhaped ſawed leaves; the flowers are produced in bunchy panicles, having rough empalements. It flowers the end of Auguſt, and is propagated by parting the roots in autumn.

The thirty-fourth ſort grows naturally in Siberia; the ſtalks are ſtriated about two feet high, ſending out ſide branches, garniſhed with rough, veined, ſpear-ſhaped leaves; the foot-ſtalks of the flowers are woolly, each ſupporting one large blue flower. This flowers in Auguſt, and is propagated by parting the roots in autumn.

The thirty-fifth ſort ſends up rough ſtalks about two feet high, dividing toward the top into many forked branches, diverging from each other, garniſhed below with oval ſawed leaves; but the flowering ſtalks have entire obtuſe leaves which embrace them with their baſe; the flowers are growing almoſt in an umbel; theſe appear the beginning of September. It is propagated by parting the roots as the former.

ASTERISCUS. See Buphthalmum.

ASTEROIDES, Baſtard Starwort. See Inula.

ASTRAGALOIDES. See Phaca.

ASTRAGALUS, Wild Liquorice, Liquorice Vetch, or Milk Vetch.

The Characters are,

It hath a butterfly flower, whoſe empalement is of one leaf, cut into five acute ſegments at the top. The ſtandard (*or vexillum*) *is upright, blunt, and reflexed on the ſides; the wings are oblong, and ſhorter than the ſtandard; the keel is the ſame length with the wings, and bordered. It hath ten ſtamina, nine of which are joined, and one ſtands ſingly; theſe are crowned by roundiſh ſummits. At the bottom of the flower is ſituated a taper germen, ſupporting an awl-ſhaped ſtyle, crowned by a blunt ſtigma. The germen afterward becomes a pod having two cells, each having a row of kidney-ſhaped ſeeds.*

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs of plants, entitled Diadelphia Decandria, from the flower having ten ſtamina joined in two bodies.

The Species are,

1. Astragalus (*Glycyphyllos*) cauleſcens proſtratus leguminibus ſubtriquetis arcuatis foliis ovalibus pedunculo longioribus. Lin. Sp. Plant. 758. *Stalky proſtrate Milk Vetch, with crooked pods almoſt triangular, and oval leaves longer than the foot-ſtalk.* Aſtragalus luteus perennis procumbens vulgaris ſylveſtris. Mor. Hiſt. 2. 107. *ſometimes called Wild Liquorice.*
2. Astragalus (*Hamoſis*) cauleſcens procumbens, leguminibus ſubulatis recurvatis glabris. Hort. Upſal. 226. *Stalky trailing Milk Vetch, with ſmooth awl-ſhaped pods bending inward.* Aſtragalus luteus annus Monſpeliacus procumbens. Mor. Hiſt. 2. 108.

3. Astragalus (*Alopecuroides*) cauleſcens, ſpicis cylindricis ſubſeſſilibus, calycibus leguminibuſque lanatis. Lin. Sp. Plant. 755. *Stalky Milk Vetch with cylindrical ſpikes growing cloſe to the ſtalks, and woolly pods and empalements.* Aſtragalus Alpinus procerior Alopecuroides. Tourn. Inſt. 416.

4. Astragalus (*Cicer*) cauleſcens proſtratus, leguminibus ſubgloboſis inflatis mucronatis piloſis. Hort. Upſal. 226. *Milk Vetch with a proſtrate ſtalk, and a globular, ſwelling, hairy pod, ending in a point.* Aſtragalus luteus perennis ſiliquâ gemellâ rotundâ veſicam referente. Mor. Hiſt. 2. 107.

5. Astragalus (*Epiglottis*) cauleſcens procumbens, leguminibus capitatis cordatis acutis reflexis complicatis. Lin. Sp. Plant. 759. *Milk Vetch with trailing ſtalks, and pods growing in heads, which are heart-ſhaped, pointed, reflexed, and complicated.* Aſtragalus Hiſpanicus ſiliquâ epiglottidi ſimili flore purpureo major. H. L. 74.

6. Astragalus (*Montanus*) ſubacaulos ſcapis folio longioribus, floribus laxè ſpicatis erectis, leguminibus ovatis acumine inflexo. Prod. Leyd. 392. *Low Milk Vetch with flower-ſtalks longer than the leaves, and flowers growing in looſe upright ſpikes.* Onobrychis floribus viciæ majoribus cæruleo-purpuraſcentibus ſive foliis tragacanthæ. C. B. P. 351.

7. Astragalus (*Bæticus*) cauleſcens procumbens, ſpicis pedunculatis, leguminibus priſmaticis rectis triquetris apice uncinatis. Hort. Cliff. 225. *Milk Vetch with trailing ſtalks, ſpikes of flowers with foot-ſtalks, and upright triangular pods ſhaped like a priſm pointed at the top.* Aſtragalus annuus maritimus procumbens latifolius floribus pediculo inſidentibus. Tourn. Inſt. 416.

8. Astragalus (*Arenarius*) ſubcauleſcens procumbens floribus ſubracemoſis erectis foliis tomentoſis. Lin. Sp. Plant. 759. *Low trailing Milk Vetch with branching flowers growing erect, and woolly leaves.* Aſtragalus incanus parvus purpureus noſtras. Pluk. Alm. 59.

9. Astragalus (*Phyſodes*) acaulos ſcapis folia æquantibus leguminibus inflatis ſubgloboſis nudis. Lin. Sp. Plant. 760. *Low Milk Vetch with flower-ſtalks as long as the leaves, and naked, globular, ſwelling pods.* Aſtragalus acaulos leguminibus inflatis ſubgloboſis. Amœnit. Acad.

10. Astragalus (*Chriſtianus*) cauleſcens erectus floribus glomeratis ſubſeſſilibus ex omnibus axillis foliaceis. Lin. Sp. 755. *Milk Vetch with upright ſtalks, and glomerated flowers growing cloſe to them, proceeding from all the wings of the leaves.* Aſtragalus Orientalis maximus incanus erectus, caule ab imo ad ſummum florido. Tourn. Cor. 29.

11. Astragalus (*Ægyptiacus*) cauleſcens ſcapis folio longioribus floribus laxè ſpicatis erectis, leguminibus arcuatis. *Stalky Milk Vetch with flower-ſtalks longer than the leaves, upright flowers growing in looſe ſpikes, and arched pods.* Aſtragalus Ægyptius floribus ſpicatis purpuraſcentibus ſiliquis incurvis. Juſſ.

12. Astragalus (*Seſameus*) cauleſcens diffuſus capitulis ſubſeſſilibus lateralibus leguminibus erectis ſubulatis acumine reflexis. Hort. Cliff. 361. *Milk Vetch with diffuſed ſtalks, flower-heads growing cloſe to the ſides of the ſtalks, and awl-ſhaped upright pods reflexed at their points.* Aſtragalus annuus foliis & ſiliquis hirſutis plurimis in foliorum alis ſeſſilibus. Pluk. Alm. 60.

13. Astragalus (*Galegiformis*) cauleſcens ſtrictus glaber, floribus racemoſis pendulis, leguminibus triquetris utrinque mucronatis. Lin. Sp. 1066. *Milk Vetch with ſmooth ſlender ſtalks, hanging branching flowers, and three-cornered pointed pods.* Aſtragalus Orientalis altiſſimus folio galegæ flore parvo flaveſcente. Tourn. Cor. 29.

14. Astragalus (*Uralenſis*) acaulos ſcapo erecto folio longiore leguminibus ſubulatis inflatis villoſis erectis. Hort. Upſal. 226. *Low Milk Vetch, with upright foot-ſtalks to the flowers longer than the leaves, and awl-ſhaped, upright, ſwoln, hairy pods.* Aſtragalus non ramoſus villoſus & incanus ſpicatus floribus purpuro-violaceis. Amman. Ruth. 167. p. 126.

15. Astragalus (*Carolinianus*) cauleſcens erectus lævis pedunculis ſpicatis leguminibus ovato-cylindricis ſtylo acuminatis. Lin. Sp. Plant. 757. *Smooth, upright, ſtalky Milk Vetch, with ſpiked ſtalks, and oval cylindrical pods ending in ſharp points.* Aſtragalus procerior non repens flore viridi flaveſcente. Hort. Elth. 45.

16. Astragalus (*Canadenſis*) cauleſcens diffuſus, leguminibus ſubcylindricis mucronatis foliolis ſubtus ſubvilloſis. Lin. Sp. Plant. 757. *Milk Vetch with diffuſed ſtalks, pointed cylindrical pods, and the ſmall leaves hairy on their under ſide.* Aſtragalus Canadenſis flore viridi flaveſcente. Tourn. Inſt. 416.

17. Astragalus (*Piloſus*) cauleſcens erectus piloſus floribus ſpicatus leguminibus ſubulatis piloſis. Lin. Sp. Plant. 756. *Milk Vetch with hairy upright ſtalks, flowers growing in ſpikes, and awl-ſhaped hairy pods.* Aſtragalus villoſus erectus ſpicatus floribus flaveſcentibus. Amman. Ruth. 166.

18. Astragalus (*Procumbens*) incanus caulibus procumbentibus ſcapis folio æquantibus floribus glomeratis. *Hoary Milk Vetch with trailing ſtalks, foot-ſtalks equal with the leaves, and glomerated flowers.* Aſtragalus ſupinus ſiliquis villoſis glomeratis. Tourn. Inſt. R. H. 417.

19. Astragalus (*Incanus*) cauleſcens incanus, leguminibus ſubulatis recurvatis incanis. *Hoary ſtalky Milk Vetch, with awl-ſhaped recurved pods which are hoary.* Aſtragalus incanus ſiliquâ recurvâ. Bot. Monſp.

20. Astragalus (*Capitatus*) cauleſcens capitulis globoſis, pedunculis longiſſimis, foliolis emarginatis. Hort. Cliff. 360. *Stalky Milk Vetch with globular heads, very long foot-ſtalks, and the ſmall leaves crenated at their points.* Aſtragalus Orientalis villoſiſſimus capitulis rotundioribus floribus purpureis. Tourn. Cor. 29.

21. Astragalus (*Chinenſis*) cauleſcens procumbens, capitulis pedunculatis, leguminibus priſmaticis rectis triquetris apice ſubulatis. *Milk Vetch with trailing ſtalks, the foot-ſtalks terminated by flowers collected in heads, and three-cornered pods ſhaped like priſms.*

22. Astragalus (*Uncatus*) acaulis exſcapus, leguminibus ſubulatis hamatis folio longioribus, foliolis obcordatis. Lin. Sp. 1072. *Milk Vetch without ſtalks, awl-ſhaped hooked pods longer than the leaves, and the ſmall leaves almoſt heart-ſhaped.*

The firſt ſort grows wild upon chalky ground in many parts of England, ſo is not often admitted into gardens. The root of this is perennial, but the ſtalks decay every autumn: it creeps at the root, ſo that it is too apt to ſpread where it is ſuffered to grow. It flowers in June, and the ſeeds ripen in September.

The ſecond ſort is annual; the branches of this trail upon the ground, which are ſtriated; the leaves are winged, compoſed of about eight pair of lobes, terminated by an odd one; theſe are crenated at their points. The foot-ſtalks of the flowers ariſe from the wings of the leaves, which are about three inches long, garniſhed toward the top with a few pale yellow flowers riſing one above another; theſe are ſucceeded by oblong pods, which bend in form of a ſickle, being round on their outer ſide, but flatted on the oppoſite, ending in a point, opening in two cells, each having a row of ſquare ſeeds. It flowers in June, and the ſeeds ripen in September. The ſeeds of this ſhould be ſown in April, in the place where they are to remain, and require no other care but to draw the plants out where they come up too thick, leaving them a foot and a half aſunder, and keep them clean from weeds.

The third ſort is a biennial plant, which grows naturally on the Alps. This riſes with an upright hairy ſtalk near three feet high, garniſhed with long winged leaves, each having eighteen or twenty pair of oval lobes, terminated by an odd one. The flowers are produced in large cylindrical ſpikes from the wings of the leaves, ſitting very cloſe to the ſtalks, which are entirely covered with down, out of which the yellow flowers juſt peep; theſe are ſucceeded by oval pods ſhut up in the woolly empalements, having two cells, containing three or four ſquare ſeeds in each. It flowers in June and July, and the ſeeds ripen in autumn, ſoon after which the plants decay. The ſeeds of this ſhould be ſown in April, on an open border, where the plants are deſigned to remain; and when the plants come up, they ſhould be thinned, leaving them at leaſt two feet aſunder, and keep them clean from weeds; the ſecond year they will flower, and produce ſeeds.

The fourth ſort hath a perennial root, which ſends out ſeveral ſtriated ſtalks near three feet high, which, if not ſupported, proſtrate themſelves towards the earth. Theſe are garniſhed with winged leaves placed alternately, at two inches diſtance, which are compoſed of about ten pair of oval ſmall lobes, terminated by an odd one. The flowers ariſe from the wings of the leaves, upon foot-ſtalks two inches long, in ſmall looſe ſpikes, which are yellow, and ſhaped like the reſt of this genus, and are ſucceeded by hairy, globular, ſwelling pods, ending with a ſharp point, opening in two cells, in each of which are contained two or three hard reddiſh ſeeds. It flowers in July, and the ſeeds ripen in autumn. This grows naturally in the ſouth of France and Italy. It is eaſily propagated by ſeeds, which ſhould be ſown upon an open border in the ſpring; and when the plants come up, they muſt be thinned and kept clean from weeds till autumn, when they ſhould be tranſplanted to the place where they are to remain, and will afterward require no other culture, but to keep them clean from weeds. One or two of theſe plants in a garden by way of variety, may be admitted, but they have little beauty.

The fifth ſort is annual. This ſends out from the root two or three hairy trailing branches, which are garniſhed with winged leaves, compoſed of ten or twelve pair of blunt lobes, terminated by an odd one: the flowers come out from the wings of the leaves upon naked foot-ſtalks, four or five inches long, and are gathered into a round head; theſe are ſhaped like the others, but are pretty large, and of a deep purple colour, which are ſucceeded by ſhort pods rough on their outſides; and when opened, are ſhaped like a heart, ending in a ſharp point, containing three or four ſeeds.

The ſeeds of this ſhould be ſown on an open border in April, where the plants are to remain, and treated as the other annual ſorts before-mentioned. It flowers in July, and the ſeeds ripen in autumn. It grows naturally in Spain and Portugal, from whence I have received the ſeeds.

The ſixth ſort is a perennial plant, which grows naturally upon the mountains in Spain, from whence I received it. This is a low plant, ſeldom riſing with a ſtem more than three inches high, ſending out winged leaves on every ſide, which are compoſed of many pairs of narrow lobes, ſet very cloſe together on the midrib, terminated by an odd one. The flowers grow upon long foot-ſtalks, which riſe above the leaves; theſe are large and of a purple colour, growing in a looſe ſpike, and ſtand erect, and are ſucceeded by oblong crooked pods opening in two cells, filled with ſquare ſeeds. It flowers in June, and the ſeeds ripen in Auguſt. This is propagated by ſeeds, which ſhould be ſown, and the plants treated in the ſame manner as the fourth ſort, but ſhould have a ſhady ſituation and a ſtronger ſoil.

The ſeventh ſort is annual. This ſends out ſeveral trailing branches near two feet long, which are garniſhed with winged leaves, compoſed of about ten pair of blunt lobes, ſet thinly on the midrib, terminated by an odd one: at the wing of each leaf comes out a foot-ſtalk near two inches long, ſuſtaining four or five yellow flowers at the top, which are ſucceeded by triangular brown pods, ſhaped like a priſm, growing erect, and open in two cells filled with greeniſh ſquare ſeeds. It flowers in July, and the ſeeds ripen in autumn, ſoon after which the plants decay. This may be treated in the ſame manner as the ſecond.

The eighth ſort is a perennial plant, which grows naturally upon hills in ſeveral parts of England, particularly in the North. This is a low plant, ſeldom riſing more than two or three inches high, having many winged leaves compoſed of narrow woolly lobes, placed cloſe on the midrib; the flowers are pretty large, of a purple colour, growing in looſe ſpikes. It flowers in June, and the ſeeds ripen in Auguſt. This may be propagated as the fourth ſort, and ſhould have a ſhady ſituation.

The ninth ſort hath a perennial creeping root, ſending out leaves, which are compoſed of many pair of oval lobes, terminated by an odd one; the flower-ſtalks are as long as the leaves, which ſupport a cylindrical ſpike of yellow flowers, which are ſucceeded by ſwollen pods, opening in two cells, containing ſeveral greeniſh ſeeds. This may be propagated as the fourth ſort, and muſt have a ſhady ſituation. It flowers in June, and grows naturally in Siberia.

The tenth ſort was diſcovered by Dr. Tournefort in the Levant, who ſent the ſeeds to the royal garden at Paris, where they ſucceeded, from whence I was furniſhed with them. This ſends up ſtalks near three feet high, which are large at bottom, and gradually diminiſh to the top; the leaves alſo at bottom are very long, and diminiſh upward, ſo as to form a ſort of pyramid; theſe are winged, and compoſed of many large oval pair of lobes, which are placed thinly on the midrib, and terminated by an odd one; the flowers come out in cluſters from the wings of each leaf, beginning near the root where the foot-ſtalks are the longeſt, and continuing upward, diminiſhing in their number. Theſe are large, of a bright yellow colour, and are ſucceeded by cylindrical pods opening in two cells, filled with ſquare yellow ſeeds. It flowers in July, and in very favourable ſeaſons will perfect ſeeds in England. It is propagated by ſeeds, which ſhould be ſown, and the plants afterward treated as hath been directed for the fourth ſort; with this difference only, to plant them in a warm border and a dry ſoil, otherwiſe the plants will not thrive well in this climate. The third year from ſeed the plants will flower, and continue many years in a proper ſoil.

The eleventh ſort grows naturally in Egypt, from whence the ſeeds were ſent to the royal garden at Paris, and Dr. Juſſieu was ſo good as to ſend me part of the ſeeds: this is an annual plant, which riſes with upright ſtalks a foot and a half high, thinly garniſhed with winged leaves, compoſed of about twelve pair of oval lobes, terminated by an odd one; the foot-ſtalks of the flowers ariſe from the wings of the leaves, and are extended beyond them; theſe are terminated by looſe ſpikes of yellow flowers, which are ſucceeded by ſickle-ſhaped pods. It flowers in July, and the ſeeds ripen in autumn, ſoon after which the plants decay. It may be propagated by ſeeds in the ſame manner as hath been before directed for the annual ſorts, putting the ſeeds in a warm border and a dry ſoil, where the plants will perfect their ſeeds very well.

The twelfth ſort grows naturally in Italy, and the ſouth of France, from whence I received the ſeeds. This is an annual plant, which ſends out ſeveral weak ſtalks without any order, garniſhed with winged leaves, compoſed of ten or twelve pair of lobes, and ſometimes terminated by an odd one; theſe are hairy; at the foot-ſtalks of the leaves the flowers come out in ſmall cluſters, ſitting cloſe to the ſides of the ſtalks, which are of a copper colour, and are ſucceeded by awl-ſhaped pointed pods growing erect, and reflected at their points. This is propagated by ſeeds in the ſame manner as the other annual ſorts before mentioned; it flowers in July, and the ſeeds are ripe in autumn.

The thirteenth ſort was diſcovered by Dr. Tournefort, in the Levant, who ſent the ſeeds to the royal garden at Paris, where they ſucceeded, and produced new ſeeds, ſo that many of the European gardens have been ſince ſupplied with it; this hath a perennial root, which ſends out many upright ſtalks upward of five feet high, which are garniſhed with winged leaves, compoſed of about fourteen pair of oval lobes, terminated by an odd one; from the wings of the leaves the foot-ſtalks of the flowers ariſe, which are garniſhed with ſmall yellow flowers, growing in looſe ſpikes, and are extended beyond the leaves; theſe are ſucceeded by very ſhort triangular pods, ending in a point, which open in two cells, filled with Aſh-coloured ſquare ſeeds. This flowers in June or July, and the ſeeds ripen in autumn. It is propagated by ſeeds, which may be ſown in the ſpring, upon a border of light earth, and treated in the ſame manner as the fourth ſort, till the following autumn, when the plants ſhould be removed to an open ſituation and a dry ſoil, and when they have taken root, will require no farther culture. I have a root of this ſort growing in the Chelſea garden, which is more than thirty years old, and produces plenty of ſeeds every year.

The fourteenth ſort grows naturally upon the mountains in Germany; this never riſes with a ſtalk, but ſends out divers winged leaves from the root, which are compoſed of many blunt lobes, placed by pairs, and terminated by an odd one; the foot-ſtalks of the flowers ariſe immediately from the root, and are longer than the leaves, being terminated by ſpikes of blue flowers, which are ſucceeded by ſwelling awl-ſhaped pods, which are erect and hairy, having two cells which are filled with greeniſh ſeeds. It flowers in July, and the ſeeds ripen in autumn. The root is abiding, and the plant is propagated by ſeeds as the fourth ſort, but ſhould have an open ſituation.

The fifteenth ſort grows naturally in Carolina, from whence I received the ſeeds; this hath a perennial root, but an annual ſtalk, which decays in autumn; from the root ariſe ſeveral upright ſtalks three feet high, garniſhed with winged leaves, compoſed of eighteen or twenty pair of oval ſmooth lobes, terminated by an odd one; from the wings of the leaves ariſe the foot-ſtalks, which are terminated by ſpikes of greeniſh yellow flowers, which are ſucceeded by oval cylindrical pods, to which adhere the ſtyle, which extends beyond the pods in a point. This flowers in Auguſt, but unleſs the ſeaſon is warm, the plants ſeldom ripen their ſeeds in England. It is propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted in a ſmall pot filled with earth from the kitchen-garden, and plunged again into the hot-bed, to forward their making new roots; and when they are eſtabliſhed in the pots, they muſt be inured to the open air, into which they ſhould be removed the end of May, placing them in a ſheltered ſituation, where they may remain till October, when they ſhould be placed under a common frame to ſhelter them in winter; and in the ſpring they may be turned out of the pots, and planted in a warm border, where they will thrive and flower; and if the winter proves very ſevere, a little old tan ſhould be laid over the roots, which will effectually preſerve them.

The ſixteenth ſort grows naturally in moſt parts of North America; this hath a perennial root, which ſends out many irregular ſtalks about two feet high, garniſhed with winged leaves, compoſed of many pair of oval lobes, hairy on their under ſide; from the wings of the leaves come out the foot-ſtalks, ſupporting ſpikes of greeniſh yellow flowers, which are ſucceeded by cylindrical pods, ending in a point. This flowers in July, and the ſeeds ripen the beginning of October. It is propagated by ſeeds, which ſhould be managed as thoſe of the fifteenth ſort, but the plants are hardier, ſo will live thro' the winter in a common bed of light earth without covering.

The ſeventeenth ſort riſes with upright hairy ſtalks two feet high, garniſhed with winged leaves, compoſed of many pair of oval woolly lobes, terminated by an odd one; from the wings of the leaves ariſe the foot-ſtalks, which are terminated by cloſe ſpikes of yellow flowers; theſe are ſucceeded by hairy awl-ſhaped pods, having two cells, filled with brown ſeeds. This flowers in June, and the ſeeds ripen in autumn. It grows naturally in Siberia, from whence the ſeeds were ſent to Dr. Amman, at Peterſburgh, who communicated them to me. It is a perennial plant, and propagated by ſeeds in the ſame manner as the fourth ſort.

The eighteenth ſort is a biennial plant: the ſeeds of this were ſent me from Spain, where the plant grows naturally. This ſends out many trailing ſtalks, which are divided into many ſmaller branches, garniſhed with many pair of narrow lobes, terminated by an odd one; the flowers are collected into heads, which terminate the foot-ſtalks, and are white; the foot-ſtalks are about the ſame length as the leaves; the pods are ſhort and triangular, and the whole plant is covered with a ſilvery down. The ſeeds of this ſhould be ſown upon an open bed of light earth, where the plants are to remain, and the plants afterward treated in the manner directed for the annual ſorts: the ſecond year they will flower and perfect their ſeeds, after which they ſeldom continue.

The ninteenth ſort grows upon the hills near Verona, from whence I received it. This ſends up an upright ſtalk, ſeldom more than ſix inches high, garniſhed with ſmall, winged, hoary leaves; the foot-ſtalks ariſe from the wings of the leaves, ſupporting three or four pale flowers, which are ſucceeded by ſickle-ſhaped hoary pods. This is a biennial plant, and ſhould be treated in the ſame manner as the laſt.

The twentieth ſort was diſcovered by Dr. Tournefort, in the Levant, who ſent the ſeeds to the royal garden at Paris. This hath a perennial root, which ſends up ſeveral erect ſtalks, garniſhed with winged leaves, compoſed of ſeveral pair of lobes, indented at the top; from the wings of the leaves come out long foot-ſtalks, ſupporting a globular head of purple flowers; theſe are rarely ſucceeded by pods in England. It flowers the end of July. It is propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed in the ſpring, and the plants treated in the ſame manner as hath been directed for the fifteenth ſort.

The twenty-firſt ſort grows naturally in China: the plant is annual; the ſtalks ſpread on the ſurface of the ground, which are cloſely garniſhed with winged leaves, compoſed of eight or ten pair of oval ſmooth lobes, ſitting cloſe to the midrib; theſe are ſlightly indented at their end. The foot-ſtalks of the flowers are produced from the wings of the ſtalk, two of them generally ariſing at each place, and are equal to the leaves in length, ſupporting a globular head of purple flowers, which are ſucceeded by three-cornered pods growing erect in a compact head, opening in two cells, filled with ſmall triangular ſeeds. This plant flowers in July and Auguſt, and the ſeeds ripen in autumn.

The ſeeds of this ſort ſhould be ſown upon a hot-bed in March, and when the plants come up and are fit to tranſplant, they ſhould be each put into a ſmall pot filled with light earth, and plunged into another moderate hot-bed, being careful to ſhade them from the ſun until they have taken new root; after which they ſhould have free air admitted to them daily, proportional to the warmth of the ſeaſon, and frequently but gently watered, with which management the plants will flower and produce ſeeds.

The twenty-ſecond ſort grows naturally about Aleppo, from whence the ſeeds were brought by Dr. Ruſſel. The plant is annual, ſending out a few branching ſtalks which trail upon the ground, garniſhed with narrow winged leaves, whoſe lobes are broader at their points than their baſe, and are indented ſo as to become almoſt heart-ſhaped; the flowers are produced at the wings of the ſtalks in ſhort looſe ſpikes; they are almoſt white, and are ſucceeded by ſickle-ſhaped pods, having two cells filled with ſquare brown ſeeds. This flowers in July and Auguſt, and the ſeeds ripen in autumn.

This is propagated by ſeeds, which ſhould be ſown in the ſpring upon an open bed of light earth, and the plants treated afterward in the ſame manner as hath been directed for the annual ſorts before-mentioned.

ASTRANTIA, Maſterwort.

The Characters are,

It is a plant whoſe flowers grow in an umbel; the general umbel is compoſed of four or five ſmall ones. The involucrum of the general umbel is in one ſpecies compoſed of two large trifid leaves, and two entire. In another ſpecies of ſeveral ſmall leaves: the involucrum of the ſmall umbel is compoſed of many ſmall pointed leaves, which are longer than the umbels, coloured and ſpread open. The empalement of the flower is permanent, erect, and cut into five ſhort acute ſegments; the flower is compoſed of five petals, which are erect, bifid, and bend inward: it hath five ſtamina the length of the petals, crowned by ſingle ſummits; the oblong germen is ſituated below the receptacle, ſupporting two ſlender ſtyles, crowned by ſpreading ſtigma; the germen afterward becomes an oval, blunt, channelled fruit, divided into two parts, having two oblong oval ſeeds incloſed in the cover.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, entitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The Species are,

1. Astrantia (*Major*) foliis radicalibus quinquelobatis ſerratis, caulinis trilobatis acutis. *Maſterwort with the lower leaves divided into five ſawed lobes, and thoſe on the ſtalks cut into three acute lobes.* Aſtrantia major coronâ floris purpuraſcente. Inſt. R. H. 314.
2. Astrantia (*Candida*) foliis quinquelobatis lobis tripartitis. Haller. Helv. 439. *Maſterwort with leaves having five tripartite lobes.* Aſtrantia major coronâ floris candidâ. Tourn. Inſt. 314.
3. Astrantia (*Minor*) foliis digitatis ſerratis. Lin. Sp. Plant. 255. *Maſterwort with fingered leaves which are ſawed.* Helleborus niger ſaniculæ folio minor. C. B. P. 186.

The firſt ſort hath many ſpreading leaves riſing from the root, which are compoſed of five large lobes, ſawed pretty deep on their edges; from between theſe the ſtalks ariſe near two feet high, having at each joint one leaf deeply cut into three ſharp-pointed lobes; at the top of the ſtalk is produced the umbel of flowers, at the bottom of which is ſituated the general involucrum, compoſed of two long trifid leaves, and two entire ones of the ſame length. The ſmall umbels ſtand upon long foot-ſtalks or rays, under which is placed the involucrum, compoſed of many ſpear-ſhaped pointed leaves, which extend beyond the rays, and are of a purpliſh colour.

The ſecond ſort hath much the appearance of the firſt, ſo has been ſuppoſed to be only a variety of it; but it differs from that in having five lobes to the leaves of the ſtalks, which are much ſhorter, and rounder at the point than thoſe of the other. The general involucrum of the umbel is compoſed of ſhort narrow leaves, and thoſe of the ſmaller umbels are ſhorter and white.

The third ſort ſeldom riſes a foot high; the foot-ſtalks of the leaves are four inches long; the leaves are divided into eight ſegments at the bottom, and ſpread out like a hand; theſe are deeply ſawed on their edges; the involucrum of the general umbel is compoſed of ſeveral very narrow leaves; the foot-ſtalks of the ſeparate umbels are very large and ſlender, and toward the top often divide into three, each having a ſmall umbel. The involucrums of theſe ſmall umbels are ſhort and white.

Theſe plants are very hardy; they may be propagated either by ſowing their ſeeds, or parting their roots. If they are propagated from ſeeds, they ſhould be ſown in autumn, ſoon after they are ripe, on a ſhady border; and, when the plants are come up, they ſhould be carefully weeded, and where they are too cloſe, ſome of the plants ſhould be drawn out, to allow room for others to grow, until Michaelmas, when they ſhould be tranſplanted where they are to remain; which ſhould always be in a moiſt ſoil and a ſhady ſituation. The diſtance theſe plants ſhould be placed, is three feet, for their roots will ſpread to a conſiderable width, if they are permitted to remain long in the ſame place. They require no other culture but to keep them clear from weeds, and every third or fourth year to be taken up at Michaelmas, and their roots parted and planted again. Theſe plants are ſeldom preſerved but in botanic gardens, there being no great beauty in their flowers. They all grow naturally upon the Alps.

ATHAMANTA. Lin. Gen. Plant. 301. Meum. Tourn. Inſt. R. H. 312. Spignel.

The Characters are,

It is a plant with an umbellated flower; the general umbel ſpreads open, and is compoſed of many ſmall ones; the involucrum of the great umbel is compoſed of many narrow leaves, which are ſhorter than the rays; thoſe of the ſmall ones are narrow, and equal with the rays: the flowers of the great umbel are uniform; thoſe of the ſmaller have five inflexed heart-ſhaped petals, which are a little unequal; each flower hath five ſlender ſtamina, which are of the ſame length with the petals, and crowned by roundiſh ſummits; the germen is ſituated below the receptacle, ſupporting two reflexed ſtyles, crowned by obtuſe ſtigma; the germen afterward becomes an oblong channelled fruit, divided into two parts, each containing one oval channelled ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs of plants, entitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The Species are,

1. Athamanta (*Meum*) foliolis capillaribus, ſeminibus glabris ſtriatis. Hort. Cliff. 93. *Spignel with hair-like leaves, and ſmooth channelled ſeeds.* Meum foliis Anethi. C. B. P. 148. *commonly called Spignel.*
2. Athamanta (*Cretenſis*) foliolis linearibus planis hirſutis, petalis bipartitis, ſeminibus oblongis hirſutis. Lin. Mat. Med. 143. *Spignel with plain hairy leaves, petals divided into two parts, and oblong hairy ſeeds.* Daucus Creticus foliis fæniculi tenuiſſimis. C. B. P.
3. Athamanta (*Sicula*) foliis inferioribus nitidis, umbellis primordialibus ſubſeſſilibus, ſeminibus piloſis. Hort. Upſal. 60. *Spignel with ſhining under leaves, the umbels at firſt ſitting cloſe, and hairy ſeeds.* Daucus ſecundus ſiculis ſophiæ folio. Zan. Hiſt. 80.
4. Athamanta (*Oreoſelinum*) foliolis divaricatis. Flor. Suec. 249. *Athamanta with divaricated leaves.* Apium montanum folio ampliore. C. B. P. 153.
5. Athamanta (*Cervaria*) foliolis pinnatis decuſſatis, inciſo-angulatis, ſeminibus nudis. Lin. Sp. 352. *Athamanta with winged leaves, whoſe lobes are angularly cut, and naked ſeeds.* Daucus montanus Apii folio major. C. B. P. 150.

The firſt ſort is the common Spignel uſed in medicine. This grows naturally in Weſtmoreland, and by the inhabitants there is called Bald-Money, or Bawd-Money; by ſome it is called Meu. This is a perennial plant; the ſtalks riſe a foot and a half high, and are channelled; the leaves are very ramoſe, and compoſed of many fine hair-like leaves ſet pretty cloſe, of a deep green; the ſtalk is terminated by an umbel of white flowers, which are ſucceeded by oblong ſmooth ſeeds.

This may be propagated by parting the roots at Michaelmas, or from ſeeds ſown ſoon after they are ripe; the plants ſhould have a ſhady ſituation and moiſt ſoil. It flowers in June, and the ſeeds ripen in Auguſt.

The ſecond ſort is the Daucus Creticus, of which there are two ſorts, whoſe ſeeds are indifferently uſed in the ſhops, one of which is annual, but that here mentioned is a perennial plant, which ſends out many ſtalks, garniſhed with ſlender narrow leaves like thoſe of Fennel, irregularly diſpoſed. The flower-ſtalk riſes about two feet high, ſending out many branches, garniſhed the whole length with the ſame compound capillary leaves, and at the top are terminated by compound umbels, compoſed of near twenty ſmall ones; theſe have white flowers with five petals, which are ſucceeded by oblong, hairy, channelled fruit, divided into two parts, each containing one oblong hairy ſeed.

This ſort is propagated by ſeeds, which ſhould be ſown in autumn on an open bed of light dry ground; and when the plants come up in the ſpring, they ſhould be kept clean from weeds, and thinned where they are too cloſe, ſo that they may have room to grow till the following autumn, when they ſhould be carefully taken up, and planted at about a foot diſtance in a bed of light ſandy earth, where the roots will continue ſeveral years, and annually flower and produce ripe ſeeds. It flowers in June, and the ſeeds are ripe in September. This grows naturally in Candia, but is rarely injured by cold in this country.

The third ſort is a perennial plant; this ſends up from the root ſeveral upright ſtalks, near three feet high, which are terminated by compound umbels; theſe, at their firſt appearance, are very cloſe and compact, but afterward ſpread open, and divide into ſeveral ſmaller umbels; the foot-ſtalks or rays of theſe are ſhort and hairy. The flowers are compoſed of five white petals, which are not quite equal, and are ſucceeded by oblong woolly fruit, divided into two parts, each containing one oblong channelled ſeed.

This may be propagated in the ſame manner as the former, and is equally hardy; it grows naturally in Sicily, and ſome parts of Italy.

The fourth ſort is a perennial plant, which grows naturally in ſome particular parts of England, France, and Germany; the leaves of this are linear, and acutely cut into oblong ſegments; the ſtalks riſe two feet high, dividing toward the top into three or four branches, each being terminated by an umbel of white flowers, which are ſucceeded by oblong ſtriated ſeeds. It flowers in July, and the ſeeds ripen in autumn.

The fifth ſort grows naturally in the ſouth of France, and in Auſtria: this hath a perennial root; the ſtalks riſe three feet high, garniſhed with winged leaves, which are cut into angular ſegments; they are terminated by umbels of white flowers, which are ſucceeded by naked ſeeds. This flowers in July, and the ſeeds ripen in autumn.

Theſe two ſorts are ſeldom admitted into any gardens but thoſe of botaniſts, for the ſake of variety, being plants of little beauty or uſe. They are propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, and the plants will appear the following ſpring, when they will require no other care but to thin them where they are too cloſe, and keep them clean from weeds. The ſecond ſummer they will flower and produce ripe ſeeds, but the roots will abide ſeveral years where they are deſired.

ATHANASIA. Lin. Gen. 943. Baccharis. Vaill. Act. Gall. 1719. Goldylocks.

The CHARACTERS are,

The empalement is imbricated, oval, and the ſcales are ſpear-ſhaped; the flower is of the compound kind; the florets are uniform and longer than the corolla; the hermaphrodite florets are funnel-ſhaped, cut into five ſegments, which are erect; they have each five ſhort hair-like ſtamina, with cylindrical tubuloſe ſummits, and an oblong germen with a ſlender ſtyle, terminated by an obtuſe bifid ſtigma; each floret has an oblong ſeed with a chaffy down between them.

This genus of plants is ranged in the firſt order of Linnæus's nineteenth claſs, entitled Syngeneſia Polygamia Æqualis; the florets of this order are all hermaphrodite.

The SPECIES are,

1. ATHANASIA (*Dentata*) corymbis impoſitis, foliis inferioribus linearibus dentatis, ſuperioribus ovatis ſerratis. Lin. Sp. 1181. *Athanaſia with a compound corymbus, the lower leaves linear and indented, the upper oval and ſawed.* Coma aurea Africana fruteſcens, foliis inferioribus inciſis, ſuperioribus dentatis. Com. Rar. Pl. 41.
2. ATHANASIA (*Trifurcata*) corymbis ſimplicibus, foliis trilobis cuneiformibus. Lin. Sp. 1181. *Athanaſia with a ſingle corymbus, and wedge-ſhaped leaves with three lobes.* Coma aurea Africana fruticans, foliis glaucis & in extremitate trifidis. Hort. Amſt. 2. p. 97.
3. ATHANASIA (*Crithmifolia*) corymbis ſimplicibus, foliis ſemitrifidis linearibus. Lin. Sp. 1181. *Athanaſia with a ſimple corymbus, and linear ſemitrifid leaves.* Coma aurea fruticans foliis anguſtiſſimis trifidis. Burm. Afr. 186.
4. ATHANASIA (*Pubeſcens*) corymbus ſimplicibus, foliis lanceolatis indiviſis villoſis. Amœn. Acad. 4. p. 329. *Athanaſia with a ſimple corymbus, and ſpear-ſhaped, undivided, hairy leaves.* Coma aurea Africana fruticoſa, omnium maxima, foliis tomentoſis & incanis. Hort. Amſt. 2. p. 93.
5. ATHANASIA (*Annua*) corymbus ſimplicibus coarctatis, foliis pinnatifidis dentatis. Lin. Sp. 1182. *Athanaſia with a ſimple corymbus, and winged indented leaves.* Elichryſum inodorum glabrum, coronopi folio glabrum. Magn. Montp. 307.
6. ATHANASIA (*Maritima*) pedunculis unifloris ſubcorymboſis, foliis lanceolatis indiviſis crenatis obtuſis tomentoſis. Lin. Sp. 1182. *Athanaſia with ſingle flowers on each foot-ſtalk formed like a corymbus, and ſpear-ſhaped, obtuſe, woolly leaves.* Gnaphalium maritimum. C. B. P. 263.

The firſt ſort grows naturally at the Cape of Good Hope: this hath a low, ſhrubby, branching ſtalk, which ſeldom riſes three feet high; the branches are garniſhed with two ſorts of leaves, thoſe toward the bottom are linear and indented, but the upper are oval and ſawed on their edges: the flowers are diſpoſed in a compound corymbus at the end of the branches; they are of a pale yellow, and appear early in ſummer, and if the ſeaſon proves favourable, will be ſucceeded by ripe ſeeds in autumn.

The ſecond ſort is a native of the Cape of Good Hope: this riſes with a ſhrubby ſtalk five or ſix feet high, dividing into many irregular branches, garniſhed with flat glaucous leaves cut at their extremity into three ſegments; theſe have an agreeable odour when bruiſed. The flowers are produced in a ſimple corymbus at the extremity of the branches; they are of a bright yellow colour, and appear in Auguſt, but are ſeldom ſucceeded by ripe ſeeds in England.

The third ſort grows naturally at the Cape of Good Hope: this hath a ſhrubby branching ſtalk like the former; the leaves are linear, and divided more than half their length, ſome into three, and others into five narrow ſegments: the flowers are produced at the extremity of the branches in a ſimple corymbus, like thoſe of the former ſort in ſhape and colour, of which there is a ſucceſſion on the ſame plant great part of ſummer; but unleſs the ſeaſon is warm, they are rarely ſucceeded by ripe ſeeds in England.

The fourth ſort riſes with a ſhrubby ſtalk ſix or ſeven feet high; the branches are garniſhed with hairy, ſpear-ſhaped, entire leaves; the flowers are yellow, and produced in a ſimple corymbus at the extremity of the branches, but are not ſucceeded by good ſeeds in England.

Theſe four ſorts are eaſily propagated by cuttings during the ſummer months. If theſe are planted either in pots or upon an old hot-bed, and cloſely covered with glaſſes, ſhading them in the heat of the day, and refreſhing them with water when they require it, they will put out roots in five or ſix weeks; and in two months they may be taken up and planted in pots filled with light earth, and placed in a ſhady ſituation until they have taken new root; after which they ſhould be removed to a ſheltered ſituation, mixing them with other exotic plants, where they may remain till the middle or end of October, according as the ſeaſon proves favourable; then ſhould be removed either into a green-houſe, or a glaſs caſe, where they may enjoy as much free air as poſſible, but ſecured from froſt, with which management they will thrive and produce plenty of flowers; but where they are drawn weak in winter, they will not appear ſightly.

The fifth ſort is an annual plant, which grows naturally in Africa. This hath an herbaceous ſtalk about nine inches high, which divides toward the top into three or four branches, garniſhed with ſmooth leaves, divided into ſegments like thoſe of Buckshorn Plantain; the flowers are large, of a bright yellow colour, and are produced at the extremity of the branches in a compact ſimple corymbus; theſe appear in July and Auguſt, but are rarely ſucceeded by ripe ſeeds in this country.

This is propagated by ſeeds when they can be obtained good, which ſhould be ſown on a moderate hot-bed the latter end of March; when the plants are come up they ſhould have air in proportion to the warmth of the ſeaſon admitted to them, to prevent their drawing up weak; and ſo ſoon as they are big enough to remove they ſhould be tranſplanted on another gentle hot-bed, at three inchesdi ſtance, obſerving to ſhade them until they have got freſh root; after which they muſt have air and water, and by the end of May, the plants will have acquired ſtrength enough to be tranſplanted into the open air; when ſome may be planted in pots to place among other exotic plants in ſummer, and the others into warm borders, where they will flower all the autumn, but unleſs the ſeaſon is very warm, they will not ripen ſeeds.

The ſixth ſort grows naturally on the ſea coaſts in the warm parts of Europe, and alſo in ſome parts of Wales, from whence I have received plants. The ſtalks trail on the ground, ſeldom growing more than ſeven or eight inches long, garniſhed cloſely with woolly leaves, which are ſpear-ſhaped, entire, and obtuſe; the flowers are of a bright yellow, each produced on a ſingle foot-ſtalk, forming a kind of corymbus; they appear in June and July, but rarely ripen ſeeds in the garden.

This may be propagated by planting ſlips or cuttings during the ſummer months, in the ſame way as the African ſorts; ſome of the plants ſhould be put into pots to be placed under a hot-bed frame in winter, the other may be planted in a warm border, where if the winter proves favourable they will live, but they rarely ſurvive cold winters.

ATMOSPHERE [of 'Ατμὸς, a vapour, and Ϲφαῖρα, *Gr.* a ſphere] is an appendage of the earth, which conſiſts of a thin, fluid, elaſtic ſubſtance, called air, ſurrounding the terraqueous globe to a conſiderable height.

The whole maſs, or aſſemblage of ambient air, is commonly underſtood to be the atmoſphere.

But the more accurate writers reſtrain the term atmoſphere to that part of the air which is next to the earth, which receives the vapours and exhalations, and which is terminated by the refraction of the light of the ſun.

Thoſe ſpaces that are higher, and beyond theſe, are called æther; and, being ſuppoſed to be poſſeſſed by a finer ſubſtance, are called the æthereal regions, tho' theſe, perhaps, are not deſtitute of air.

This atmoſphere inſinuates itſelf into all the vacuities of bodies, and by that means becomes the great ſpring of moſt of the mutations here below, as generation, corruption, diſſolution of vegetables, &c. to the preſſure of the atmoſphere, plants owe their vegetation, as well as animals do their reſpiration, circulation, and nutrition.

ATRACTYLIS. Lin. Gen. Plant. 837. Diſtaff Thiſtle.

The CHARACTERS are,

It hath a radiated compound flower, compoſed of many hermaphrodite florets, which are included in a common ſcaly unarmed empalement. This hath a permanent involucrum, compoſed of ſeveral narrow plain leaves, which have ſharp ſpines on their ſides. The hermaphrodite florets which compoſe the rays, or border, are ſtretched out on one ſide like a tongue, and are ſlightly indented in five parts. Thoſe which compoſe the diſk, or middle, are funnel-ſhaped, cut at the top into five parts; theſe have both five ſlender ſtamina in each, which are ſhort, and crowned by cylindrical ſummits; in thoſe of the diſk is ſituated a ſhort crowned germen, ſupporting a ſlender ſtyle, crowned by a bifid ſtigma. The germen afterward becomes a turbinated compreſſed ſeed, crowned with a plume of down, ſhut up in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's ſeventeenth claſs, entitled Syngeneſia Polygamia Æqualis, from the florets of the border and diſk being hermaphrodite.

The SPECIES are,

1. ATRACTYLIS (*Cancellata*) involucris cancellatis ventricoſis, linearibus dentatis calycibus ovatis, floribus floſculoſis. Lin. Sp. Plant. 830. *Diſtaff Thiſtle with a bellied netted involucrum, an oval, indented, linear empalement, and floſculous flowers.* Cnicus exiguus capite cancellato ſemine tomentoſo. Tourn. Inſt. R. H.
2. ATRACTYLIS (*Humilis*) foliis dentato-ſinuatis, flore radiato obvallato involucro patente, caule herbaceo. Lin. Sp. Plant. 829. *Diſtaff Thiſtle with ſinuated indented leaves, a radiated flower ſtrongly guarded by its ſpreading involucrum, and an herbaceous ſtalk.* Cnicus aculeatus purpureus humilior. Tourn. Inſt. R. H. 451.
3. ATRACTYLIS (*Gummifera*) flore acaule. Lin. Sp. Plant. 829. *Diſtaff Thiſtle with a flower without a ſtalk.* Cnicus Carlinæ folio acaulos gummifer aculeatus. Tourn. Cor. 33.

The firſt ſort grows naturally in Spain, Sicily, and other warm parts of Europe. This is an annual plant which ſeldom riſes more than eight or nine inches high, with a ſlender ſtem, thinly garniſhed with narrow hoary leaves, having ſpines on their edges; at the top of the ſtalk there are two or three ſlender branches ſent out, each being terminated by a head of flowers, like thoſe of the Thiſtle, with an involucrum compoſed of ſeveral narrow leaves, armed with ſpines on their ſide, which are longer than the head of flowers. The empalement is curiouſly netted over, and is narrow at the top, but ſwelling below, containing many florets of a purpliſh colour. Theſe are each ſucceeded by a ſingle downy ſeed; it flowers in July, and, if the ſeaſon be warm and dry, it will ripen its ſeeds in September, but in cold years never perfects ſeeds here.

It is propagated by ſeeds, which muſt be ſown upon an open bed of light earth, where the plants are to remain, and will require no other care but to keep them clean from weeds, and thin the plants where they come up too cloſe together.

The ſecond ſort riſes with a ſtalk near a foot high, which is garniſhed with indented leaves, having ſmall ſpines on their edges; the upper part of the ſtalk is divided into two or three ſlender branches, each ſupporting a head of purple flowers, having rays in the border, and florets in the diſk, incloſed in a ſcaly empalement. The roots of this will live two or three years; it flowers in June, but unleſs the ſummer is warm and dry, it will not perfect ſeeds in England. The ſeeds of this ſort ſhould be ſown where they are to remain, and will require no other culture than the former. It grows naturally about Madrid, from whence I received the ſeeds.

The third ſort grows naturally in Italy, and the iſlands of the Archipelago, and is what the College of Phyſicians have placed among the medicinal ſimples, by the title of Carline Thiſtle; the root of this is perennial, and ſends out many narrow leaves, which are deeply ſinuated, and armed with ſpines on their edges. Theſe lie cloſe on the ground, and between them the flower is ſituated, without ſtalk, having many florets, incloſed in a prickly empalement. Thoſe on the border are white, but thoſe which compoſe the diſk are of a yellowiſh colour. It flowers in July, but never perfects ſeeds in England.

It is propagated by ſeeds, which muſt be obtained from the countries where it grows naturally; theſe ſhould be ſown upon a border of light earth, in a warm ſituation, early in April, and when the plants come up, and are fit to tranſplant, they ſhould be thinned, and thoſe which are drawn out may be tranſplanted, leaving the other two feet aſunder; after which the only culture they require is, to keep them clean from weeds in ſummer, and in winter to cover the roots with ſome old tanners bark, to prevent the froſt from penetrating the ground.

The fourth ſort grows naturally at the Cape of Good Hope; this riſes with a ſhrubby ſtalk near three feet high, garniſhed with oblong leaves, indented on their edges, which have weak ſpines at each indenture; there are ſeveral weak branches ſent out on the ſides, each of which are terminated by a ſingle head of flowers, incloſed in a common empalement, which ſpreads open, and are of a golden colour, but are never ſucceeded by ſeeds in England. This is propagated by ſlips, taken from the flower-ſtalks in June, and planted in pots filled with light earth, and plunged into an old bed of tanners bark, where the heat is gone, and ſhaded with mats in the heat of the day, until they have taken root; after which time they may be expoſed in the open air till October, when they muſt be removed into ſhelter, and, during the winter, ſhould have little water, and in ſummer expoſed with other hardy exotic plants in a ſheltered ſituation.

ATRAPHAXIS. Lin. Gen. Plant. 405. We have no Engliſh name for this.

The CHARACTERS are,

The flower hath a permanent empalement, compoſed of two ſmall coloured leaves placed oppoſite. The flower hath two roundiſh ſinuated petals larger than the empalement, which are permanent; it hath ſix capillary ſtamina, which are the length of the empalement, crowned with roundiſh ſummits; in the center is ſituated a compreſſed germen, having no ſtyle, but crowned by two ſtigma; the germen afterward becomes a roundiſh compreſſed ſeed, ſhut up in the empalement.

This genus of plants is ranged in the ſecond ſection of Linnæus's ſixth claſs, entitled Hexandria Digynia, the flower having ſix ſtamina and two ſtigma.

The SPECIES are,

1. ATRAPHAXIS ramis ſpinoſis. Hort. Cliff. 138. *Atraphaxis with prickly branches.* Atriplex orientalis frutex aculeatus flore pulchro. Tourn. Cor. 38.
2. ATRAPHAXIS inermis. Lin. Sp. Plant. 333. *Atraphaxis without ſpines.* Arbuſcula Africana repens folio ad lateræ criſpo, ad Polygona relata. Hort. Elth. 36.

The firſt ſort grows naturally in Media, from whence Dr. Tournefort ſent the ſeeds to the royal garden at Paris.

This is a ſhrub which riſes four or five feet high, ſending out many weak lateral branches, which are armed with ſpines, and garniſhed with ſmall, ſpear-ſhaped, ſmooth leaves, of an Aſh-colour. The flowers come out at the ends of the ſhoots in cluſters, each conſiſting of two white leaves tinged with purple; and are included in a two leaved empalement, of a white herbaceous colour; theſe appear in Auguſt, but the ſeeds never ripen here, ſo the plant is propagated by cuttings, and muſt be ſcreened from hard froſt, which commonly deſtroys thoſe which are planted in the open air.

The ſecond ſort ſends out many ſlender branches, which trail on the ground when they are not ſupported, garniſhed with ſmall oval leaves, about the ſize of thoſe of the Knot Graſs, waved and curled on their edges, embracing the ſtalk half round at their baſe, and are placed alternate. The flowers come out from the wings of the leaves, and have much the appearance of an apetalous flower, being compoſed of four herbaceous leaves, two of which are the empalement, the other two the petals; in the center is ſituated the compreſſed germen, attended by ſix ſtamina, but the ſeeds are never produced in this country. It flowers in June and July. This is a native of the country about the Cape of Good Hope, from whence it was brought into the gardens in Holland, and has been ſeveral years in the Engliſh gardens, where it is allowed a place more for the ſake of variety, than its beauty. It may be eaſily propagated by cuttings any time in the ſummer, and in winter the plants muſt be ſcreened from froſt.

ATRIPLEX, Orach, or Arach.

The CHARACTERS are,

It hath female and hermaphrodite flowers on the ſame plant. The hermaphrodite flowers have a permanent empalement of five oval concave leaves, with membranaceous borders; they have no petals, but five awl-ſhaped ſtamina, placed oppoſite to the leaves of the empalement, ſupporting double ſummits. In the center is placed the orbicular germen, with a ſhort bipartite ſtyle, crowned with a reflexed ſtigma. The germen afterward becomes an orbicular compreſſed ſeed, ſhut up in the five-cornered empalement. The female flowers have a two-leaved empalement, which are large, plain, erect, and pointed. They have no petals nor ſtamina, but in the center a compreſſed germen, ſupporting a bipartite ſtyle, crowned by a reflexed ſtigma. The germen afterward becomes an orbicular compreſſed ſeed, incloſed in the heart-ſhaped valves of the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's twenty-third claſs, entitled Polygamia Monœcia, the ſame plants having female and hermaphrodite flowers.

The SPECIES are,

1. ATRIPLEX caule erecto herbaceo foliis triangularibus. Hort. Cliff. 469. *Orach with an upright herbaceous ſtalk, and triangular leaves.* Atriplex hortenſis alba ſive pallidè virens. C. B. P. 119.
2. ATRIPLEX caule fruticoſo foliis deltoidibus integris. Hort. Cliff. 469. *Orach with a ſhrubby ſtalk and entire leaves, ſhaped like the Greek delta.* Atriplex latifolia ſive Halimus fruticoſus. Mor. Hiſt. p. 2. 207. *commonly called Sea Purſlane-tree.*
3. ATRIPLEX caule fruticoſo foliis obovatis. Flor. Suec. 829. *Orach with a ſhrubby ſtalk and oval leaves.* Atriplex maritima fruticoſa, Halimus & Portulaca marina dicta anguſtifolia. Raii Syn.

There are ſeveral other ſpecies of this genus, ſome of which grow naturally in England, but as they are plants of no beauty, they are rarely admitted into gardens, for which reaſon I ſhall not enumerate them here.

The firſt of theſe plants was formerly cultivated in the kitchen-gardens as a culinary herb, being uſed as Spinage, and is now, by ſome perſons, preferred to it; though, in general, it is not eſteemed amongſt the Engliſh; but the French, at preſent, cultivate this plant for uſe.

There are three or four different ſorts of this, whoſe difference is only in the colour of the plants; one of which is of a deep green, another of a dark purple, and a third with green leaves and purple borders. Theſe are ſuppoſed to be only accidental varieties which have come from the ſame ſeeds, but in forty years which I have cultivated theſe ſorts, I have never yet obſerved them to vary. But as there is no other eſſential difference, I have not enumerated them here.

Theſe plants are annual, ſo muſt be ſown for uſe early in the ſpring, or at Michaelmas, ſoon after the ſeeds are ripe; at which time it generally ſucceeds better than when it is ſown in the ſpring, and will be fit for uſe at leaſt a month earlier. Theſe plants require no other culture, but to hoe them when they are about an inch high; to cut them down where they are too thick, leaving them about four inches aſunder, and to cut down all the weeds. This muſt be done in dry weather, otherwiſe the weeds will take root again, and render the work of little or no uſe. When the plants are grown about four inches high, it will be proper to hoe them a ſecond time, in order to clear them from weeds; and, if you obſerve the plants are left too cloſe in any part, they ſhould then be cut out. If this be well performed, and in dry weather, the ground will remain clean until the plant is fit for uſe. Where theſe plants are ſown on a rich ſoil, and allowed a good diſtance, the leaves will be very large, in which the goodneſs of the herb conſiſts. This muſt be eaten while it is young; for, when the ſtalks become tough, it is good for nothing. Some few plants of each kind may be permitted to ſtand for ſeed, to preſerve their kinds, which will ripen in Auguſt, and may then be cut, and laid on a cloth to dry; after which the ſeeds may be beaten out, and put up for uſe. The firſt ſort is ordered by the College of Phyſicians for medicinal uſe.

The ſecond ſort was formerly cultivated in gardens as a ſhrub; and, by ſome perſons, they were formed into hedges, and conſtantly ſheared, to keep them thick; but this plant is by no means fit for ſuch purpoſes, on many accounts, for it grows too vigorous; the ſhoots, in one month, at the growing ſeaſon of the year, will be two feet long, provided they have a good ſoil; ſo that a hedge of this plant cannot be kept in tolerable order, nor will it ever form a thick hedge. But a worſe inconvenience attends this plant; for, in very hard winters, it is often deſtroyed; as alſo, in very dry ſummers, many of the plants will decay, whereby there will become large gaps in the hedge.

But although this plant will not be proper for hedges, yet it may have a place in wilderneſs quarters, where it will ſerve to thicken; and the ſilver-coloured leaves will add to the variety, among other ſhrubs of the ſame growth. This will grow eight or ten feet high, and, if ſuffered to grow wild, without pruning, will ſpread ſeveral feet in compaſs, and will ſometimes produce flowers.

It may be propagated by cuttings, which may be planted in any of the ſummer months, on a ſhady border; where, if they are duly watered, they will ſoon take root, and be fit to tranſplant the Michaelmas following, when they ſhould be planted where they are to remain; for they do not ſucceed well in tranſplanting, eſpecially when they are grown pretty large and woody.

The third ſort grows wild in divers parts of England, on the ſea ſide, from whence the plants may be procured; or it may be propagated by cuttings, in the ſame manner as the former ſort. This is a low under ſhrub, ſeldom riſing above two feet and a half, or at moſt three feet high, but becomes very buſhy. The leaves of this kind are narrow, and of a whitiſh colour, but are not ſo white as thoſe of the former. This may have a place amongſt other low ſhrubs; and, if planted on a poor gravelly ſoil, will abide ſeveral years, and make a pretty diverſity.

ATROPA. Lin Gen. Plant. 222. Belladonna. Tourn. Inſt. R. H. 77. Deadly Nightſhade.

The Characters are,

The flower hath a permanent empalement of one leaf, cut into five parts; it is bell-ſhaped, the tube is ſhort, and ſwells toward the brim, where it ſpreads open, and is divided into five equal parts. It hath five awl-ſhaped ſtamina riſing from the baſe of the petal where they join, but at the top ſpread from each other, and are crowned with large ſummits which ſtand upward. In the center is ſituated an oval germen, ſupporting a ſlender ſtyle, which is crowned by an oblong tranſverſe ſtigma. The germen afterward becomes a globular berry having three cells, ſitting on the empalement, and filled with kidney-ſhaped ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, entitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Atropa (*Belladonna*) caule herbaceo, foliis ovatis integris. Lin. Sp. Plant. 181. *Deadly Nightſhade with an herbaceous ſtalk, and oval entire leaves.* Belladonna majoribus foliis & floribus. Tourn. Inſt. R. H. 77.
2. Atropa (*Fruteſcens*) caule fruticoſo pedunculis confertis, foliis cordato-ovatis obtuſis. Lin. Sp. Plant. 182. *Deadly Nightſhade with a ſhrubby ſtalk, foot-ſtalks in cluſters, and oval, heart-ſhaped, obtuſe leaves.* Belladonna fruteſcens rotundifolia Hiſpanica. Tourn. Inſt. R. H. 77.
3. Atropa (*Herbacea*) caule herbaceo, foliis ovatis nervoſis marginibus undulatis. *Deadly Nightſhade with an herbaceous ſtalk, and oval veined leaves waved on their edges.*

The firſt ſort grows wild in many parts of England, but is not very frequent near London. I have obſerved it in Woodſtock Park in Oxfordſhire, and in great abundance in Uppark in Hampſhire. This plant hath a perennial root, which ſends out ſtrong herbaceous ſtalks of a purpliſh colour, which riſe to the height of four or five feet, garniſhed with oblong entire leaves, which toward autumn change to a purpliſh colour; the flowers are large and come out between the leaves ſingly, upon long foot-ſtalks; bell-ſhaped, and of a duſky brown colour on their outſide, but are purple within. After the flower is paſt, the germen turns to a large round berry, a little flatted at the top, and is firſt green, but when ripe turns to a ſhining black, ſitting cloſe upon the empalement, and contains a purple juice of a nauſeous ſweet taſte, and full of ſmall kidney-ſhaped ſeeds. In ſome places this plant is called Dwale, but in general Deadly Nightſhade, from its quality. It is rarely admitted into gardens, nor indeed ſhould it be ſuffered to grow in any places where children reſort, for it is a ſtrong poiſon: there have been ſeveral inſtances within a few years paſt, of its deadly quality, by ſeveral children being killed with eating the berries, which are of a fine black colour, and about the ſize of a black Cherry, and not unpleaſant to the taſte.

Mr. Ray gives a good account of the various ſymptoms it produces, by what happened to a Mendicant Frier, upon his drinking a glaſs of Mallow wine, in which this plant was infuſed: in a ſhort time he became delirious, ſoon after was ſeized with a grinning laughter, after that ſeveral irregular motions, and at laſt a real madneſs ſucceeded; and ſuch a ſtupidity as thoſe that are ſottiſhly drunk have, which after all, was cured by a draught of vinegar.

There is alſo an inſtance of the direful effects of this plant recorded in Buchanan's Hiſtory of Scotland, wherein he gives an account of the deſtruction of the army of Sweno, when he invaded Scotland, by mixing a quantity of the juice of theſe berries with the drink which the Scots by their truce were to ſupply them with; which ſo intoxicated the Danes, that the Scots fell upon them in their ſleep, and killed the greateſt part of them, ſo that there were ſcarcely men enough left to carry off their king.

The ſecond riſes with a ſhrubby ſtem to the height of ſix or eight feet, and divides into many branches, garniſhed with round leaves, in ſhape like thoſe of the Storax-tree; theſe are placed alternately on the branches. The flowers come out between the leaves upon ſhort foot-ſtalks, which are ſhaped like thoſe of the former, but much leſs, of a dirty yellowiſh colour, with a few brown ſtripes; theſe are never ſucceeded by berries in England. It grows naturally in Spain, from whence the ſeeds may be procured. It is propagated by ſeeds, which ſhould be ſown in the ſpring upon a very moderate hot-bed, juſt to bring up the plants; when they are fit to remove, they ſhould be each put into a ſeparate ſmall pot, filled with loamy earth, and ſhaded until they take root; then they may be placed with other hardy exotic plants in a ſheltered ſituation, and in October they muſt be removed into the green-houſe, and treated as other plants from the ſame country. It flowers in July and Auguſt.

The ſeeds of the third ſort were ſent me from Campeachy; this hath a perennial root, which puts out ſeveral channelled herbaceous ſtalks, which riſe about two feet high; and toward the top divide into two or three ſmall branches, garniſhed with oval leaves four inches long and three broad, having ſeveral tranſverſe ribs on their under ſide, which are prominent. The flowers come out from between the leaves on ſhort foot-ſtalks; they are white, and ſhaped like thoſe of the common ſort, but are ſmaller. It flowers in July and Auguſt, but ſeldom ripens its fruit in England. It is propagated by parting the roots in the ſpring, and the plants muſt be kept in the bark-ſtove to have them thrive well in this country.

AVENA. Lin. Gen. Plant. 85. Tourn. Inſt. R. H. 514. Oats.

The Characters are,

The flowers are collected in a looſe panicle, without beards; theſe have a bivalvular empalement, ſwelling in the middle, and pointed at both ends. The petal of the flower is bivalve, the lower valve being of the ſame ſize with the empalement, but harder, putting out from the back a ſpiral beard, twiſting, jointed, and reflexed. There are two oval nectarii ſitting upon the upper ſide of the germen, which is obtuſe, ſupporting two reflexed hairy ſtyles, crowned by two plain ſtigma; theſe are attended by three ſlender ſtamina, crowned by oblong forked ſummits. The germen afterward becomes an oblong ſwelling ſeed, pointed at both ends, having a longitudinal furrow, and cloſely ſhut up in the cover or chaff.

This genus of plants is ranged in the ſecond ſection of Linnæus's third claſs, entitled Triandria Digynia, from the flowers having three ſtamina and two ſtyles.

Avena (*Diſpermis*) calycibus diſpermibus ſeminibus lævibus. Hort. Cliff. 25. *Oats with two ſmooth ſeeds in each empalement.* There are three ſorts of theſe Oats cultivated in England, viz. the white, the black, and the brown or red Oat, which are ſuppoſed to be only accidental varieties; but where they have been many years ſeparately cultivated, I have never obſerved them to alter. However, as their principal difference is in the colour of their grain, I ſhall not enumerate them as diſtinct ſpecies. There is alſo a naked Oat, which is ſometimes cultivated in the diſtant parts of England, but is rarely ſeen near London.

The white ſort is the moſt common about London; the black is more cultivated in the northern parts of England, and is eſteemed a very hearty food for horſes; but the firſt makes the whiteſt meal, and is chiefly cultivated where the inhabitants live much upon Oat-cakes.

The naked Oat is leſs common than either of the others, eſpecially in the ſouthern parts of England; but in the north of England, Scotland, and Wales, it is cultivated in plenty. This ſort is eſteemed, becauſe the grain threſhes clean out of the huſk, and need not be carried to the mill to be made into oatmeal or griſt. An acre of ground doth not yield ſo many buſhels of theſe, as of the common Oats, by reaſon the grain is ſmall and naked, and goes near in meaſure; but what is wanting in the meaſure, is ſupplied in value.

The red Oats are much cultivated in Derbyſhire, Staffordſhire, and Cheſhire, but are rarely ſeen in any of the counties near London; though, as they are a very hardy ſort, and give a good increaſe, they would be well worth propagating, eſpecially for all ſtrong lands.

The ſtraw of theſe Oats is of a browniſh red colour, as is alſo the grain, which is very full and heavy, and eſteemed better food for horſes than either of the former ſorts.

Oats are a very profitable grain, and abſolutely neceſſary, being the principal grain which horſes love; and are eſteemed the moſt wholſome food for thoſe cattle, being ſweet, and of an opening nature; other ſorts of grain being apt to bind, which is injurious to labouring horſes: but if you feed them with this grain ſoon after they are houſed, before they have ſweat in the mow, or are otherwiſe dried, it is as bad on the other hand, for they are then too laxative.

This grain is a great improvement to many eſtates in the north of England, Scotland, and Wales; for it will thrive on cold barren ſoils, which will produce no other ſort of grain; it will alſo thrive on the hotteſt land: in ſhort, there is no ſoil too rich or too poor for it, too hot or too cold for it; and in wet harveſts, when other grain is ſpoiled, this will receive little or no damage; the ſtraw and huſks being of ſo dry a nature, that if they are houſed wet, they will not heat in the mow, or become mouldy, as other grain uſually do; ſo is of great advantage in the northern parts of England, and in Scotland, where their harveſt is generally late, and the autumns wet.

The meal of this grain makes tolerable good bread, and is the common food of the country people in the north. In the ſouth it is eſteemed for pottage, and other meſſes, and in ſome places they make beer with this grain.

The beſt time for ſowing of Oats is in February or March, according as the ſeaſon is early or late; and ſometimes I have known it ſown in April upon cold land, and has been early ripe. The black and red Oats may be ſown a month earlier than the white, becauſe they are hardier.

Oats are often ſown on land which has the former years produced Wheat, Rye, or Barley. The common method is to plough in the ſtubble about the beginning of February, and ſow the Oats, and harrow them in; but then they muſt be harrowed the ſame way as the furrows lay, for if it be done croſſways, the ſtubble will be raiſed on the ſurface; but this is not a good method of huſbandry, for when people have time to plough the ſtubble in autumn, it will rot in winter; and then giving the land another ploughing and a good harrowing juſt before the Oats are ſown, it will make the ground finer and better to receive the grain. Moſt people allow four buſhels of oats to an acre, but I am convinced three buſhels are more than enough; the uſual produce is about twenty-five buſhels to an acre, though I have ſometimes known more than thirty buſhels on an acre.

Oats are alſo ſown upon land when it is firſt broken up, before the ground is brought to a tilth for other grain, and is frequently ſown upon the ſward with one ploughing; but it is much better to give the ſward time to rot before the Oats are ſown, for the roots of the graſs will prevent thoſe of the Corn from ſtriking downward.

AVENUES are walks of trees leading to a houſe, which are generally terminated by ſome diſtant object.

Theſe were formely much more in requeſt than at preſent, there being few old ſeats in the country but have one or more of theſe avenues; and ſome have as many of them as there are views from the houſe; but of late theſe are, with good reaſon, diſuſed; for nothing can be more abſurd, than to have the ſight contracted by two or more lines of trees, which ſhut out the view of the adjacent grounds, whereby the verdure and natural beauties of the country are loſt; and where the avenues are of a conſiderable length (even where their breadth is proportionable) they appear at each end to be only narrow cuts through a wood, which never can pleaſe any perſon of real taſte; and, when the road to the houſe is through the avenue, nothing can be more diſagreeable; for in approaching to the houſe, it is like going through a narrow lane, where the objects on each ſide are ſhut out from the view; and when it is viewed from the houſe, it at beſt has only the appearance of a road, which being extended to a length in a ſtrait line, is not near ſo beautiful as a common road, which is loſt by the turnings, ſo as ſeldom to be ſeen to a great extent: but as theſe avenues muſt be made exactly ſtrait, ſo when the trees are grown to any ſize, they entirely break the view, whatever way the ſight is directed through them; and if this is in a park, the lawn of graſs through which the avenue is planted, is thereby entirely deprived of the beauty which it naturally would afford, if left open and well kept: therefore, whenever the ſituation of a houſe will admit of a large open lawn in front, the road to the houſe ſhould be carried round at a proper diſtance; and, if it be carried ſometimes through trees, and ſerpented in an eaſy natural way, it will be much more beautiful than any ſtiff formal avenue, how large ſoever made.

But as there may be ſome perſons ſo much wedded to the old way of laying out and planting grounds, as to prefer the avenues to the moſt beautiful diſpoſition of lawns, woods, &c. I ſhall mention the uſual methods of deſigning and planting them, that have been eſteemed the beſt.

The uſual width allowed to theſe avenues was generally as much as the whole breadth of the houſe and wings; but if they are planted twelve or fourteen feet wider, they will be the better; becauſe when the trees are grown to any conſiderable ſize, they will ſpread and overhang, ſo will contract the view.

And as for ſuch avenues to woods or proſpects, &c. they ought not to be leſs than ſixty feet in breadth; and becauſe ſuch walks are a long time before they are ſhady, it will be convenient to plant another row on each ſide, rather than to loſe the ſtatelineſs that the main walk will afford in time by being broad, where any thing of a proſpect is to be gained.

And as to the diſtance one from another, they ſhould not be planted nearer one another than thirty-five or forty feet, eſpecially if the trees are of a ſpreading kind; and the ſame diſtance, if they are for a regular grove.

As to the trees proper for planting avenues, they may be the Engliſh Elm, the Lime-tree, the Horſe Cheſnut, the common Cheſnut, the Beach, and the Abele.

The Engliſh Elm is approved for all places where it will ſucceed, and that it will do in moſt places, except in very wet or cold ſhallow grounds. 1, Becauſe it will bear cutting, heading, lopping in any manner whatſoever, and probably, with better ſucceſs than any other tree.

Secondly, the Lime-tree: this is approved by others, becauſe it will do well in any tolerable ſoil, if the bottom be not hot and gravelly; and becauſe of the regular ſhape it has in growing, the agreeableneſs of its ſhade, and the beautiful colour of its leaves.

Thirdly, the Horſe Cheſnut is alſo to be uſed in ſuch places as are very well defended from ſtrong winds; becauſe, wherever it grows freely, if it be not ſkilfully managed now and then by cutting, the branches are ſubject to ſplit down. This tree is valuable on account of its quick growth, the earlineſs of its coming out, the nobleneſs of its leaves, and the beauty of its flowers, being a fine plant both for ſhade and ornament. This delights in a ſtrong hearty ſoil, but will do well in any tolerable ground, if good care be taken in the planting of it; but wherever theſe trees are planted in avenues, they ſhould be placed thirty feet aſunder, that their heads may have room to ſpread, otherwiſe they will not appear ſo beautiful.

Fourthly, the common Cheſnut will do well in a proper ſoil, and will riſe to a conſiderable height, if planted cloſe together; but if it be planted ſingly, where the tree can take its own natural ſhape, it is rather inclined to ſpread and grow globous than tall.

Fifthly, the Beech is recommended by ſome; but this ſeldom ſucceeds well after tranſplanting, without extraordinary care; though it arrives to a very large tree in many places in England, where it grows naturally; and is the moſt tedious and troubleſome to raiſe, to any tolerable ſize, in a nurſery way.

Sixthly, the Abele: this, indeed, grows more diſperſed and looſe in its head than any of the former, and conſequently, is worſe for defence; but yet is not to be left out from the number of trees for avenues, becauſe it is the quickeſt in growth of all the foreſt trees, and will thrive tolerably well in almoſt any ſoil, and particularly in wet ground, where few of the before-mentioned trees will thrive, and this ſeldom fails in tranſplanting.

Seventhly, the Oak; but this is ſeldom uſed in planting avenues, becauſe it requires ſo long a time to raiſe it up to any tolerable ſtature in the nurſery way; nor is it apt to thrive much after it has been tranſplanted, if at any bigneſs.

As for the Alder, Aſh, Platanus, and Sycomore, they are but rarely uſed for planting avenues.

AURANTIUM [this plant is ſo called from aurum, *Lat.* gold, on account of its golden colour,] the Orange-tree.

The CHARACTERS are;

The empalement of the flower is ſmall, of one leaf, indented in five parts. The flower hath five oblong ſpreading petals, and many ſtamina, which are frequently joined in ſmall ſeparate bodies at bottom, and are crowned by oblong ſummits. In the center is ſituated the round germen, ſupporting a cylindrical ſtyle, crowned by a globular ſtigma. The germen afterward becomes a globular fleſhy fruit, compreſſed at both ends, having a thick fleſhy pulp, and divided into ſeveral cells, each containing two oval callous ſeeds.

This genus of plants, is by Dr. Linnæus joined to the Citron, to which he has alſo added the Lemon, making them only ſpecies of the ſame genus, and ranges it in his eighteenth claſs, entitled Polyadelphia Icoſandria, the flowers having more than twenty ſtamina, which are joined in ſeveral bodies.

The SPECIES are,

1. AURANTIUM (*Acri*) foliis ovato-lanceolatis glabris. *Orange-tree, with oval, ſpear-ſhaped, ſmooth leaves.* Aurantium acri medullâ vulgare. Ferr. Heſp. *The Seville Orange.*
2. AURANTIUM (*Sinenſe*) foliis lanceolatis acutis glabris. *Orange-tree, with pointed, ſpear-ſhaped, ſmooth leaves.* Aurantium Sinenſe. Ferr. Heſp. *The China Orange.*
3. AURANTIUM (*Orientale*) foliis lineari-lanceolatis glabris. *Orange-tree with narrow, ſpear-ſhaped, ſmooth leaves.* Aurantium anguſto ſalicis folio dictum. Boerh. Ind. alt 2. 238. *Willow-leaved Orange, and by ſome called the Turkey Orange.*
4. AURANTIUM (*Decumana*) foliis ovato-lanceolatis craſſis lucidis, fructu maximo. *Orange-tree with thick, ſhining, oval, ſpear-ſhaped leaves, and a large fruit.* Aurantium fructu maximo Indiæ Orientalis. Boerh. Ind. alt. 2. 238. *The Pumpelmoes, or Shaddock.*
5. AURANTIUM (*Humile*) pumilum foliis ovatis floribus ſeſſilibus. *Dwarf Orange-tree with oval leaves, and flowers growing cloſe to the branches.* Aurantium pumilum ſub acri medullâ. Bartol. *The Dwarf, or Nutmeg Orange.*

There are many varieties of this, as there is of moſt other fruits which have ariſen from culture; but thoſe here enumerated may ſtrictly be allowed to be diſtinct ſpecies. The varieties in the Engliſh gardens are, 1. The yellow and white ſtriped-leaved Orange. 2. The curled-leaved Orange. 3. The horned Orange. 4. The double flowering Orange. And 5. The hermaphrodite Orange.

The China Orange is not ſo hardy as the Seville, therefore muſt be treated more tenderly, placing it in winter in the warmeſt part of the green-houſe, and houſing it earlier in autumn, otherwiſe the fruit will all drop from the trees. This ſort rarely produces good fruit in England, nor are the leaves of the tree near ſo large or beautiful as thoſe of the Seville Orange; therefore the latter ſhould be preferred, and only a tree or two of the China ſort kept for variety.

The Dwarf Orange is alſo tender, the leaves are very ſmall, growing in cluſters; the joints of the branches are very near each other, and the flowers of theſe grow very cloſe together, and appear like a noſegay, the branches being covered with them. This ſort, when in flower, is proper to place in a room or gallery, to adorn them; the flowers being very ſweet, will perfume the air of the place; but theſe are ſeldom to be found in good health, becauſe they muſt be treated with more care than the common Orange and Lemon-trees, as muſt alſo the Shaddock, otherwiſe the fruit will always drop off in winter. The Pumpelmoes was brought from the Eaſt-Indies by one Capt. Shaddock, from whom the inhabitants of the Weſt-Indies gave this fruit the name. But they have greatly degenerated the fruit ſince it has been in the Weſt-Indies, by raiſing the trees from ſeeds; the greateſt part of which produce harſh ſour fruit, greatly inferior to the original ſort; the fleſh or pulp of which is red, whereas the greater part of the trees in America

rica produce fruit with a pale yellow fleſh, and by conſtantly raiſing theſe trees from ſeeds, they degenerate the fruit continually; whereas, if they would bud from the good ſort, they might have it in as great plenty as they pleaſed; but there are few perſons in that part of the world who underſtand the method of grafting or budding fruit trees, and if they did, they are ſo negligent of their fruits, &c. as to leave the whole to nature, ſeldom giving themſelves any farther trouble than to put the ſeeds into the ground, and leave them to grow as nature ſhall incline.

In proof of what I have here ſaid, I cannot omit to mention, that a few years ago, I ſent two ſmall trees of the true Seville Orange to Jamaica, where this ſort was wanting; and from theſe many other trees were budded, which have produced plenty of fruit, ſome of which were ſent to England a few years paſt; and although they were long in their paſſage, yet when they arrived here, they were greatly ſuperior to any of thoſe fruit which are imported hither from Spain or Portugal, one of thoſe affording three times the quantity of juice, that a fruit of equal ſize from either of thoſe countries does.

All the ſorts of Orange-trees with ſtriped leaves are tender, therefore muſt be placed in a warm part of the green-houſe in winter, and muſt be treated with more care than the common ſort, otherwiſe they will not thrive. Theſe are varieties which ſome perſons are fond of, but they never produce good fruit, nor are the flowers produced in ſo great plenty, therefore a few only ſhould be preſerved for the ſake of variety.

The horned Orange differs from the other ſorts in the fruit dividing into parts, and the rind expanding in form of horns: this and the diſtorted Orange are preſerved by ſome curious perſons for variety, but are not ſo beautiful as the common Orange. There is alſo a great variety of ſweet Oranges both in the Eaſt and Weſt-Indies, ſome of which are much more eſteemed than thoſe we now have in Europe; but as they are much tenderer, they will not thrive in this country with the common culture; therefore I ſhall not enumerate them, but ſhall proceed to give directions for the management of Orange-trees in England.

Where the trees are to be raiſed for ſtocks to bud Oranges, you ſhould procure ſome Citron-ſeeds which were duly ripened; for the ſtocks of this kind are preferable to any other, both for quickneſs of growth, as alſo that they will take buds of either Orange, Lemon, or Citron; next to theſe are the Seville Orange ſeeds. The beſt ſeeds are uſually to be had from rotten fruits, which are commonly eaſy to be procured in the ſpring of the year; then prepare a good hot-bed, of either horſe-dung or tanners bark; the laſt of which is much the better, if you can eaſily procure it. When this bed is in a moderate temper for heat, you muſt ſow your ſeeds in pots of good rich earth, and plunge them into the hot bed; obſerving to give them water frequently, and raiſe the glaſſes in the great heat of the day, to give proper air, leſt the ſeeds ſhould ſuffer by too great heat: in three weeks time your ſeeds will come up, and if the young plants are not ſtinted, either for want of proper heat or moiſture, they will be in a month's time after their appearance, fit to tranſplant into ſingle pots: you muſt therefore renew your hot-bed, and having prepared a quantity of ſmall halfpenny pots (which are about five inches over at the top,) fill theſe half full of good freſh earth, mixed with very rotten cow-dung; and then ſhake out the young plants from the large pots, with all the earth about them, that you may the better ſeparate the plants without tearing their roots; and having half filled the pots with earth, put a ſingle plant into each of the ſmall pots; then fill them up with the ſame earth as before directed, plunging the pots into the new hot-bed, giving them a good watering to fix the earth to their roots; and obſerve to repeat the ſame very often (for this plant, when in a hot-bed, requires much water,) but be ſure to ſcreen them from the ſun in the heat of the day. In this method, with due care, your plants will grow to be two feet high by July, when you muſt begin to harden them by degrees, in raiſing your glaſſes very high, and when the weather is good, take them quite off; but do not expoſe them to the open ſun in the heat of the day, but rather take off the glaſſes, and ſhade the plants with mats, which may be taken off when the ſun declines; for the violent heat in the middle of the day would be very injurious to them, eſpecially while young. Toward the end of September you muſt houſe them, obſerving to place them near the windows of the green-houſe, to prevent the damps from moulding their tender ſhoots. During the winter ſeaſon they may be often refreſhed with water, and in March or April, waſh their heads and ſtems, to clear them from the filth that may have ſettled thereon, during their being in the houſe; and you muſt alſo give them a moderate hot-bed in the ſpring, which will greatly forward them; but harden them by the beginning of June, that they may be in right order to bud in Auguſt; when you ſhould make choice of cuttings from trees that are healthy and fruitful, of whatever kinds you pleaſe, obſerving that the ſhoots are round; the buds of theſe being much better and eaſier to part from the wood, than ſuch as are flat. When you have budded the ſtocks, you ſhould remove them into a green-houſe, to defend them from wet, turning the buds from the ſun; but let them have as much free air as poſſible, and refreſh them often with water. In a month's time after budding, you will ſee which of them has taken; you muſt then untie them, that the binding may not pinch the buds, and let them remain in the green-houſe all the winter; then in the ſpring, prepare a moderate hot-bed of tanners bark; and, after having cut off the ſtocks about three inches above the buds, plunge their pots into the hot-bed, obſerving to give them air and water, as the heat of the weather ſhall require; but be ſure to ſcreen them from the violence of the ſun during the heat of the day. In this management, if your buds ſhoot kindly, they will grow to the height of two feet or more, by the end of July; at which time you muſt begin to harden them before the cold weather comes on, that they may the better ſtand in the green-houſe the following winter. In the firſt winter after their ſhooting, you muſt keep them very warm; for, by forcing them in the bark-bed, they will be ſomewhat tenderer; but it is very neceſſary to raiſe them to their height in one ſeaſon, that their ſtems may be ſtrait: for in ſuch trees, which are two or more years growing to their heading height, the ſtems are always crooked. In the ſucceeding years, their management will be the ſame as in full grown trees, which will be hereafter treated of: I ſhall therefore, now, proceed to treat of the management of ſuch trees as are brought over every year in cheſts from Italy; which is, indeed, by much the quicker way of furniſhing a green-houſe with large trees; for thoſe which are raiſed from ſeeds in England, will not grow ſo large in their ſtems under eighteen or twenty years, as theſe are when brought over; and although their heads are ſmall when we receive them, yet in three years, with good management, they will obtain large heads and produce fruit.

In the choice of theſe trees obſerve firſt, the difference of their ſhoots and leaves (if they have any upon them) to diſtinguiſh their different ſorts, for the Shaddock and Citrons always make much ſtronger ſhoots than the Orange; for which reaſon, the Italian gardeners, who raiſe theſe trees for ſale, generally propagate thoſe ſorts, ſo that they bring few of the Seville Orange-trees over, which are much more valuable both for their flowers and fruit; alſo prefer thoſe that have two good buds in each ſtock (for many of them have but one, which will always produce an irregular head:) the ſtraitneſs of the ſtem, freſhneſs of the branches, and plumpneſs of the bark, are neceſſary obſervations.

When you have furniſhed yourſelf with a parcel of trees, you muſt prepare a moderate hot-bed of tanters bark, in length and breadth according to the number of trees to be forced; then put your trees into a tub of water upright, about half way of the ſtems, leaving the head and upper part of the ſtem out of the water, the better to draw and imbibe the moiſture. In this ſituation they may remain two or three days (according to their plumpneſs when you received them;) then take them out, and clean their roots from all filth, cutting off all broken or bruiſed roots, and all the ſmall fibres, which are quite dried by being ſo long out of the earth, and ſcrub the ſtems with a hard hair-bruſh, cleaning them afterwards with a cloth; then cut off the branches about ſix inches from the ſtem, and having prepared a quantity of good freſh earth, mixed with very rotten neats dung, plant your trees therein, obſerving never to put them into large pots; for if they are but big enough to contain their roots, it is ſufficient at firſt planting; and be ſure to put ſome potſherds and large ſtones in the bottom of each pot, to keep the holes at the bottom of the pots from being ſtopped with earth, that the water may freely paſs off, and wrap ſome haybands round their ſtems, from bottom to top, to prevent the ſun from drying their bark; then plunge theſe pots into the bark-bed, watering them well to ſettle the earth to their roots, frequently repeating the ſame all over their heads and ſtems, being very careful not to over-water them, eſpecially before they have made good roots; and obſerve to ſcreen the glaſſes of your hot-bed from the ſun in the heat of the day.

If your trees take to grow kindly (as there is little reaſon to doubt of, if the directions given be duly obſerved,) they will have made ſtrong ſhoots by the beginning of June; at which time you ſhould ſtop their ſhoots, to obtain lateral branches to furniſh their heads; and now you muſt give them air plentifully, and begin to harden them, that in the middle of July they may be removed into the open air, in ſome warm ſituation, defended from the great heat of the ſun, and from winds, that they may be hardened before winter. About the end of September you ſhould houſe theſe plants, ſetting them at firſt in the front of the green-houſe, near the glaſſes, keeping the windows open at all times when the weather will permit; and about the latter end of October, when you bring in the Myrtles, and other leſs tender trees, you muſt ſet your Oranges in the warmeſt and beſt part of the houſe, placing lower plants or trees in the front, to hide their ſtems. During the winter, let your waterings be frequent, but give them not too much at a time; for now their heads are but ſmall, and therefore incapable to diſcharge too great a quantity of moiſture, and take great care to guard them from froſt.

In the ſpring, when you begin to take out ſome of your hardieſt ſorts of plants to thin your houſe, waſh and cleanſe the ſtems and leaves of your Orange-trees, taking out the upper part of the earth in the pots, filling them up again with good, freſh, rich earth, laying thereon a little rotten neats dung round the outſide of the pots, but do not let it lie near the ſtem of the trees; then place them at wider diſtances in the houſe, that the air may circulate round their heads, giving them air diſcretionally, as the weather grows warm; but do not remove them into the open air until the latter end of May, that the weather is ſettled; for many times, when they are removed out too ſoon, the mornings often proving cold, give them at leaſt a great check, which will change the colour of their leaves, and many times kill the extreme weak part of the ſhoots. Let the ſituation for your Orange-trees, during the ſummer ſeaſon, be as much defended from the ſun in the heat of the day, and ſtrong winds, as poſſible, by tall trees or hedges; both of which, if they are expoſed thereto, are very hurtful to them.

As theſe trees advance, it will be neceſſary in the ſummer to ſtop ſtrong ſhoots where they grow irregularly, to force out lateral branches to fill the head; but do not pinch off the tops of all the ſhoots (as is the practice of ſome,) which will fill the tree with ſmall ſhoots too weak to ſupport fruit; but endeavour to form a regular head, and obtain ſtrong ſhoots, taking away weak trifling branches where they are too cloſe.

During the ſummer ſeaſon, your Orange-trees will require frequent waterings in dry weather, eſpecially if they are large; therefore you ſhould endeavour to have the water as near the trees as poſſible, to ſave the trouble of carrying it, which, in a large quantity of trees, takes up much time. Your water ſhould be ſoft, and expoſed to the air, but never add dung of any ſort thereto; which, although by many frequently recommended, yet has always been found deſtructive to theſe, and all other trees, if much uſed; it being like hot liquors to human bodies, which, at firſt taking, ſeem to add vigour, yet certainly leave the body weaker after ſome time than before.

Your Orange-trees will require to be ſhifted and new potted every other year, therefore you muſt prepare a quantity of good earth, at leaſt a year before you intend to uſe it, that it may be well mixed and perfectly rotten. The beſt ſeaſon for this work is about the end of April, that they may have taken freſh root before they are removed out of the green-houſe; and when this work is performed, it will be neceſſary to let them remain in the houſe a fortnight longer than uſual, to be well ſettled.

In the performing this work, after you have drawn the trees out of the pots, you muſt cut off all the roots round the outſide of the ball of earth, and take away all mouldy roots (if any ſuch be;) then with a ſharp iron inſtrument, get as much of the old earth from between the roots as poſſible, being careful not to break or tear the roots; then ſet the root of the tree into a large tub of water for about a quarter of an hour, to ſoak the under part of the ball of earth; and afterwards ſcrub the ſtems of the trees with a hard hair-bruſh, cleaning them and the heads with water, and a ſoft woollen cloth. Your pots being prepared, with ſome potſherds and large ſtones in the bottom, put ſome of your freſh earth into the pot, about three or four inches thick; and having placed your tree thereon, in the middle of the pot, upright, fill it up with the ſame rich earth, preſſing it down hard with your hands; then water the tree all over the head, with a watering-pot that has a roſe upon the ſpout, to let the water fall light and thick (as in a ſhower of rain;) and in watering theſe trees, do it in the ſame manner, during the time they abide in the houſe after ſhifting; this will greatly refreſh their heads, and promote their taking freſh roots.

When you firſt ſet theſe trees abroad after ſhifting, you ſhould place them near the ſhelter of hedges, and faſten their ſtems to ſtrong ſtakes, to prevent their being diſturbed by winds, which ſometimes will blow freſh planted trees out of the pots, if too much expoſed thereto, and thereby greatly injure their new roots.

If old Orange-trees have been ill managed, and their heads become ragged and decayed, the beſt method to reſtore them, is to cut off the greateſt part of their heads early in March, and draw them out of the tubs or pots, and ſhake off the earth from their roots, cutting away all ſmall fibres and mouldy roots; and then ſoak and clean their roots, ſtems, and branches, planting them in good earth, and ſetting them into a hot-bed of tanners bark, as was directed for ſuch trees as came from abroad, managing them in the ſame manner: by this method they will produce new heads, and in two years time become good trees again. But if theſe are large trees, and have grown in tubs for ſeveral years, your beſt way will be to prepare a parcel of rough baſkets (ſuch as are uſed for baſketing Evergreens, when ſent to a diſtant place:) let theſe be ſomewhat leſs than the tubs you deſign to plant your trees into; then plant your trees herein, plunging them into the hot-bed, and about the beginning of July, when your trees have made good ſhoots, you may remove them into the tubs, with their baſkets about them, filling the empty ſpace with the ſame good earth: this will preſerve your tubs from rotting in the bark, and the trees will do equally well as if planted into the tubs at firſt, provided you are careful in removing the baſkets, not to diſturb their roots; and alſo let them remain in the green-houſe a fortnight or three weeks after planting, before you ſet them abroad.

Theſe trees being new potted or tubbed every other year, thoſe years in which they are not ſhifted, you muſt in April obſerve to take out as much of the old earth from the tops of the pots and tubs, and alſo round the ſides of them, as poſſible, without injuring the roots of the trees, and fill them up with freſh earth; you muſt alſo waſh and clean their ſtems and leaves from filth, which will greatly ſtrengthen their flowering, and cauſe them to ſhoot vigorouſly the following ſummer.

In the management of Orange-trees which are in good health, the chief care ſhould be to ſupply them with water duly, and not (as is ſometimes practiſed) ſtarve them in winter, whereby their fibres are dried, and become mouldy, to the great prejudice of the trees; nor to give them water in too great abundance, but rather let their waterings be frequent, and given in moderate quantities. You muſt alſo obſerve, that the water has free paſſage to drain off; for if it be detained in the tubs or pots, it will rot the tender fibres of the trees. During the winter ſeaſon, they muſt have a large ſhare of air when the weather is favourable; for nothing is more injurious to theſe trees than ſtifling of them, nor ſhould they be placed too near each other in the green-houſe; but ſet them at ſuch diſtance, that their branches may be clear of each other, and that the air may circulate freely round their heads. In ſummer they ſhould be placed where the winds are not violent, and to have the morning and evening ſun; for if they are too much expoſed to the mid-day ſun, they will not thrive. The beſt ſituation for them is near ſome large plantation of trees, which will break the force of the winds, and ſcreen them from the violent heat of the ſun. In ſuch a ſituation they may remain until the beginning of October, or later, according as the ſeaſon proves favourable; for if they are carried into the green-houſe early, and the autumn ſhould prove warm, it will occaſion the trees to make freſh ſhoots, which will be weak and tender, and ſo liable to periſh in winter; and ſometimes it will occaſion their flowering in winter, which greatly weakens the trees; nor ſhould they remain ſo long abroad as to be injured by morning froſts. The beſt compoſt for Orange-trees is two thirds of freſh earth from a good paſture, which ſhould not be too light, nor over ſtiff, but rather a hazel loam; this ſhould be taken about ten inches deep with the ſward, which ſhould be mixed with the earth to rot, and one third part of neats dung; theſe ſhould be mixed together, at leaſt twelve months before it is uſed, obſerving to turn it over every month, to mix it well, and to rot the ſward; this will alſo break the clods, and cauſe the mould to be finer. Before you make uſe of this earth, you ſhould paſs it through a rough ſcreen, to ſeparate the great ſtones and the roots of the ſward therefrom; but by no means ſift the earth too fine, for this is very prejudicial to moſt plants, but particularly to Orange-trees.

Of late years there have been many of theſe trees planted againſt walls, againſt which frames of glaſs are made to fix over them in winter; and ſome few curious perſons have planted theſe trees in the full ground, and have erected moveable covers to put over the trees in winter, which are ſo contrived as to be all taken away in ſummer: where theſe have been well executed, the trees have made great progreſs in their growth, and produced a much larger quantity of fruit, which have ripened ſo well, as to be extremely good for eating. If theſe are planted either againſt walls with deſign of training the branches to the walls, or in borders at a ſmall diſtance, ſo as to train them up as ſtandards, there ſhould be a contrivance of a fire-place or two, in proportion to the length of the wall, and flues carried the whole length of the wall, to warm the air in very cold weather, otherwiſe it will be very difficult to preſerve the trees in very hard winters alive; or, if they do live through the winter, they will be ſo much weakened by the cold, as not to be recovered the following ſummer to a proper ſtrength for bearing; ſo that wherever the trees are intended to be placed againſt or near old walls, the flues ſhould be built up againſt the front, allowing four inches thickneſs of the brick-work on each ſide the flues, obſerving to faſten this with irons, at proper diſtances, to ſecure it from ſeparating from the old wall: the manner of making theſe flues, is fully explained under the article of HOT WALLS. Where this contrivance is made, there will be no hazard of loſing the trees, be the winter ever ſo ſevere, with a little proper care; whereas, if this is wanting, there will require great care and trouble to cover and uncover the glaſſes every day, when there is any ſun; and if the wall is not thicker than they are uſually built, the froſt will penetrate through the walls in ſevere winters; ſo that covering and ſecuring the glaſſes of the front will not be ſufficient to preſerve the trees, be it done with ever ſo much care; therefore the firſt expence of the walls will ſave great trouble and charge, and be the ſecureſt method.

If the ground is wet, or of a ſtrong clay, ſo as to detain the moiſture, the borders ſhould be raiſed above the level of the ground, in proportion to the ſituation of the place; for where the wet lies in winter near the ſurface, it will greatly prejudice, if not totally deſtroy the trees; ſo that lime rubbiſh ſhould be laid at leaſt two feet thick in the bottom of the border, to drain off the wet; and the earth ſhould be laid two and a half or three feet thick thereon, which will be a ſufficient depth for the roots of the trees. In theſe borders there may be a few roots of the Guernſey and Belladonna Lilies and Hæmanthus planted, or any other exotic bulbous-rooted flowers, which do not grow high, or draw too much nouriſhment from the borders; and theſe, producing their flowers in autumn or winter, will make a good appearance, and thrive much better than if kept in pots.

The management of the Orange-trees in theſe places, is nearly the ſame as hath been directed for thoſe in pots or tubs, excepting that the borders in theſe places ſhould be dug, and refreſhed with ſome very rotten dung every year.

AURICULA MURIS, or PILOSELLA. Mouſe Ear.

This is a ſort of Hawkweed with ſmall hairy leaves, which are white underneath: the plant trails upon the ground, taking root at the joints, by which means it will ſoon ſpread over a large compaſs of ground.

This is very common in England; it grows chiefly on dry barren places, or upon old walls, and is too often a troubleſome weed in graſs-plats in gardens.

AURICULA URSI [i. e. Bear's Ear, ſo called becauſe the ancients fancied it reſembled the ear of a bear.] Bear's Ear, or Auricula.

Dr. Linnæus has joined this genus to the Primula veris of Tournefort, making this one ſpecies under the title of Primula.

To enumerate the diverſities of this plant, would be almoſt endleſs and impoſſible; for every year produces vaſt quantities of new flowers, differing in ſhape, ſize, or colour of the flowers; and alſo in the leaves of theſe plants there is as great a variety, ſo that the ſkilful floriſt is oftentimes capable of diſtinguiſhing many of the particular ſorts thereby.

But as it ſeldom happens, that ſuch of theſe flowers as are at one time in great eſteem, continue to be regarded a few years after, (their being ſtill finer or larger flowers produced from ſeeds, which are what the floriſts chiefly ſeek after) it would be needleſs to mention any of them; wherefore I ſhall proceed to give the characters of a good Auricula.

1. *The ſtem of the flower ſhould be lofty and ſtrong.*
2. *The foot-ſtalk of the flower ſhould be ſhort, that the umbel may be regular and cloſe.*
3. *The pipe or neck of each flower ſhould be ſhort, and the flowers large, and regularly ſpread, being no ways inclinable to cup.*
4. *That the colours are very bright, and well mixed.*
5. *That the eye of the flower be large, round, and of a good white, or yellow; and that the tube or neck be not too wide.*

All the flowers of this kind that want any of the above-mentioned properties, are now rejected by every good floriſt; for as the varieties every year increaſe from ſeeds, the bad ones are turned out to make room for their betters; but in ſome people the paſſion for new flowers ſo much prevails, that, ſuppoſing the old flower greatly preferable to a new one, if it is of their own raiſing, the latter muſt take place of the old one.

In order to obtain good flowers from ſeeds, you muſt make choice of the beſt flowers you have, which ſhould be expoſed to the open air, that they may have the benefit of ſhowers, without which they ſeldom produce good ſeeds: the time of their ripening is in June, which you will eaſily know, by their ſeed-veſſel turning to a brown colour, and opening; you muſt therefore be careful leſt the ſeeds be ſcattered out of the veſſel, for it will not be all fit to gather at the ſame time.

The time for ſowing this ſeed is commonly in Auguſt, but if it be ſown any time before Chriſtmas, it will be time enough.

The beſt ſoil for this ſeed is good, freſh, light, ſandy mould, mixed with very rotten neats dung, or very rotten dung from the bottom of an old hot-bed: with this you ſhould fill your pots, boxes, or baſkets, in which you intend to ſow your ſeeds: and having levelled the ſurface of the earth very ſmooth, ſow your ſeeds thereon, covering it very lightly with rotten Willow mould taken out of the ſtems of decayed hollow Willow-trees; then cover the box, &c. with a net or wire, to prevent the cats, birds, &c. from ſcratching out, or burying the ſeeds too deep; for whenever this happens, the ſeeds will remain a year in the ground before the plants appear, if it ſhould grow at laſt; for which reaſon many perſons never cover theſe ſeeds, but leave them upon the ſurface of the earth, in the boxes, for the rain to waſh them into the ground, which is often the beſt method: let theſe boxes, &c. be placed ſo as to receive half the day's ſun, during the winter ſeaſon; but in the beginning of March, remove them where they may only have the morning ſun till ten of the clock; for the young plants will now ſoon begin to appear, which, if expoſed to one day's whole ſun only, will be all deſtroyed.

During the ſummer ſeaſon, in dry weather, often refreſh them with water, but never give them too great quantities at once. In the July following, your plants will be large enough to tranſplant, at which time you muſt prepare a bed, or boxes, filled with the above-mentioned ſoil, in which you may plant them about three inches ſquare; and (if in beds) you muſt ſhade them every day, till they are thoroughly rooted, as alſo in very hot dry weather; but if they are in baſkets or boxes, they may be removed to a ſhady place.

When the ſeedling Auriculas are planted in beds, there ſhould be ſome rotten neats dung laid about ten inches under the ſurface, and beaten down cloſe and ſmooth: this will prevent the worms from drawing the young plants out of the earth, which they generally do where this is not practiſed. This dung ſhould be laid about half a foot thick, which will entirely prevent the worms getting through it until the plants are well eſtabliſhed in the beds; and the roots of the Auriculas will ſtrike down into the dung by the ſpring, which will make their flowers ſtronger than uſual: theſe beds ſhould be expoſed to the eaſt, and ſcreened from the ſouth ſun.

When you have taken all your plants, which are now come up, out of your boxes or pots, level the earth gently again; for it often happens, that ſome of the ſeeds will lie in the ground two years before they appear, eſpecially if they were covered too deep when ſown, as was before obſerved.

The ſpring following many of theſe flowers will ſhew, when you may ſelect ſuch of them as have good properties, which ſhould be removed each of them into a pot of the ſame prepared earth, and preſerved until the next ſeaſon, at which time you will be capable to form a judgment of the goodneſs of the flower; but thoſe that produce plain-coloured or ſmall flowers, ſhould be taken out, and planted in borders in the out-parts of the garden, to make a ſhew, or gather for noſegays, &c. the others, which do not produce their flowers the ſame year, may be taken up, and tranſplanted into a freſh bed, to remain till you ſee how they will prove.

The manner of propagating theſe flowers when obtained, is from offſets, or ſlips, taken from the old roots in April, when the flowers are in bloom: theſe offſets muſt be planted into ſmall pots filled with the ſame ſort of earth as was before directed for the ſeedlings, and, during the ſummer ſeaſon, ſhould be ſet in a ſhady place, and muſt be often (but very gently) refreſhed with water; but in the autumn and winter ſhould be ſheltered from violent rains. The ſpring following theſe young plants will produce flowers, though but weak; ſoon after they are paſt flowering, you muſt put them into larger pots, and the ſecond year they will blow in perfection.

But, in order to obtain a fine bloom of theſe flowers, you muſt obſerve the following directions.

Firſt, Preſerve your plants from too much wet in winter, which often rots and ſpoils them; but let them have as much free open air as poſſible; nor ſhould they be too much expoſed to the ſun, which is apt to forward their budding for flower too ſoon; and the froſty mornings, which often happen in March, thereby deſtroy their buds, if they are not protected therefrom. To prevent which, thoſe who are very curious in theſe flowers, place their pots in autumn under a common hot-bed frame, where, in good weather, the plants may enjoy the full air, by drawing off the glaſſes; and in great rains, ſnow, or froſt, the plants may be ſcreened by covering them. Where this method is practiſed with judgment, the flowers will be much ſtronger, and the plants will increaſe faſter than when they are expoſed abroad.

Secondly, In the beginning of February, if the weather is mild, you muſt take off the upper part of the earth in the Auricula pots, as low as you can without diſturbing their roots, and fill up the pots with freſh rich earth, which will greatly ſtrengthen them for bloom; as alſo prepare your offſets for tranſplanting in April, by cauſing them to puſh out new roots.

Thoſe plants which have ſtrong ſingle heads, always produce the largeſt cluſters of flowers; therefore the curious floriſts pull off the offſets as ſoon as it can be done with ſafety to their growing, to encourage the mother plants to flower the ſtronger; they alſo pinch off the flowers in autumn, where they are produced, and ſuffer them not to open, that the plants ſhould not be weakened thereby.

Thirdly, You muſt cover your pots with mats in froſty weather, during this time of their budding for flower, leſt the ſharp mornings blight them, and prevent their blowing.

Fourthly, When your flower-ſtems begin to advance and the bloſſom buds grow turgid, you muſt protect them from haſty rains, which would waſh off their white meally farina, and greatly deface the beauty of their flowers; but at the ſame time obſerve to keep them as much uncovered as poſſible, otherwiſe their ſtems will be drawn up too weak to ſupport their flowers (which is often the caſe when their pots are placed near walls) give them gentle waterings to ſtrengthen them, but let none of the water fall into the center of the plant, or among the leaves.

Fifthly, When your flowers begin to open, you ſhould remove their pots upon a ſtage (built with rows of ſhelves, one above another, and covered on the top, to preſerve them from wet: this ſhould be open to the morning ſun, but ſheltered from the heat of the ſun in the middle of the day:) in this poſition they will appear to much greater advantage, than when the pots ſtand upon the ground; for, their flowers being low, their beauty is hid from us; whereas, when they are advanced upon ſhelves, we ſee them in a full view. In this ſituation they may remain until the beauty of their flowers is paſt, when they muſt be ſet abroad to receive the rains, and have open free air, in order to obtain ſeeds, which will fail if they are kept too long under ſhelter. When your ſeed is ripe, obſerve to gather it when it is perfectly dry, and expoſe it to the ſun in a window upon papers, to prevent its growing mouldy, and let it remain in the pods till the ſeaſon for ſowing it.

AURICULA URSI MYCONI. See Verbascum.

AXIS of a plant. Axis is properly that round ſmooth cylinder, about which a wheel is turned; whence, by way of metaphor, that long, round, ſmooth part, placed in the center of the iuli, or cat tails, on Nut-trees, &c. about which the male organs are diſpoſed, may be called the Axis. The French call it Ame, Noyau, or Poinçon.

AZALEA. Lin. Gen. Plant. 195. American upright Honeyſuckle.

The Characters are,

It hath a ſmall coloured empalement which is permanent, cut into five acute parts at the top. The flower is funnel-ſhaped, having a long naked tube, cut into five parts; the two upper ſegments are reflexed backward, the two ſides are bent inward, and the lower one turns downward. It hath five ſlender ſtamina of unequal lengths, which have oblong erect ſummits. The round germen ſupports a long ſlender ſtyle, crowned with an obtuſe ſtigma; the germen afterward becomes a roundiſh capſule, having five cells, which are filled with roundiſh ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, entitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Azalea (*Viſcoſa*) foliis margine ſcabris, corollis piloſo glutinoſis. Lin. Sp. Plant. 151. *Azalea with leaves having rough edges, the petals of the flower hairy and glutinous.* Ciſtus Virginiana flore & odore periclymeni. Pluk. Phyt. tab. 161. f. 4.
2. Azalea (*Nudiflora*) foliis ovatis corollis piloſis ſtaminibus longiſſimis. Lin. Sp. Plant. 150. *Azalea with oval leaves, hairy flowers, and the longeſt ſtamina.* Ciſtus Virginiana periclymeni flore ampliori minus odorato. Pluk. Mant. 49.

There are three or four other ſpecies of this genus, two of which grow naturally upon the Alps, chiefly on bogs; theſe are low plants, which have little beauty, and very difficult to keep in gardens. The others grow one in the eaſt, near Pontus, and the other in India; but as neither of theſe are in the Engliſh gardens, I ſhall not enumerate them.

The firſt of theſe here mentioned, is a low ſhrub, riſing with ſeveral ſlender ſtems near four feet high. The leaves come out in cluſters at the ends of the ſhoots, without order: they are ſpear-ſhaped, but narrow at their baſe; their edges are ſet with very ſhort teeth, which are rough. The flowers come out in cluſters between the leaves, at the extremity of the branches, which are white, with a mixture of dirty yellow on their outſide: they have a tube an inch long, and at the top are pretty deeply cut into five ſegments; the ~~two~~ upper are reflexed, the two ſide ones are bent inward, and the lower one is turned downward. There are five ſlender ſtamina, which are a little longer than the petals of the flower, ſupporting oblong Saffron-coloured ſummits. The ſtyle is much longer than the ſtamina, and crowned by an obtuſe ſtigma. Theſe flowers have much the appearance of thoſe of the Honeyſuckle, and are as agreeably ſcented. They appear the middle of July, but are not ſucceeded by ſeeds in England.

The ſecond ſort grows taller than the firſt, and in its native country frequently riſes to the height of fifteen feet, but in England is never more than half that height. This ſends out ſeveral ſtems from the root, which are garniſhed with oblong ſmooth leaves, placed alternately, having foot-ſtalks. The flower-ſtalks ariſe from the diviſion of the branches, which are long and naked, ſupporting a cluſter of red flowers, which are tubulous, ſwelling at their baſe like thoſe of the Hyacinth, and contracted at their neck; they are divided at the top into five equal ſegments, which ſpread open. The five ſtamina and the ſtyle are much longer than the petals, and ſtand erect. This flowers about the ſame time as the former, but is not ſo well ſcented.

Theſe plants grow naturally in ſhade, and upon moiſt ground in moſt parts of North America, from whence many of the plants have been ſent of late years to England, and ſeveral of them have produced their beautiful flowers in many curious gardens.

They muſt have a moiſt ſoil and a ſhady ſituation, otherwiſe they will not thrive. They can only be propagated by ſhoots from their roots, and laying down their branches, for they do not produce ſeeds here; and if good ſeeds could be obtained, they would be difficult to raiſe, and a long time before they would flower. But when they are in a proper ſituation, their roots extend, and put out ſhoots, which may be taken off with roots, and tranſplanted. When any of them are laid down, it ſhould be only the young ſhoots of the ſame year, for the old branches will not put out roots. The beſt time for this is at Michaelmas, and if they are covered with ſome old tan, to keep out the froſt, it will be of great uſe to them. The autumn is alſo the beſt time to remove the plants, but the ground about their roots ſhould be covered in winter to keep out the froſt; and if this is every year practiſed to the old plants, it will preſerve them in vigour, and cauſe them to flower well.

AZEDARACH. See Melia.

AZEROLE, or L'AZAROLE. See Mespilus.

B.

BACCA, i. e. a berry, is a round fruit, for the moſt part ſoft, and covered with a thin ſkin, containing ſeeds in a pulpy ſubſtance; but, if it be harder, and covered with a thicker fleſh, it is called Pomum, i. e. an Apple.

BACCHARIS, Ploughman's Spikenard, vulgò.

The CHARACTERS are,

The flower is compoſed of many hermaphrodite and female florets, which are included in one common, cylindrical, ſcaly empalement. The florets are equal, the hermaphrodite and female are intermixed. The hermaphrodite florets are funnel-ſhaped and quinquefid; theſe have five ſlender ſtamina, crowned by cylindrical ſummits, and an oval germen, ſupporting a ſlender ſtyle, crowned by a bifid ſtigma. The germen afterward becomes a ſingle ſhort ſeed crowned with a long down. The female flowers have no ſtamina, but in other reſpects are the ſame.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua, the flowers being compoſed of hermaphrodite and female florets, which are both fruitful.

The SPECIES are,

1. BACCHARIS (*Ivæfolia*) foliis lanceolatis longitudinaliter dentato-ſerratis. Lin. Hort. Cliff. *Ploughman's Spikenard with ſpear-ſhaped leaves, which are longitudinally indented and ſawed.* Senecio Africana arboreſcens folio ſerrato. Boerh. Ind. alt. 1. 117.
2. BACCHARIS (*Neriifolia*) foliis lanceolatis ſuperne uno alterove denticulo ſerratis. Hort. Cliff. 404. *Ploughman's Spikenard with ſpear-ſhaped leaves ſawed on the edges.* Arbuſcula foliis nerii. Boerh. Ind. 2. p. 263.
3. BACCHARIS (*Halimifolia*) foliis obovatis ſuperne emarginato-crenatis. Hort. Cliff. 405. *Ploughman's Spikenard with oval indented leaves.* Senecio Virginianus arboreſcens, atriplicis folio. Raii Hiſt. 1799.
4. BACCHARIS (*Fœtida*) foliis lanceolatis ſerrato-dentatis, corymbis folioſis. Flor. Virg. 121. *Ploughman's Spikenard with ſpear-ſhaped ſawed leaves, and a leafy corymbus.* Conyza Americana fruteſcens fœtidiſſima. Hort. Elth. tab. 89.

The Engliſh name of Ploughman's Spikenard has been always applied to the Conyza major, or greater Fleabane; but ſince moſt of the modern botaniſts have applied the title of Baccharis to this genus, I have added the old Engliſh name to it, of Ploughman's Spikenard, rather than leave it without an Engliſh title.

The firſt ſort was brought from the Cape of Good Hope, but grows naturally in Peru, and in other parts of America. This plant has been long preſerved by the curious in their gardens. It grows to the height of five or ſix feet, and is a manageable ſhrub; it may be propagated by cuttings, which ſhould be planted in a ſhady border during any of the ſummer months, or by ſeeds ſown in a common border in the ſpring of the year. Theſe ſeeds ripen well in this country; and, if permitted to ſcatter on the ground, the plants will come up the following ſpring. It is pretty hardy, and will live abroad in mild winters, if planted in a warm ſituation; but it is uſually kept in green-houſes, and placed abroad in ſummer; it requires much water in warm weather.

The ſecond ſort is alſo a native of Africa; this hath a ſoft ſhrubby ſtalk which riſes to the height of eight or ten feet, putting out ſide branches toward the top, garniſhed with ſtiff ſpear-ſhaped leaves, having a few indentures toward their top; theſe are placed without order: the flowers are produced at the extremity of the branches in a cloſe ſpike, conſiſting of female and hermaphrodite florets included in the common empalement; they are of an herbaceous colour, ſo make little appearance, and are not ſucceeded by ſeeds in England.

This plant is difficult to propagate, for the cuttings do with great difficulty take root; and it is very rare to find ſhoots near the root to lay down, ſo that in Holland they lay down the entire head of young plants, ſlitting the ſmaller branches in the ſame manner as is practiſed for Carnations, laying them into the ground and forking each down to prevent their riſing; theſe when duly watered put out roots in one year, when they may be taken off, and planted in ſmall pots filled with light earth, and placed in the ſhade till they have taken new root; after which they may be placed in a ſheltered ſituation in ſummer, but in winter muſt be kept in a green-houſe.

The third ſort is pretty common in the nurſeries about London, where it is uſually called the Groundſell-tree; this is a native of Virginia and other parts of North America; it grows to be a ſhrub of about ſeven or eight feet high, and flowers in October; the flowers are white, and not very beautiful; but the leaves continuing green through the year, has occaſioned this ſhrub to be admitted into many curious gardens.

This ſort may be propagated by cuttings, which ſhould be planted in April or May, upon a ſhady border, and duly watered in dry weather, until they have taken root; and, at Michaelmas, they will be fit to tranſplant where they are to remain; this will live in the open air, and never is injured by the cold of our ordinary winters; but ſevere froſt will ſometimes deſtroy them.

The fourth ſort grows naturally in Carolina, and ſome other parts of North America; it riſes with a ligneous ſtalk ſix or ſeven feet high, garniſhed with long ſpear-ſhaped leaves, which are hoary on their under ſide, having a diſagreeable ſcent when handled; the ſtalks are terminated by looſe umbels of flowers, which appear late in the autumn, ſo are not ſucceeded by ſeeds in this country.

It may be propagated by cuttings, which ſhould be planted toward the end of May, which if ſhaded and duly watered will put out roots in two months; when they ſhould be potted, that they may be ſheltered under a frame in winter.

BACCIFEROUS [Baccifer, *Lat.* of Bacca, a Berry, and fero, to bear] is an epithet applied to trees, ſhrubs, or plants, that bear berries, as Briony, Lily of the Valley, Aſparagus, Butchers Broom, Nightſhade, Solomon's Seal, and many others.

BALAUSTIA. See PUNICA.

BALAUSTIUM is the cup of the flower of the wild Pomegranate.

BALLOTE [Βαλλωτὴ, *Gr.*] Black Horehound.

This is a common weed, growing on the ſides of banks in moſt parts of England, ſo is ſeldom allowed a place in gardens; there are two varieties of it, one with a white, and the other a purple flower. As theſe are not cultivated, I ſhall not trouble the reader with a farther deſcription of them.

BALM. See MELISSA.

BALSAMINA. The female Balſamine. See IMPATIENS.

BALSAMITA. See TANACETUM.

BAMIA MOSCHATA. See HIBISCUS.

BANANA. See MUSA.

BANISTERIA. Houſt. MSS. Lin. Gen. 509. Acer Scandens. Sloan. Cat. 137. Plum. Cat. 18.

The CHARACTERS are,

It hath a ſmall permanent empalement, cut into five acute ſegments to the bottom; the flower hath five petals, which are ſhaped like thoſe of the papilionaceous tribe, but ſpread open, having in ſome ſpecies one, in others two, and in ſome, ſeveral nectarious glands. It hath ten ſhort ſtamina, crowned with ſimple ſummits. There are in ſome ſpecies three, and in others but one germen, each ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma; the germen afterward become ſo many winged fruit, like thoſe of the Maple, each containing a ſingle ſeed.

The title of this genus was given by the late Dr. Houſtoun, in honour to the memory of Mr. Baniſter, a curious botaniſt, who loſt his life in the ſearch of plants in Virginia.

The Doctor ranged this genus in the claſs of papilionaceous flowers, to which it has great affinity by the form of its flower; but the ten ſtamina ſtanding ſeparate, induced Dr. Linnæus to place it in his tenth claſs; but although he has put it under his third ſection, yet it would with greater propriety come under his ſecond, the greater number of ſpecies having but two ſtyles.

The SPECIES are,

1. BANISTERIA (*Anguloſa*) foliis ovato-oblongis rigidis racemis terminalibus caule fruticoſo ſcandente. *Baniſteria with oblong, oval, ſtiff leaves, ſpikes of flowers terminating the branches, and a ſhrubby climbing ſtalk.* Sir Hans Sloane titles it, Acer ſcandens foliis Laurinis. Cat. Jam. 137.
2. BANISTERIA (*Fulgens*) foliis ovatis glabris, floribus corymboſis terminalibus, caule fruticoſo ſcandente. *Baniſteria with oval ſmooth leaves, flowers growing in a corymbus at the extremity of the branches, and a ſhrubby climbing ſtalk.* Acer ſcandens minus Apocyni facie folio ſubrotundo. Sloan. Cat. 138.
3. BANISTERIA (*Brachiata*) foliis ovatis acuminatis floribus laxe ſpicatis, ramis diffuſis ſcandentibus. *Baniſteria with oval pointed leaves, flowers growing in looſe ſpikes, and climbing diffuſed branches.* Baniſteria ſcandens & fruteſcens folio ſubrotundo, flore ex aureo Coccineo. Houſt. MSS.
4. BANISTERIA (*Laurifolia*) foliis ovatis nervoſis ſubtus incanis, floribus lateralibus, caule fruticoſo ſcandente. *Baniſteria with nervous heart-ſhaped leaves, hoary on their under ſide, flowers growing from the ſide of the branches, and a ſhrubby climbing ſtalk.* Acer Americanum ſcandens foliis ſubrotundis ſubtus pubeſcentibus. Millar. Cat.
5. BANISTERIA (*Benghalenſis*) foliis ovato-oblongis acuminatis racemis lateralibus ſeminibus patentibus. Flor. Zeyl. 176. *Baniſteria with oblong, oval, pointed leaves, ſpikes of flowers growing from the ſide of the branches, and ſpreading ſeeds.* Acer ſcandens foliis Citrei flore cæruleo ſpicato. Plum. Cat. 18.
6. BANISTERIA (*Aculeata*) foliis pinnatis, foliolis oblongis obtuſis, floribus ſpicatis caule ramoſo aculeato. *Baniſteria with winged leaves, whoſe ſmall leaves are oblong and blunt, flowers growing in a ſpike, and a prickly branching ſtalk.*
7. BANISTERIA (*Purpurea*) foliis pinnatis foliolis ovatis ſpicis lateralibus ſeminibus erectis. *Baniſteria with winged leaves, whoſe ſmall leaves are oval, ſpikes of flowers growing from the ſide of the branches, and erect ſeeds.* Baniſteria foliis ovatis ſpicis lateralibus ſeminibus erectis. Lin. Sp. Plant. 427.

The firſt grows naturally in Jamaica. This hath a woody ſtalk, which twiſts itſelf round the neighbouring trees, and riſes to their top. It is garniſhed with leaves as large as thoſe of the Bay-tree, and of the ſame thickneſs, growing oppoſite; the flowers are produced in long branching ſpikes at the ends of the branches, which are yellow, compoſed of five ſmall leaves; theſe are ſucceeded by two or three winged ſeeds like thoſe of the greater Maple.

The ſecond ſort grows naturally in Jamaica, at Campeachy, and ſeveral other parts of America. This hath ſlender winding ſtalks, which riſe five or ſix feet high, and are thinly garniſhed with oval ſmooth leaves; the flowers grow in a round bunch at the extremity of the branches, which are of a browniſh yellow colour, and are ſucceeded by winged ſeeds like the former, but ſmaller, and have narrower wings.

The third ſort was ſent me from Carthagena, where it naturally grows. This ſends out many branches, which divide again into others, growing without order, and become very buſhy upward, ſending out tendrils by which they faſten themſelves to the neighbouring trees, and mount to a great height; theſe are garniſhed with oval ſtiff leaves, ending in a point. The flowers are produced in looſe ſpikes at the ends of the branches, which are firſt of a gold colour, and fade to a ſcarlet. Theſe are ſucceeded by ſeeds of the ſame ſhape with the former, but are ſlender, thin, and for the moſt part ſingle.

The fourth ſort was ſent me from Campeachy, by Mr. Robert Millar; this hath many irregular climbing ſtalks, which faſten themſelves to the neighbouring trees, and riſe to a great height, garniſhed with oval leaves, which are hairy on their under ſide, where they have many tranſverſe ribs. The flowers come out thinly from the ſide of the branches, which are of a pale yellow colour, and are ſucceeded by large winged ſeeds, which are double.

The fifth ſort hath ſtrong woody ſtalks, which twine about the trees which grow near it, and riſes twenty feet high, garniſhed with oblong pointed leaves like thoſe of the Bay-tree, growing oppoſite; from the wings of the leaves the flowers are produced in looſe ſpikes, upon long foot-ſtalks, which are blue, and are ſucceeded by ſlender winged ſeeds, which ſpread open from each other.

The ſixth ſort was ſent me from Tolu in New Spain, where it grows naturally. This hath climbing ſtalks, which divide into many branches, garniſhed with long winged leaves, compoſed of about twenty pair of ſmall, oblong, blunt pinnæ, each having a deep furrow on the under ſide. At the wings of the leaves the ſtalks are armed with ſhort ſtrong ſpines, a little crooked. The flowers grow in long looſe ſpikes at the end of the branches, which are ſucceeded by ſingle ſeeds, as large as thoſe of the greater Maple.

The ſeventh ſort hath ſtrong ligneous ſtalks, covered with an Aſh-coloured bark, and divide into many branches, garniſhed with winged leaves, compoſed of five or ſix pair of oval ſmall leaves, nearly of the ſize with thoſe of the common Acacia, but are whitiſh on their under ſide; from the wings of the leaves are produced ſlender bunches of flowers, growing in a racemus like thoſe of the Currant-buſh, of a purpliſh colour; theſe are ſucceeded by broad winged ſeeds, growing erect. It was ſent me from Campeachy, where it grows naturally.

Theſe plants are all of them natives of warm countries, ſo cannot be preſerved in England, unleſs they are kept in a bark-ſtove. They are propagated by ſeeds, which muſt be procured from the countries where they grow naturally. Theſe ſeeds ſhould be fully ripe when gathered, and put into ſand or earth, in which they ſhould be ſent to England, otherwiſe they will looſe their vegetative quality; for from a large parcel of theſe ſeeds which were ſent over in papers, as freſh as they could poſſibly arrive here, there was very few plants raiſed, and thoſe did not appear till the ſecond year; for theſe ſeeds are not only in ſhape like thoſe of the Maple, but alſo are of the ſame quality, requiring to be ſown as ſoon as poſſible when they are ripe, or preſerved in ſand or earth till they are ſown, otherwiſe they rarely ſucceed; therefore when the ſeeds arrive, they ſhould be immediately ſown in pots, and, if it happens in autumn or winter, the pots ſhould be plunged into a hot-bed of tanners bark, where the heat is very moderate, and ſecured from froſt and wet, till ſpring, when they muſt be removed to a freſh hot-bed, which will bring up the plants; but if they ſhould not appear the firſt year, the pots ſhould be preſerved till the next ſpring, to ſee if the ſeeds will grow. When the plants come up, they muſt be planted in ſeparate pots, filled with light earth, and plunged into the bark-bed, after which they muſt be treated like other tender plants from the ſame countries.

BAOBOB. See Adansonia.

BARBA CAPRÆ. See Spiræa.

BARBA JOVIS. See Anthyllis.

BARBAREA. See Erysimum.

BARDANA. See Arctium.

BARLERIA.

The name was given to this genus of plants by father Plumier, in honour of Jacobus Barelier, of Paris, who was a famous botaniſt.

The Characters are,

It hath a permanent empalement, divided into four parts, two large and two ſmaller, oppoſite. The flower is of the lip kind, of one leaf, funnel-ſhaped, and divided into five parts at the top; the upper ſegment being broad and erect, the two ſide ones narrower, and the under one which turns downward is divided into two. It hath four ſlender ſtamina, two of which are very ſhort; the two upper are longer, crowned by oblong ſummits. In the center is placed the oval germen, ſupporting a ſlender ſtyle, crowned by a bifid ſtigma. The germen afterward becomes an oblong, quadrangular, membranaceous veſſel, with two cells, which is very elaſtic, containing two or three roundiſh compreſſed ſeeds.

This genus of plants is by Dr. Linnæus ranged in the ſecond order of his fourteenth claſs, titled Didynamia Angioſpermia, whoſe flowers have two long and two ſhort ſtamina, and their ſeeds are included in a capſule.

The Species are,

1. Barleria (*Solanifolia*) ſpinis axillaribus foliis lanceolatis denticulatis. Lin. Sp. 887. *Barleria with ſpines on the ſide of the branches, and ſpear-ſhaped indented leaves.* Barleria aculeata ſolani folio anguſtiore flore cæruleo. Plum. N. G. 31.
2. Barleria (*Prionitis*) ſpinis axillaribus quaternis foliis integerrimis. Lin. Sp. Plant. 636. *Barleria with ſpines growing by fours from the ſide of the branches, and entire leaves.* Coletta-veetla. Hort. Mal. 9. p. 77.
3. Barleria (*Buxifolia*) ſpinis axillaribus oppoſitis ſolitaris, foliis ſubrotundis integerrimis. Lin. Sp. 887. *Barleria with ſpines at the wings of the ſtalk, and roundiſh entire leaves.* Barleria Americana ſpinoſſima fruteſcens, buxi folio parvo flore. Amm. Herb. 104.
4. Barleria (*Coccinea*) inermis foliis ovatis denticulatis petiolatis. Lin. Sp. 888. *Barleria without ſpines, and oval indented leaves having foot-ſtalks.* Barleria ſolani folio, flore coccineo. Plum. Nov. Gen. 31.

The firſt ſort riſes with upright ſquare ſtalks three feet high, garniſhed with two oblong entire leaves at every joint; above which the flowers come out in whorls ſurrounding the ſtalks, and under each whorl there are ſix ſharp ſpines, which are as long as the empalement of the flowers. Theſe joints are about three inches diſtance; the flowers are blue, and have more of the form of the labiated flowers, than any of the other ſpecies. I received this from Panama.

The ſecond ſort has been long in the curious gardens in Holland, but has not been many years in this country. This ſends out many ſlender ſtems from the root, which riſe eight or nine feet high, garniſhed with oval pointed leaves, two growing oppoſite at each joint, which are attended by four long ſpines ſtanding croſs-ways. This plant hath not as yet flowered in England, though there are large plants of it in the Chelſea garden.

The third ſort hath ſhrubby ſtalks which riſe five or ſix feet high, garniſhed with roundiſh entire leaves placed oppoſite, under which are placed ſtrong ſpines; the flowers are produced in whorls toward the upper part of the ſtalk; theſe are ſucceeded by ſhort ſeed-veſſels, containing three or four flat ſeeds. This grows naturally in Jamaica.

The fourth ſort grows naturally in the warm parts of America. The ſtalks of this are ſmooth; they riſe four feet high, are garniſhed with two oval indented leaves ſtanding oppoſite; the flowers are ſcarlet, and are placed in whorls at the joints of the ſtalks; theſe appear in July, Auguſt, and September, and are ſucceeded by ſhort pods incloſing flat ſeeds.

The roots of the firſt ſort will continue three or four years, but after the ſecond year, the plants grow too rambling, and the lower part of the branches are naked, ſo are not ſo ſightly as the young plants; therefore a ſucceſſion of theſe ſhould be raiſed, and the old ones turned out. They are propagated by ſeeds, which will ſow themſelves in the pots which are near them in the ſtove, when the plants are once obtained; but where the ſeeds are received from abroad, they muſt be ſown upon a hot-bed in the ſpring; and when the plants are fit to remove, they muſt be each planted in a ſeparate pot, and plunged into a hot-bed of tanners bark, where they muſt conſtantly remain, and managed in the ſame manner as other tender exotics from the ſame countries; giving them water frequently in ſummer, and letting the freſh air to them every day in warm weather, but in winter they ſhould have leſs water and be kept warm. They flower from June to November, and their ſeeds ripen ſoon after.

The ſecond ſort hath flexible perennial ſtalks, which if cut off during the ſummer months, and made into lengths of ſix or eight inches, and planted in pots, plunging them into a hot-bed, and duly watered and ſhaded from the ſun, will ſoon put out roots, ſo may be planted each in a ſmall pot, and plunged into the tan-bed in the ſtove; for although this ſort may be kept in a dry ſtove through the winter, yet the plants will not grow near ſo faſt, nor will their leaves be ſo large as thoſe which are plunged into bark. By this method the plants may be propagated in plenty, but as they rarely produce flowers in England, ſo two or three plants will be ſufficient to maintain the ſpecies.

The third and fourth ſorts will produce ſeeds in England, provided the plants are kept in the tan-bed in the ſtove, ſo theſe may be propagated by ſeeds, which ſhould be ſown in the hot-bed, and the plants afterward treated in the ſame manner as the firſt ſort.

BAROMETER [from Βάρος, a weight, and *μέτρον*, a meaſure,] is an inſtrument or machine for meaſuring the weight of the atmoſphere, or the minute variation of the weight or preſſure of the incumbent air, in order to determine the changes of weather.

This machine is founded on the Torricellian experiment, ſo called, from the inventor Torricellius.

1. It conſiſts of a long tube of glaſs, hermetically ſealed at one end; and being filled with quickſilver, is inverted ſo as to have one end of it immerged in a baſon of ſtagnant quickſilver, and the other hermetically ſealed, which is expoſed to the preſſure of the outward air; out of which open end (after ſuch immerſion) the quickſilver in the tube being ſuffered to run as much as it will into the ſtagnant quickſilver, in which that mouth or open end is immerſed, there is wont to remain a cylinder of quickſilver ſuſpended in the tube, about twenty-eight, twenty-nine, or thirty inches high, meaſuring from the ſurface of the ſtagnant quickſilver perpendicularly; but more or leſs within ſuch limits, according as the weight or preſſure of the air incumbent on the external ſtagnant quickſilver expoſed to it, is greater or leſſer, leaving the upper part of the tube void, or at leaſt empty of common air.

The phænomena of the barometer are various, and the cauſes aſſigned for them, by ſeveral authors, as various; nor is the uſe of it in predicting the weather, yet perfectly aſcertained.

The greateſt height the mercury has been known to ſtand at in London, is thirty inches three-eighths, and its leaſt, twenty-eight inches: and though, as Mr. Boyle obſerves, the phænomena of the barometer are ſo very precarious, that it is very difficult to form any general rules about the riſe and fall thereof, ſince in that which ſeems to hold moſt univerſally, viz. that when the high winds blow, the mercury is the lower, they ſometimes fail, yet the following obſervations have been made by ſeveral authors.

Dr. Halley obſerves, that in calm weather, when the air is inclined to rain, the mercury is continually low; in ſerene good ſettled weather, high.

That on great winds, though unaccompanied with rain, the mercury is loweſt of all, with regard to the point of the compaſs the wind blows on; that, *cæteris paribus*, the greateſt heights of the mercury are on eaſterly and north-eaſterly winds; that after great ſtorms of wind, when the mercury has been low, it riſes again very faſt.

That in calm froſty weather it ſtands high.

That the more northerly places find greater alterations than the more ſouthern; and that within the tropics, and near them, there is little or no variation of the mercury at all.

Dr. Beal obſerves, that, *cæteris paribus*, the mercury is higher in cold weather than in warm, and uſually higher in morning and evening than at mid-day.

That the mercury is higher in ſettled and fair weather, than either a little before, or after, or in the rain; and that it generally deſcends lower after rain, than it was before it; if it chance to riſe higher after rain, it is generally followed by a ſettled ſerenity.

That there are frequently great changes in the air, without any perceptible alterations in the barometer.

As to the predictions from the barometer, Dr. Halley has found,

That the riſing of the mercury forebodes fair weather after foul, and an eaſterly or north-eaſterly wind.

That the falling of the mercury portends ſoutherly or weſterly winds, with rains, or ſtormy winds, or both.

That in a ſtorm the mercury beginning to riſe, is a pretty ſure ſign that it begins to abate.

Mr. Patrick obſerves, that the falling of the mercury in hot weather preſages thunder; that when foul weather happens after the fall of the mercury, it ſeldom holds long; and the ſame is obſerved, if fair weather ſucceeds preſently after its riſe.

Hence Mr. Pointer conceives, that the principal cauſe of the riſe and fall of the mercury, is from the variable winds which are found in the temperate zones, and whoſe great inconſtancy here in England is moſt notorious.

A ſecond cauſe he takes to be, the uncertain exhalation and perſpiration of the vapours lodging in the air, whereby it comes to be at one time much more crowded than at another, and conſequently heavier; but this latter, in a great meaſure, depends upon the former.

And from theſe principles, he endeavours to explain the ſeveral phænomena of the barometer.

1. The mercury's being low, inclines it to rain; becauſe the air being light, the vapours are no longer ſupported thereby, being become ſpecifically heavier than the medium wherein they are floated; ſo that they deſcend towards the earth, and in their fall, meeting with other aqueous particles, they incorporate together, and form little drops of rain; but the mercury's being at one time lower than another, is the effect of two contrary winds blowing from the place where the barometer ſtands, whereby the air of that place is carried both ways from it, and conſequently the incumbent cylinder of air is diminiſhed, and accordingly the mercury ſinks. As for inſtance, if in the German ocean it ſhould blow a gale of weſterly wind, and at the ſame time an eaſterly wind in the Iriſh ſea; or if in France it ſhould blow a northerly wind, and in Scotland a ſoutherly, it muſt be granted, that that part of the atmoſphere impendent over England, would thereby be exhauſted and attenuated, and the mercury would ſubſide; and the vapours which before floated in thoſe parts of the air, of equal gravity with themſelves, would ſink to the earth.

2. The greater height of the barometer is occaſioned by two contrary winds blowing towards the place of obſervation, whereby the air of other places is brought thither and accumulated; ſo that the incumbent cylinder of air being increaſed both in height and weight, the mercury preſſed thereby muſt needs riſe and ſtand high, as long as the winds continue ſo to blow; and then the air being ſpecifically heavier, the vapours are better kept ſuſpended, ſo that they have no inclination to precipitate and fall down in drops, which is the reaſon of the ſerene good weather, which attends the greater heights of the mercury.

3. The mercury ſinks the loweſt of all by the very rapid motion of the air in ſtorms of winds.

For the tract of the region of the earth's ſurface, wherein theſe winds rage, not extending all round the globe, that ſtagnant air which is left behind, as likewiſe that on the ſides, cannot come in ſo faſt as to ſupply the evacuation made by ſo ſwiſt a current; ſo that the air muſt neceſſarily be attenuated when and where the ſaid winds continue to blow, and that more or leſs, according to their violence: add to which, that the horizontal motion of the air being ſo quick as it is, may, in all probability, take off ſome part of the perpendicular preſſure thereof; and the great agitation of its particles is the reaſon why the vapours are diſſipated, and do not condenſe into drops, ſo as to form rain, otherwiſe the natural conſequence of the air's rarefaction.

4. The mercury ſtands the higheſt upon an eaſterly or north-eaſterly wind; becauſe, in the great Atlantic ocean, on this ſide the thirty-fifth degree of north latitude, the weſterly and ſouth-weſterly winds blow almoſt always trade: ſo that whenever here the winds come up at eaſt and north-eaſt, it is ſure to be checked by a contrary gale as ſoon as it reaches the ocean; wherefore, according to what is made out in the ſecond remark, the air muſt needs be heaped over this iſland, and conſequently, the mercury muſt ſtand high, as often as theſe winds blow.

5. In calm froſty weather, the mercury generally ſtands high, becauſe, as he conceives, it ſeldom freezes but when the winds come out of the northern or north-eaſtern quarters, or at leaſt, unleſs thoſe winds blow at no great diſtance off.

For the northern parts of Germany, Denmark, Sweden, Norway, and all that tract, from whence north-eaſtern winds come, are ſubject to almoſt continual froſt all the winter, and thereby the lower air is very much condenſed, and in that ſtate is brought hitherward by thoſe winds; and, being accumulated by the oppoſition of the weſterly wind blowing in the ocean, the mercury muſt needs be preſſed to a more ordinary height; and, as a concurring cauſe, the ſhrinking of the lower parts of the air into leſſer room by cold, muſt needs cauſe a deſcent of the upper parts of the atmoſphere, to reduce the cavity made by this contraction to an equilibrium.

6. After great ſtorms of winds, when the mercury has been very low, it generally riſes again very faſt: he ſays, he once obſerved it to riſe an inch and a half in leſs than ſix hours, after a long continued ſtorm of ſouth-weſt wind.

The reaſon is, becauſe the air being very much rarefied by the great evacuations that ſuch continued ſtorms make thereof, the neighbouring air runs in more ſwiftly, to bring it to an equilibrium, as we ſee water runs the faſter for having a greater declivity.

7. The variations are greater in the more northerly places, as at Stockholm greater than at Paris [compared by Mr. Paſchal;] becauſe the more northerly parts have uſually greater ſtorms of wind than the more ſoutherly, whereby the mercury ſhould ſink lower in that extreme; and then the northerly winds bringing the condenſed and ponderous air from the neighbourhood of the pole, and that again being checked by a ſoutherly wind, at no great diſtance, and ſo heaped up, muſt of neceſſity, make the mercury in ſuch caſe ſtand higher in the other extreme.

8. This remark, that there is little or no variation near the equinoctial, does, above all others, confirm

the hypotheſis of the variable winds being the cauſe of theſe variations of the height of the mercury; for in the places above-named, there is always an eaſy gale of wind, blowing nearly upon the ſame point, viz. E. N. E. at Barbadoes, and E. S. E. at St. Helena; ſo that there being no contrary currents of the air to exhauſt or accumulate it, the atmoſphere continues much in the ſame ſtate.

Mr. Patrick gives us the following rules and obſervations for the riſing and falling of the mercury, in order to foreknow the weather by the barometer.

1. It has been obſerved, that the motion of the mercury does not exceed three inches in its riſing or falling in the barometer of the common form.

2. That its leaſt alterations are to be minded, in order to the right finding of the weather by it.

3. The riſing of the mercury preſages in general fair weather, and its falling, foul, as rain, ſnow, high winds, and ſtorms.

4. In very hot weather, the falling of the mercury foreſhews thunder.

5. In winter, the riſing of the mercury preſages froſt; and in froſty weather, if the mercury falls three or four degrees, there will certainly follow a thaw; but if the mercury riſes in a continued froſt, it will certainly ſnow.

6. When foul weather happens ſoon after the falling of the mercury, you may expect but little of it; and you may judge the ſame, when the weather proves fair ſhortly after the mercury has riſen.

7. When the mercury riſes much and high in foul weather, and continues ſo for two or three days before the foul weather is over, you may expect a continuance of fair weather to follow.

8. When the mercury falls much and low in fair weather, and continues ſo for two or three days before the rain comes, then you may expect a great deal of wet, and probably high winds.

9. The unſettled motion of the mercury denotes uncertain and changeable weather.

10. You are not ſo ſtrictly to mind the words engraven on the plates, though for the moſt part they will agree with them, as the riſing and falling of the mercury; for if it ſtands at much rain, and riſes up to changeable, it preſages fair weather, although not to continue ſo long as it would have done, if the mercury were higher, and ſo on the contrary.

Theſe rules and obſervations are ſufficient to inſtruct perſons who are unacquainted with this inſtrument, how to make their obſervations; and with conſtantly remarking what alterations happen in the weather on the variations of the mercury, a perſon may nearly predict the great alterations of the weather a day or two before they happen, which is frequently of great uſe to the gardener and farmer, but particularly to the latter, who may begin to mow his graſs when he finds there is a proſpect of fair weather, or poſtpone it a few days until he foreſees a likelihood of ſuch. The ſame alſo may be of great moment in reaping his corn, as alſo in ſowing his grain, and moſt of his other buſineſs. Therefore the uſe of this inſtrument ſhould be more generally known by the practical farmer and gardener.

BARTRAMIA. See Triumfetta.

BASELLA, or climbing Nightſhade from Malabar.

The Characters are,

The flower hath no empalement; it is ſhaped like a pitcher, fleſhy at the baſe and ſwelling, but cloſed toward the brim, where it is divided into ſix parts, two of which are larger than the others. It hath five awl-ſhaped ſtamina, which are equal, faſtened to the petal, crowned with roundiſh ſummits. The globular germen, which is ſituated in the center, ſupports three ſlender ſtyles, crowned by oblong ſtigma. The petal of the flower remains, and incloſes a roundiſh fleſhy berry, including one round ſeed.

This genus of plants is ranged in the third ſection of Linnæus's fifth claſs, entitled Pentandria Trigynia, the flower having five ſtamina and three ſtyles.

The Species are,

1. Basella (*Rubra*) foliis planis, pedunculis ſimplicibus. Lin. Sp. 390. *Baſella with plain leaves and ſimple foot-ſtalks.* Cuſcuta foliis ſubcordatis. Hort. Cliff. 39. *Climbing Nightſhade.*

2. Basella (*Alba*) foliis ovatis undatis, pedunculis ſimplicibus folio-longioribus. Lin. Sp. 390. *Baſella with oval waved leaves, and foot-ſtalks longer than the leaf.* Baſella Sinica, foliis & caulibus viridibus minùs ſucculentibus fructu minore. Juſſ.

The firſt ſort has thick, ſtrong, ſucculent ſtalks and leaves, which are of a deep purple colour. The plant requires to be ſupported, for it will climb to the height of eight or ten feet, when the plants are kept in a ſtove or glaſs-caſe, and produce a great number of ſide branches: but if they are expoſed to the open air, they will not grow ſo large, nor will they perfect their ſeeds, except it be in very warm ſeaſons; when they are placed in the bark-ſtove, they will often live through the winter, and produce great quantities of flowers and ſeeds. The flowers of this plant have no great beauty, but the plant is preſerved for the odd appearance of the ſtalks and leaves.

The ſeeds of the ſecond ſort I received from Dr. Juſſieu of Paris, from whence I have obtained two varieties; one of which hath purple ſtalks and leaves, and the other hath leaves variegated with white; but both of them retain their ſmall ſtalks, and oblong flaccid leaves, ſmaller flowers and fruit, in which they eſſentially differ from the firſt.

Theſe plants are propagated by ſeeds, which ſhould be ſown in a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted into a ſeparate pot filled with rich earth, and plunged into the tan-bed, where they muſt be treated in the ſame manner as other tender exotics. They may alſo be propagated by cuttings, which ſhould be laid to dry a day or two after they are taken from the plants, before they are planted, that the wound may heal, otherwiſe they will rot. Theſe cuttings muſt be planted into pots filled with light freſh earth, and plunged into a moderate hot-bed of tanners bark, where they will take root in a fortnight or three weeks time, when they ſhould be treated in the ſame manner as the ſeedling plants. But as theſe riſe ſo eaſily from ſeeds, it is ſeldom they are propagated any other way, becauſe they are plants of ſhort duration. Theſe flower from June to autumn, and the ſeeds ripen in September and December.

Theſe plants will climb to a conſiderable height, and ſend forth a great number of branches, ſo that they ſhould have a place near the back of the ſtove, where they may be trained up to a trelliſe, or faſtened to the back of the ſtove, otherwiſe they will twiſt themſelves about whatever plants ſtand near them, and be very injurious to the other plants; whereas, when they are regularly trained to a trelliſe, they will have a good effect in adding to the variety.

From the berries of the firſt ſort, I have ſeen a beautiful colour drawn, but when uſed for painting, did not continue very long, but changed to a pale colour; though I believe there might be a method invented, whereby this beautiful colour might be fixed, ſo as to become very uſeful; for I have been aſſured, that the juice of theſe berries has been uſed for ſtaining of callicoes in India.

BASILICUM, or **BASIL**. See Ocymum.

BASONS or fountains, &c. which ſerve either for the ornament or uſe of gardens, are made in divers forms, ſome round, ſome oblong or oval, others ſquare, octangular, &c. but their moſt common form is circular; and, if the ground will permit, the larger they are the better; and when they exceed in ſize, they are called pieces of water, canals, fiſh ponds, pools, and reſervoirs.

In making theſe, care ought to be taken to avoid both the extremes, and not to make them either too big or too little, that a water work may not take up the beſt part of a ſmall ſpot of ground; nor to make too little a baſon in a large ſpot. This muſt depend entirely on the judgment of the deſigner of the garden.

Some would have the ſize of a baſon to be proportioned to the Jet d' Eau, that the water thrown up in the air, may not, by being blown by the air, be carried beyond the edge of the baſon, but all fall down without wetting the walk.

As to the depth of baſons it is uſually from two to three feet, this depth being ſufficient to ſecure the bottom of the baſons from froſt, and to dip watering pots.

But if they are to ſerve for reſervoirs, or to keep fiſh in, then they may be made four or five feet deep, which will both hold water enough, and be deep enough for the fiſh to breed in, and alſo to bear a boat.

Deeper than this they need not be, and if they were deeper, they would be dangerous as to the drowning of perſons who might chance to fall in.

In making baſons, great care ought to be taken in making them at firſt; for the water always naturally endeavouring to run away, and by its weight and preſſure in a baſon, making its way out at the leaſt cranny, it will grow conſtantly bigger and bigger; ſo that if it be not well made at firſt, it will be very difficult to repair it.

Baſons are made either with clay, cement, or lead; they are moſt uſually made of clay; in making ſuch, at the marking out the dimenſions, the diameter ought to be four feet bigger on each ſide, yet the baſon will not be the wider, for it will be taken up with the walls on each ſide; and the clay-work, which is to fill the ſpace between; the baſon muſt alſo be dug two feet deeper than the depth of the water is deſigned to be, becauſe it is to be laid over eighteen inches thick with clay, and ſix inches with gravel and paving.

The clay ought to be well wrought with the hands and water, and when it is ſpread, ſhould be trodden in with the naked feet, that the water of the baſon may not dilute through it, and the roots of any trees that may grow near, may not penetrate into the outward wall, which may be made of ſhards, rubble, or flints, with mortar made of the natural earth, and is called the ground wall, becauſe it is only made to reſiſt the preſſure of the ground about it. The inward wall ought to be made with good rubble ſtones that will not ſcale and come off in flaſhes in the water, or elſe of flints and ſtones from the hills, which will make durable work, but will not look ſo neat as the pointed rubble; and there ought to be laid here and there ſtones, the thickneſs of the wall, to render it the more ſubſtantial.

The method of making baſons of cement is as follows: after you have marked out the dimenſions of the baſon, as before, if you enlarge it one foot nine inches, it will be ſufficient, and the ſame depth deeper at the bottom will be enough.

This being done, you muſt begin to back up and raiſe againſt the ground; cut perpendicularly a wall of maſonry a foot thick, which muſt go to the bottom, and ſhould be built with ſhards and rubble ſtones laid in mortar of lime and ſand.

When the wall is finiſhed round the circumference, then the bottom is to be wrought a foot thick with the ſame materials; and the ſolid work or lining of cement is to be backed up againſt the walls nine inches thick, including the plaſtering and inward ſurface. This ſolid ought to be made of ſmall flints, laid in beds of mortar made of lime and cement.

When this ſolid is eight inches thick, it ought to be plaſtered over the whole ſurface of the bottom with cement well ſifted before it be tempered with lime; and with this it ſhould be wrought over ſmooth with the trowel.

The proportion of this cement ſhould be two thirds of cement or powdered tile to one third of lime.

This cement has the property to harden ſo under water, that it will be as hard as ſtone or marble, and the body will be ſo ſolid as never to decay.

After the finiſhing of the baſon, the plaſtering ſhould be for four or five days ſucceſſively anointed over with oil, or bullock's blood, to prevent it from cracking or flawing; this being done, the water ſhould be let into the baſon as ſoon as may be.

Thoſe baſons which are made of lead, are to be thus wrought; the outlines ought to be enlarged one foot of a ſide, and digged half a foot deeper than the baſon is to be.

The wall muſt be made a foot thick, that it may be able to bear up againſt the earth lying againſt it; but the bottom will not require to be more than half a foot thick.

Theſe walls muſt be built in rubble laid in mortar all of plaſter, becauſe the lime will eat the lead, and then the lead muſt be laid on the walls and bottom, and be ſeamed with ſolder.

But baſons of lead are not much in uſe, becauſe of their great charge in making, and the danger of the lead being ſtolen.

Great care ought to be taken to keep the upper edge and ſuperficies of a baſon upon a level, that the water may cover all the walls equally.

As to the waſte pipes of baſons, whether at the bottom or ſuperficies, they ought not to be made too ſmall, leſt they ſhould be choked, notwithſtanding the cawls that are drawn before them.

When this waſte water is only to be loſt in ſinks and common ſewers, it is carried away in drains or earthen pipes; but when it ſerves to play the baſons that lie below it, it muſt paſs through leaden pipes.

Theſe baſons are now pretty generally rejected by perſons of good taſte, as being no ways ornamental; therefore where there is a neceſſity to make reſervoirs for water for the uſe of gardens, they are commonly dug in the loweſt part of gardens, or where the ſpot is moſt convenient for receiving the water, which may run from the adjacent grounds in hard rains; theſe ponds ſhould have their ſides made very eaſy, for, if they are too upright, the earth frequently breaks down by the water waſhing, and making it hollow below; the ſides and bottoms of theſe ponds ſhould be laid nine or ten inches thick with well wrought clay; and, as the clay is finiſhed, it ſhould be well covered to prevent the ſun and wind from cracking it before the water is let in. The figures of theſe ponds ſhould not be regular, for the ſhape of the hollow, where they are made, ſhould be followed, which will ſave expence, and have a better appearance.

BASTERIA. Nov. Gen. All-ſpice.

As this plant had no proper title given to it, I have given it this in honour of my worthy friend Dr. Job Baſter, F. R. S. of Zurick Zee, in Holland, who is a gentleman well ſkilled in botany, and has a fine garden ſtored with rare plants, of which he is very communicative to his friends, as I have many years experienced.

The CHARACTERS are,

The empalement of the flower is ſhort, of one leaf, and cut into five narrow ſegments at the top. It hath a double ſeries of narrow petals, which ſpread open, and turn inward at their extremity. Under the receptacle is ſituated an oval germen, having no ſtyle, but five ſtigma reſting upon it, and is ſurrounded by many ſhort ſtamina, crowned by obtuſe ſummits. The germen afterward becomes a roundiſh fruit, compreſſed at both ends, having cells, containing oblong ſeeds.

We have but one SPECIES of this genus at preſent in England, which is,

BASTERIA foliis ovatis oppoſitis, floribus lateralibus caule fruticoſo ramoſo. *Baſteria with oval leaves placed oppoſite, flowers coming from the ſides of the ſtalks, and a branching ſhrubby ſtalk.* Frutex Corni foliis conjugatis floribus Anemones ſtellatæ, petalis craſſis rigidis colore ſordidè rubente, cortice Aromatico. Cateſb. Hiſt. Carol. Vol. I. p. 46. *commonly called in Carolina All-ſpice.*

This ſhrub grows naturally in America. Mr. Cateſby, who firſt introduced it into the Engliſh gardens, procured it from the continent, ſome hundred miles on the back of Charles Town, in Carolina.

It ſeldom riſes more than four feet high in this country, dividing into many ſlender branches near the ground, which are garniſhed with two oval leaves placed oppoſite at every joint, which are entire; theſe have ſhort foot-ſtalks; the flowers grow ſingle at the extremity of the foot-ſtalk, which comes out from the wings of the leaves; they have two ſeries of narrow thick petals, which ſpread open, and turn inward at the top, like thoſe of the Starry Anemone, or the Virgin's Bower: theſe are of a ſullen purple colour, and have a diſagreeable ſcent; they appear in May. The embryo ſits beneath the flower, and ſupports five ſtigma; this afterward appears to have five cells, but it never comes to perfection in this country, therefore I can only give a deſcription of it from an imperfect rudiment, which a few years paſt, was fairer than any I had before ſeen. The bark of this ſhrub is brown, and has a very ſtrong aromatic ſcent; from whence the inhabitants of Carolina gave it the title of All-ſpice, by which it is generally known in the nurſeries near London.

This ſhrub will thrive in the open air in England, if it is planted in a warm ſituation and a dry ſoil. It is propagated by laying down the young branches, which will take root in one year, and may then be taken from the mother plant, and planted where they are deſigned to remain, for they do not bear tranſplanting well, after they are grown to any ſize. When the layers are tranſplanted, the ſurface of the ground ſhould be covered with mulch, to prevent the drying winds from penetrating the ground to their roots; and if the ſeaſon proves dry, they muſt be watered once a week, but ſhould not have too much wet, for that will rot their tender fibres.

The beſt time for laying down the branches, is in the autumn, but they ſhould not be tranſplanted till the ſpring twelve months after, for the ſpring is the ſafeſt time to remove theſe plants. After the branches are laid down, there ſhould be ſome old tanners bark laid upon the ſurface of the ground, to keep out the froſt, which ſhould alſo be done every winter, while the plants are young, which will prevent the froſt from penetrating to their root, and thereby ſecure them.

This plant was very ſcarce in England, till within a few years paſt, that many of them have been brought from Carolina, where they have been greatly increaſed in the gardens near Charles Town.

Dr. Kempfer has given a figure and deſcription of a plant, in his Amœnitates Exoticarum, which ſeems to be of this genus; but he mentions the fruit to be compoſed of eight cells; whereas, ſo far as I have been able to examine this, it appears to have but five; however, the flower and general ſtructure of the plant, agrees very well with this, but I ſuppoſe it to be a diſtinct ſpecies, the leaves of this being much longer, and the flowers ſtand upon naked foot-ſtalks; whereas thoſe of our ſort have commonly two ſmall leaves, which are narrower, and more pointed than thoſe upon the branches: but I find Dr. Linnæus and Monſieur Du Hamel, both ſuppoſe they are the ſame plant.

After I had given a figure of this plant, in plate LX. of my Figures of Plants, I received Monſieur Du Hamel's book of the trees and ſhrubs, which will grow in the open air about Paris, in which he has given a bad figure of this plant, under the title of Butneria; but as my plate was firſt publiſhed, and I was not appriſed of his title, I have continued my title to it; not from any attachment to it, as being my own, but rather to avoid confuſion, which muſt attend the frequent alteration of the names of plants, which is too much in faſhion at preſent.

BAUHINIA, Mountain Ebony, *vulgò*. This plant was ſo named by father Plumier, in honour of the two famous botaniſts, John and Caſpar Bauhin.

The Characters are,

The empalement of the flower is permanent, tubulous, of one leaf, and cut into five parts at the top; the flower is compoſed of five petals, which in ſome ſpecies are ſpear-ſhaped, waved and reflexed, but in others roundiſh and concave: it hath ten ſtamina, which are of unequal lengths; ſome of theſe are crowned by oval ſummits, but others have none. The oblong germen ſits upon the foot-ſtalk, ſupporting a ſlender declining ſtyle, which turns upward at the point, crowned by an obtuſe ſtigma; the germen afterward becomes a long taper pod, incloſing a row of roundiſh compreſſed ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, entitled Decandria Monogynia, the flower having ten ſtamina and one ſtyle.

The Species are,

1. Bauhinia (*Aculeata*) caule aculeato. Hort. Cliff. 156. *Bauhinia with a prickly ſtalk.* Bauhinia aculeata folio rotundo emarginato. Plum. Nov. Gen. 23.
2. Bauhinia (*Tomentoſa*) foliis cordatis, lobis ſemiorbiculatis tomentoſis. Lin. Sp. 536. *Bauhinia with heart-ſhaped leaves, and ſemiorbicular woolly lobes.* Bauhinia flore luteo ſpicato folio ſubrotundo bicorni. Houſt.
3. Bauhinia (*Acuminata*) foliis ovatis lobis acuminatis ſemi-ovatis. Lin. Sp. Plant. 375. *Bauhinia with oval leaves, and pointed lobes which are half oval.* Bauhinia non aculeata folio ampliori & bicorni. Plum. Nov. Gen. 23.
4. Bauhinia (*Ungulata*) foliis, lobis parallelis. Lin. Sp. 535. *Bauhinia with oval leaves, whoſe lobes are parallel.* Bauhinia non aculeata folio nervoſo bicorni, floribus albicantibus. Houſt.
5. Bauhinia (*Emarginata*) caule aculeato, foliis cordatis lobis orbiculatis, ſubtus tomentoſis. *Bauhinia with a prickly ſtalk, and heart-ſhaped leaves with round lobes, which are woolly on their under ſide.* Bauhinia aculeata folio rotundo emarginato flore magno albo. Houſt.
6. Bauhinia (*Purpurea*) folio ſubcordatis bipartitis rotundatis, ſubtus tomentoſis. Lin. Sp. 536. *Bauhinia with almoſt heart-ſhaped leaves divided in two roundiſh lobes woolly on their under ſide.* Bauhinia non aculeata folio ſubrotundo bicorni, floribus albis. Houſt.
7. Bauhinia (*Rotundata*) foliis ſubcordatis bipartitis rotundatis caule aculeato, floribus ſparſis. *Bauhinia with heart-ſhaped, bifid, rounded leaves, a prickly ſtalk, and flowers growing ſparſly.* Bauhinia aculeata foliis ſubrotundis bicornis flore magno albo. Houſt.
8. Bauhinia (*Variegata*) foliis cordatis lobis coadunatis obtuſis. Lin. Sp. Plant. 375. *Bauhinia with heart-ſhaped leaves, and obtuſe lobes which join together.* Chovanna-mandaru. Hort. Mal. 1. p. 57.
9. Bauhinia (*Scandens*) caule cirrhifero. Lin. Sp. Plant. 374. *Bauhinia with a ſtalk having tendrils.*
10. Bauhinia (*Divaricata*) foliis ovatis lobis divaricatis. Lin. Sp. Plant. 374. *Bauhinia with oval leaves, whoſe lobes ſpread different ways.* Bauhinia foliis quinquenerviis laciniis acuminatis remotiſſimis. Hort. Cliff. 156.

The firſt ſort grows plentifully in Jamaica, and the other ſugar iſlands in America, where it riſes to the height of ſixteen or eighteen feet, with a crooked ſtem, and divides into many irregular branches, armed with ſhort ſtrong ſpines, garniſhed with compound winged leaves, each having two or three pair of lobes, ending with an odd one, which are oblique, blunt, and indented at the top. The ſtalks are terminated by ſeveral long ſpikes of yellow flowers, which are ſucceeded by bordered pods, about three inches long, which contain two or three ſwelling ſeeds. Theſe pods are glutinous, and have a ſtrong balſamic ſcent, as have alſo the leaves when bruiſed. It is called in America, the Indian Savin-tree, from its ſtrong odour, ſomewhat reſembling the common Savin.

The ſecond ſort was ſent me from Campeachy, in 1730, by the late Dr. Houſton, where he found it growing naturally. This riſes to the height of twelve or fourteen feet, with a ſmooth ſtem, dividing into many branches, garniſhed with heart-ſhaped leaves, having two ſmooth-pointed lobes; the extremity of every branch is terminated by a long ſpike of yellow flowers, ſo that when theſe trees are in flower, they make a fine appearance. The pods are ſwelling, and about five inches long, each containing five or ſix roundiſh compreſſed ſeeds.

The third ſort grows naturally in both Indies, where it riſes with ſeveral pretty ſtrong, upright, ſmooth ſtems, ſending out many ſlender branches, garniſhed with oval leaves, deeply divided into two lobes. The leaves come out without order, and have long foot-ſtalks, but are much thinner than thoſe of the ſpecies before-mentioned. The flowers come out at the extremity of the branches, three or four in a looſe bunch; the petals are red, or ſtriped with white, others are plain upon the ſame branch; the ſtamina and ſtyle are white, and ſtand out beyond the petals. Theſe flowers are ſucceeded by long flat pods of a dark brown colour, each containing five or ſix roundiſh compreſſed ſeeds. The wood of this tree is very hard, and veined with black, from whence the inhabitants of America call it Mountain Ebony.

The fourth ſort grows naturally at Campeachy, from whence I received the ſeeds. This riſes to the height of twenty feet, with a ſmooth ſtem, dividing into many ſmall branches, garniſhed with oblong heart-ſhaped leaves, having two pointed parallel lobes, which have each three longitudinal veins. The leaves are placed alternately on the branches, which are terminated by looſe bunches of white flowers; theſe are ſucceeded by very long narrow compreſſed pods, which have eight or ten compreſſed roundiſh ſeeds in each.

The fifth ſort was ſent me from Carthagena, in New Spain, where it grows in plenty. This ſeldom riſes more than ten feet high, dividing into many irregular branches, armed with ſhort crooked ſpines; the leaves grow alternate, are heart-ſhaped, and have two roundiſh lobes; they are woolly on their under ſide, and have ſhort foot-ſtalks. The flowers grow at the extremity of the branches, two or three together; theſe are large, and of a dirty white colour, and are ſucceeded by ſhort flat pods, each containing two or three ſeeds.

The ſixth ſort grows naturally at La Vera Cruz. This riſes to the height of twenty-five, or thirty feet, with many irregular ſtems, which divide into many ſlender branches; garniſhed with heart-ſhaped leaves, having two roundiſh lobes. The flowers come out in looſe ſpikes at every joint from the wings of the leaves, with naked foot-ſtalks, and are of a dirty white colour, and are ſucceeded by oblong compreſſed pods, which are broadeſt at their extremity, where they are rounded, each containing three or four compreſſed ſeeds.

The ſeventh ſort grows naturally at Carthagena, in New Spain. This riſes twenty feet high, with a ſtrong upright ſtem, which ſends out many branches toward the top; armed with ſpines growing by pairs, which are ſtrong and crooked. The leaves are heart-ſhaped and grow alternately, having two rounded lobes. The flowers are large and white, coming out thinly at the ends of the branches. The petals of theſe are near two inches long, and ſpread open wide; the ſtamina and ſtyle are nearly of the ſame length. The flowers are ſucceeded by long flat pods, which are narrow, each containing five or ſix ſeeds.

The eighth ſort grows naturally in both Indies. This riſes with a ſtrong ſtem, upward of twenty feet high, dividing into many ſtrong branches, garniſhed with heart-ſhaped leaves, having obtuſe lobes which cloſe together. The flowers are large and grow in looſe panicles; at the extremity of the branches, of a purpliſh red colour, marked with white, and have a yellow bottom. Theſe have a very agreeable ſcent. The flowers are ſucceeded by compreſſed pods, about ſix inches long, and three quarters of an inch broad, containing three or four compreſſed ſeeds in each.

The ninth ſort grows naturally in both Indies, where it riſes with many ſlender ſtalks, which put out tendrils, and faſten themſelves to the neighbouring trees, whereby they riſe to a great height; the leaves come out alternately, are heart-ſhaped, ſtanding upon long foot-ſtalks; theſe are ſix inches long, and three inches and a half broad in the middle, and are deeply cut into two pointed lobes, each having three prominent ribs running longitudinally. This hath not produced flowers in England, nor had I any account of them with the ſeeds, which were ſent me from Campeachy.

The tenth ſort grows naturally in great plenty on the north ſide of the iſland of Jamaica. This is a low ſhrub, ſeldom riſing more than five or ſix feet high, but divides into ſeveral branches, garniſhed with oval leaves, divided into two lobes, which ſpread from each other. The flowers grow in looſe panicles at the end of the branches, which are white, and have a very agreeable ſcent. Theſe appear the greateſt part of ſummer, ſo is one of the great beauties of the hot-houſe. The flowers are ſucceeded by taper pods, about four inches long, each containing four or five roundiſh compreſſed ſeeds, of a dark colour.

All theſe plants are natives of the warm countries, ſo will not thrive in England, unleſs they are kept in a warm ſtove. They are propagated by ſeeds, which muſt be procured from the countries where they grow naturally, for they do not perfect their ſeeds in England.

The laſt ſort has ſeveral times produced pods in the Chelſea garden, but they have never come to maturity. The ſeeds ſhould be brought over in their pods, which will preſerve them good. Theſe muſt be ſown in pots filled with light freſh earth, and plunged into a moderate hot-bed of tanners-bark; if the ſeeds are good, the plants will come up in about ſix weeks, and in a month after, will be fit to tranſplant, when they ſhould be carefully ſhaken out of the ſeed pot, ſo as not to tear off the roots, and each planted into a ſeparate ſmall pot filled with light loamy earth, and plunged into the hot-bed again, being careful to ſhade them until they have taken freſh root, after which they ſhould have freſh air admitted to them every day in warm weather. In the autumn they muſt be placed in the bark-ſtove, and treated in the ſame way as other tender exotics, giving them but little water in winter. As theſe plants frequently flower, they are worthy of a place in the ſtove.

BAY. See Laurus.

BEANS. See Faba.

BEANS, (KIDNEY or FRENCH.) See Phaseolus.

BEAN-TREFOIL. See Cytisus.

BEAR's-EAR. See Auricula.

BEAR's-EAR SANICLE. See Verbascum.

BEAR's-FOOT. See Helleborus.

BECABUNGA, or Brook-lime.

This is a ſort of Veronica, or Water Speedwell; of which there are two ſorts, one with a long leaf, and the other round; they are both very common in ditches, and watery places, almoſt every where in England; the ſecond ſort is uſed in medicine.

BEE, or GNAT-FLOWER. See Orchis.

BEECH-TREE. See Fagus.

BELLADONA. See Atropa.

BELL-FLOWER. See Campanula.

BELLIS [is ſo called Bellus, *Lat.* pretty, handſome, &c.] the Daiſy.

The Characters are,

It hath a radiated diſcous flower, compoſed of many hermaphrodite florets in the diſk, and female florets in the rays; included in a common empalement, with a double ſeries of ſmall leaves of equal length. The hermaphrodite florets in the diſk, are funnel-ſhaped, and cut into five parts at the brim; the female florets are tongue-ſhaped, and make the border; theſe have no ſtamina, but an oval germen ſupporting a ſlender ſtyle, crowned by two ſpreading ſtigma; the hermaphrodite florets have an oval germen, ſupporting a ſimple ſtyle, crowned by a bordered ſtigma. This is attended by five ſhort ſtamina, crowned by tubular cylindrical ſummits. The germen afterward becomes a ſingle naked ſeed placed vertically.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua, the flowers being compoſed of female and hermaphrodite florets, included in a common empalement.

The Species are,

1. Bellis (*Perennis*) ſcapo nudo unifloro. Hort. Cliff. 418. *Daiſy with a naked ſtalk, having one flower.* Bellis ſylveſtris minor. C. B. P. 267. *Smaller wild Daiſy.*
2. Bellis (*Annua*) caule ſubfolioſo. Lin. Sp. Plant. 887. *Daiſy with leaves on the lower part of the ſtalk.* Bellis minor pratenſis caule folioſo. Bocc. Muſ. 2. p. 96.
3. Bellis (*Hortenſis*) hortenſis flore pleno majore. C. B. P. 261. *Garden Daiſy with a larger double flower.*

The firſt ſort is the common Daiſy, which grows naturally in paſture land in moſt parts of Europe, and is often a troubleſome weed in the graſs of gardens, ſo is never cultivated.

The ſecond ſort is a low annual plant, which grows naturally on the Alps, and the hilly parts of Italy. This ſeldom riſes more than three inches high, with an upright ſtalk, which is garniſhed with leaves on the lower part; but the upper part is naked, ſupporting a ſingle flower like that of the common Daiſy, but ſmaller. This is preſerved in ſome botanic gardens for the ſake of variety; it was ſent me from Verona, near which place it grows wild.

The Garden Daiſy is generally ſuppoſed to be only a variety of the wild ſort, which was firſt obtained by culture. This may probably be true, but there has not been any inſtance of late years of the wild ſort having been altered by culture; for I have kept the wild ſort in the garden upward of forty years, and have conſtantly parted the roots, and raiſed many plants from ſeeds, but they have conſtantly remained the ſame; nor have I ever obſerved the Garden Daiſy to degenerate to the wild ſort, where they have been ſome years neglected, tho' they have altered greatly with regard to the ſize and beauty of their flowers. I have alſo obſerved the ſeveral varieties of the Garden Daiſy vary from one to the other, therefore I ſhall not conſider them as diſtinct ſpecies, but ſhall only mention the varieties, which are cultivated in the gardens.

1. The red and white Garden Daiſy, with double flowers.
2. The double variegated Garden Daiſy.
3. The Childing, or Hen and Chicken Daiſy.
4. The Cockſcomb Daiſy with red and white flowers.

The Garden Daiſies flower in April and May, when they make a pretty variety, being intermixed with plants of the ſame growth; they ſhould be planted in a ſhady border, and a loamy ſoil without dung, in which they may be preſerved without varying, provided the roots are tranſplanted and parted every autumn; which is all the culture they require, except the keeping them clear from weeds.

Theſe were formerly planted for edgings to borders, but they are very unfit for this purpoſe; becauſe where they are fully expoſed to the ſun, they frequently die in large patches, whereby the edgings become bald in many places.

BELLIS MAJOR. See Chrysanthemum.

BELLONIA.

This plant was ſo named by Father Plumier, in honour of the famous Petrus Bellonius, who has left many valuable tracts on natural hiſtory, &c.

The Characters are,

It hath a permanent empalement which is of one leaf, cut into five parts at the top; the flower is wheel-ſhaped, of one leaf, with a ſhort tube, but ſpread open above, and cut into five obtuſe ſegments. It hath five awl-ſhaped ſtamina, which are ſhort, and crowned by ſhort erect ſummits, which cloſe together. The germen is ſituated under the receptacle of the flower, ſupporting an awl-ſhaped ſtyle, which is longer than the ſtamina, and crowned by an acute ſtigma. The germen afterward becomes an oval turbinated ſeed-veſſel, ending in a point, having one cell filled with ſmall round ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

We have but one Species of this genus, viz.

Bellonia. Lin. Sp. Plant. 172. Bellonia fruteſcens, folio meliſſæ aſpero. Plum. Nov. Gen. 19.

This plant is very common in ſeveral of the warm iſlands in America, from whence I have received the ſeeds.

It hath a ligneous ſtalk, which riſes ten or twelve feet high, ſending out many lateral branches, garniſhed with oval rough leaves placed oppoſite; the flowers come out from the wings of the leaves, in looſe panicles, which are of the wheel ſhape, of one leaf, divided into five parts; theſe are ſucceeded by oval capſules, ending in a point, which are full of ſmall round ſeeds.

It is propagated by ſeeds, which ſhould be ſown early in the ſpring, in a pot filled with light freſh earth, and plunged into a hot-bed of tanners barks, obſerving to water it frequently, as the earth appears dry; but you muſt be careful not to waſh the ſeeds out of the ground. When the plants are come up half an inch high, they ſhould be carefully tranſplanted into pots filled with light freſh earth, and plunged into the hot-bed again, obſerving to water and ſhade them until they have taken root; after which time they ſhould have air admitted to them every day, when the weather is warm; they muſt alſo be frequently watered. When the plants have filled theſe pots with their roots, they ſhould be carefully ſhaken out of them, and their roots trimmed, and put into larger pots filled with light freſh earth, and plunged into the hot-bed again. In warm weather they ſhould have free air admitted to them every day; but in autumn they muſt be plunged into the bark-ſtove, and treated in the ſame manner as other tender exotic plants. The ſecond year theſe plants will ſometimes flower, but they rarely produce good ſeeds in this climate; however, they may be propagated by cuttings in the ſummer months, provided they are planted in light earth on a moderate hot-bed, and carefully watered and ſhaded until they have taken root. Theſe plants muſt be conſtantly kept in the ſtove, and ſhould have a large ſhare of free air in warm weather; but if they are ſet abroad, they will not thrive in this climate.

BELVEDERE. See Chenopodium.

BENZOIN, the Benjamin-tree. See Laurus.

BERBERIS, the Barberry, or Pipperidge-buſh.

The Characters are,

It hath a coloured empalement, which ſpreads open, compoſed of ſix concave leaves, three of which are alternately larger than the other; the flower is of ſix leaves, which are roundiſh, concave, and little larger than the empalement; there are two coloured nectarii, faſtened to the baſe of each petal, and ſix obtuſe, compreſſed, erect ſtamina, with two ſummits faſtened on each ſide their apex. The germen is cylindrical, the length of the ſtamina, having no ſtyle, but crowned by an orbicular ſtigma broader than the germen, having a ſharp border: the germen afterward becomes an obtuſe, cylindrical, umbilicated berry, having a puncture, and one cell incloſing two cylindrical ſeeds.

This genus is ranged in Linnæus's firſt ſection of his ſixth claſs, intitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle.

The Species are,

1. Berberis (*Vulgaris*) pedunculis racemoſis. Mat. Med. 290. *Barberry with branching foot-ſtalks.* Berberis dumetorum. C. B. P. 454. *The common Barberry.*
2. Berberis (*Canadenſis*) foliis obverſe-ovatis. *Barberry with oval obverſe leaves.* Berberis latiſſimo folio Canadenſis. H. R. Par.
3. Berberis (*Cretica*) pedunculis unifloris. Lin. Sp. Plant. 331. *Barberry with a ſingle flower on each foot-ſtalk.* Berberis Cretica buxi folio. Tourn. Cor. 42.

The firſt ſort grows naturally in the hedges in many parts of England, but is alſo cultivated in gardens for its fruit, which is pickled, and uſed for garniſhing diſhes. This ſhrub riſes with many ſtalks from the root, to the height of eight or ten feet, which have a white bark, yellow on the inſide; the ſtalks and branches are armed with ſharp thorns, which commonly grow by threes; the leaves are oval, obtuſe, and ſlightly ſawed on their edges. The flowers come out from the wings of the leaves, in ſmall ramoſe bunches, like thoſe of the Currant-buſh, which are yellow; theſe are ſucceeded by oval fruit, which are firſt green, but when ripe turn to a fine red colour. The flowers appear in May, and the fruit ripens in September.

There are two or three varieties of this ſhrub, which have been mentioned as diſtinct ſpecies; one is the Berberis ſine nucleo. C. B. P. *Barberry without ſtone.* The ſecond is Berberis fructu albo. *Barberry with white fruit.* The third is the Berberis orientalis procerior fructu nigro ſuaviſſimo. Tourn. Cor. *Taller Eaſtern Barberry with a black ſweet fruit.* The firſt of theſe is certainly accidental, becauſe the ſuckers, taken from thoſe buſhes being tranſplanted, commonly produce fruit with ſtones; ſo it is the age of the plant which occaſions that variation. The ſort with white fruit ſeldom bears; the leaves of this are of a lighter green colour, and the bark of the ſtalks are whiter than thoſe of the common, which are the only differences between them, for the fruit is ſeldom produced here. The third ſort appears the ſame with the common, and only differs in the colour and flavour of the fruit, ſo is only a variety.

The common ſort is generally propagated by ſuckers, which are put out in great plenty from the root; but theſe plants are very ſubject to ſend out ſuckers, in greater plenty than thoſe which are propagated by layers; therefore the latter method ſhould be preferred. The beſt time for laying down the branches is in the autumn, when their leaves begin to fall; the young ſhoots of the ſame year are the beſt for this purpoſe; theſe will be well rooted by the next autumn, when they may be taken off, and planted where they are deſigned to remain. Where this plant is cultivated for its fruit, it ſhould be planted ſingle, (not in hedges, as was the old practice) and the ſuckers every autumn taken away, and all the groſs ſhoots pruned out: by this method the fruit will be much fairer, and in greater plenty, than upon thoſe which are ſuffered to grow wild. A few of theſe ſhrubs may be allowed to have place in wilderneſſes, or plantations of ſhrubs, where they will make a pretty variety, and the fruit will be food for the birds; but they ſhould not be planted in great quantities, near walks which are much frequented, becauſe their flowers emit a very ſtrong diſagreeable odour.

The Canada ſort was more common in the Engliſh gardens, ſome years paſt, than at preſent. The leaves of this are much broader, and ſhorter than thoſe of the common ſort, and the fruit is black when ripe. This may be propagated in the ſame way as the common ſort, and is equally hardy.

The Box-leaved ſort is at preſent very rare in England; and while young, the plants are ſomewhat tender, ſo have been killed by ſevere froſt. This never riſes more than three or four feet high in England, but ſends out many ſtalks from the root, which are ſtrongly armed with ſpines at every joint; the leaves are produced without order, and are ſhaped like thoſe of the narrow-leaved Box-tree; the flowers come out from between the leaves, each upon a ſlender foot-ſtalk; but theſe are not ſucceeded by fruit in England.

This ſort may be propagated by laying down the branches in the ſame manner as the firſt; but when the young plants are taken off, they ſhould be planted in pots, and ſheltered under a frame in the winter, till they have obtained ſtrength, when they may be turned out of the pots, and planted in a warm ſituation.

BERMUDIANA. See SISYRINCHIUM.

BERNARDIA. See CROTON.

BESLERIA

This plant was named after Baſilius Beſler, an apothecary at Nuremberg, who was the author of a book, intitled Hortus Eyſtetenſis.

The CHARACTERS are,

The flower is of the perſonated or lip kind, with an empalement of one leaf, which is erect, and cut into five acute parts at the brim: the flower is of one leaf, and quinquefid; the ſegments being roundiſh, the lower being large, and the two upper are leſs divided; it hath four ſtamina in the tube of the flower, two of which are longer than the other, crowned by ſmall ſummits: the oval germen ſupports an awl-ſhaped ſtyle, crowned by an acute ſtigma; this afterward becomes an oval berry, with one cell filled with ſmall ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's twelfth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhort ſtamina, and the ſeeds being included in a capſule.

The SPECIES are,

1. BESLERIA (*Melittifolia*) pedunculis ramoſis, foliis ovatis. Lin. Sp. Plant. 619. *Beſleria with branching foot-ſtalks and oval leaves.* Beſleria Meliſſæ Tragi folio. Plum. Nov. Gen. 29.
2. BESLERIA (*Lutea*) pedunculis ſimplicibus confertis, foliis lanceolatis. Lin. Sp. Plant. 619. *Beſleria with ſimple foot-ſtalks growing in cluſters, and ſpear-ſhaped leaves.* Beſleria virgæ aureæ foliis flore luteo minor. Plum. Nov. Gen. 29.
3. BESLERIA (*Criſtata*) pedunculis ſimplicibus ſolitariis, involucris pentaphyllis propriis. Lin. Sp. Plant. 619. *Beſleria with ſimple ſtalks growing ſingle, and a five-leaved involucrum.* Beſleria ſcandens criſtata fructu nigro. Plum. Nov. Gen. 29.

The firſt ſort hath a ſmooth woody ſtalk which is jointed; at each joint are placed two oval nervous leaves oppoſite, which are crenated on their edges; the flowers come out from the wings of the leaves, upon ſhort branching foot-ſtalks, each ſuſtaining ſix or eight flowers, which ſtand each upon a ſeparate ſmaller foot-ſtalk. Theſe are of one leaf, of an anomalous figure, and quinquefid; after the flower is paſt, the germen becomes an oval ſoft berry, with one cell filled with ſmall ſeeds.

The ſecond ſort riſes with a ligneous ſtem ſix or ſeven feet high, dividing toward the top into many irregular branches, garniſhed with ſpear-ſhaped ſawed leaves, which have many tranſverſe veins; the flowers come out at the wings of the leaves, in large cluſters, each having a ſeparate foot-ſtalk: theſe are ſmall, tubulous, and of a pale yellow colour, and are ſucceeded by round ſoft berries, incloſing many ſmall ſeeds.

The third ſort hath a creeping ſtalk, which ſends out roots at every joint, garniſhed with oval leaves placed oppoſite, which have many tranſverſe ribs, and are ſharply ſawed on their edges; from the wings of the leaves come out the foot-ſtalks of the flowers ſingle, each ſuſtaining one tubulous, irregular, hairy flower, divided at the top into five obtuſe parts, with a large five-leaved involucrum, deeply ſawed on the border: after the flower is paſt, the germen becomes a hairy placenta, in the center of the empalement, containing many ſmall ſeeds.

Theſe plants grow naturally in the warm parts of America. The ſeeds ſhould be ſown on a hot-bed early in the ſpring; and when the plants are come up half an inch high, they ſhould be each tranſplanted into a ſmall pot filled with light freſh earth, and plunged into a hot-bed of tanners bark, obſerving to water and ſhade them until they have taken root; after which time they ſhould have air and water in proportion to the warmth of the ſeaſon, and the heat of the bed in which they are placed. When the plants have filled theſe ſmall pots with their roots, they ſhould be ſhaken out of them, and their roots trimmed, and put into larger pots filled with light freſh earth, and plunged into the hot-bed again; where they ſhould have a large ſhare of air in warm weather, and muſt be frequently watered. With this management the plants will thrive very well in ſummer, but in winter they muſt be removed into the ſtove, where they muſt be placed in a temperate warmth, and ſhould be often, but ſparingly, watered. The ſecond year theſe plants will flower, and ſometimes they will perfect their ſeeds in this country; but they muſt be conſtantly preſerved in the ſtove, for they will not live in the open air.

BETA, the Beet.

The Characters are,

The flower hath a five-leaved concave empalement, which is permanent. It hath no petal, but five awl-ſhaped ſtamina, placed oppoſite to the leaves of the empalement, crowned by roundiſh ſummits. The germen is ſituated below the receptacle, ſupporting two ſhort erect ſtyles, crowned by pointed ſtigma. The germen afterward becomes a capſule with one cell, having a ſingle ſeed, wrapped up in the empalement.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The Species are,

1. Beta (*Maritima*) caulibus decumbentibus, foliis triangularibus petiolatis. *Beet with declining ſtalks, and triangular leaves having foot-ſtalks.* Beta ſylveſtris maritima. C. B. P. 118.
2. Beta (*Hortenſis*) foliis radicalibus petiolatis, caulinis ſeſſilibus, ſpicis lateralibus longiſſimis. *Beet with the lower leaves having foot-ſtalks, thoſe upon the ſtalks without, and very long ſpikes of flowers.* Beta alba vel palleſcens, quæ cicla officinarum. C. B. P. 118.
3. Beta (*Vulgaris*) caule erecto. Lin. Sp. 322. *Common red Beet.* Beta rubra radice rapaceâ. C. B. P. 118. *Red Beet with a Turnep root.*

There are ſeveral varieties of this genus, ſome of which are cultivated in the gardens for the kitchen; but as theſe have been improved by culture, ſo they muſt not be deemed diſtinct ſpecies. There are ſome who have ſuppoſed all the ſpecies were only ſeminal variations, but from having cultivated them upward of forty years, I could never obſerve, that either of the three ſpecies here enumerated have altered from one to the other. The only alteration which I have obſerved in the third ſpecies, has been in the colour of the leaves and roots, which will be hereafter mentioned.

The firſt ſort grows naturally on the banks of the ſea, and in ſalt marſhes in divers parts of England. This has been ſuppoſed by many, to be the ſame with the ſecond ſpecies; but I have brought the ſeeds from the places where they grow naturally, many times, and have cultivated the plants with care, but could not find any of the plants vary from their parent plants in their characters, ſo that I can make no doubt of its being a diſtinct ſpecies.

The ſecond ſort is cultivatad in gardens for its leaves, which are frequently uſed in ſoups; the root of this ſort ſeldom grows larger than a man's thumb; the ſtalks grow erect, and are garniſhed with oblong ſpear-ſhaped leaves, growing cloſe to the ſtalk; the ſpikes of flowers come out from the wings of the leaves, which are long, and have narrow leaves placed between the flowers. The lower leaves of the plant are thick and ſucculent, and their foot-ſtalks are broad. The varieties of this are, the White Beet, the Green Beet, and the Swiſs or Chard Beet. Theſe will vary from one to the other by culture, as I have often experienced, but never alter to the firſt or third ſort.

The third ſort hath large, thick, ſucculent leaves, which are for the moſt part of a dark red, or purple colour. The roots of this are large, and of a deep red colour, on which their goodneſs depends; for the larger theſe roots grow, the tenderer they will be; and the deeper their colour, the more they are eſteemed. The varieties of this are, the common Red Beet, the Turnep-rooted Red Beet, the Green-leaved Red Beet, and the Yellow-rooted Beet.

The ſecond ſort, which is cultivated in gardens for its leaves, which are uſed in the kitchen, is commonly ſown by itſelf, and not mixed with other crops. This is ſown the beginning of March, upon an open ſpot of ground, not too moiſt; the ſeeds ſhould be ſown thinly, becauſe the plants require room to ſpread; for when they are too cloſe, the leaves will be ſmall and full of fibres, ſo unfit for the purpoſes deſigned. When the plants have put out four leaves, the ground ſhould be hoed, as is practiſed for Carrots, carefully cutting up all the weeds, and alſo the plants where they are too near each other, leaving them at leaſt four inches aſunder: if this is performed in dry weather, all the preſent weeds will be deſtroyed; but as young weeds will ſoon appear, ſo in three weeks or a month's time, the ground ſhould be a ſecond time hoed over, to cut up the weeds, and thin the plants to a greater diſtance; for by this time they will be paſt danger, ſo ſhould not be left nearer than ſix inches, if regard is had to the goodneſs of their leaves: and if it is of the Swiſs kind, with broad leaves, the plants muſt not be nearer than nine or ten inches. If the ſecond hoeing is well performed, and in dry weather, the ground will remain clean a month longer, when it ſhould be hoed over a third time; which, if properly done, will deſtroy all the weeds; ſo that after this, the plants will ſpread and prevent the weeds from growing, therefore will want but little cleaning for a conſiderable time, and the leaves will ſoon be fit for uſe, when the outer large leaves ſhould be firſt gathered, leaving the ſmall inner leaves to grow larger; ſo that a ſmall ſpot of ground will ſupply a moderate family, and will furniſh a new ſupply of leaves for two years, provided the plants are not permitted to run up to ſeed, for after that, their leaves will not be good: therefore thoſe who are curious in their herbs, muſt ſow a freſh ſpot of ground annually, becauſe theſe plants naturally run up the ſecond year; and although the roots may be continued longer, by cutting off the ſtalks when they begin to ſhoot, yet the leaves will not be ſo large or tender upon theſe roots, as upon the young plants.

The Red Beet is frequently ſown with Carrots, Parſneps, or Onions, by the kitchen gardeners near London, who draw up their Carrots or Onions when they are young, whereby the Beets will have room to grow, when the other crops are gathered; but where the crops are not timely removed from them, it will be a better method to ſow them ſeparately. This ſort requires a deep light ſoil, for as their roots run deep in the ground, ſo in ſhallow ground they will be ſhort and ſtringy. The ſeeds ſhould be ſown in March, and muſt be treated in the ſame manner as the former ſort; but the plants ſhould not be left nearer than a foot diſtance, or in good land a foot and a half, for the leaves will cover the ground at that diſtance. The roots will be fit for uſe in the autumn, and continue good all the winter; but in the ſpring, when they begin to ſhoot, they will be hard and ſtringy. A few roots may be left for ſeed, or ſome of the faireſt roots tranſplanted to a ſheltered ſpot of ground, where they may be defended from ſtrong winds, which frequently break down their ſtalks, if they are not well ſupported, eſpecially when the ſeeds are formed; which becoming heavy as it increaſes in bulk, is apt to weigh down the ſlender ſtalks upon which they grow. The ſeed will ripen in September, when the ſtalks ſhould be cut off, and ſpread on mats to dry, and afterward threſhed out and cleaned, and put up in bags for uſe.

BETONICA [or Vettonica, ſo called from the Vettones, an ancient people of Spain, who firſt uſed this plant], Betony.

The Characters are,

It hath a permanent empalement of one leaf, which is tubulous, cut at the brim into five parts. The flower is of one leaf, of the lip kind, with a cylindrical incurved tube; the upper lip is roundiſh, plain, erect, and entire; the lower lip is cut into three parts, the middle ſegment being broad, roundiſh, and indented at the end. It hath four awl-ſhaped ſtamina, two long and two ſhorter, which incline to the upper lip; theſe have roundiſh ſummits. The germen is quadripartite, ſupporting a ſtyle of the length *and figure of the ſtamina, crowned by a bifid ſtigma. The germen afterward becomes four naked oval ſeeds, lodged in the empalement.*

This genus of plants is ranged in the firſt ſection of Linnæus's twelfth claſs, intitled Didynamia Gymnoſpermia, the flower having two long and two ſhorter ſtamina, which are ſucceeded by naked ſeeds.

The Species are,

1. Betonica (*Officinalis*) ſpicâ interruptâ, corollarum laciniâ labii intermediâ emarginatâ. Flor. Leyd. Prod. 316. *Betony with an interrupted ſpike, and the middle ſegment of the lower lip of the flower indented at the end.* Betonica purpurea. C. B. P. 235. *Purple or Wood Betony.*
2. Betonica (*Danica*) foliis radicalibus ovato-cordatis, caulinis lanceolatis obtuſis ſpicâ craſſiore. *Betony whoſe under leaves are heart-ſhaped, thoſe on the ſtalks ſpear-ſhaped and obtuſe, and a thicker ſpike of flowers.* Betonica major Danica. Park. Theat. 615. Mor. Hiſt. 3. 365.
3. Betonica (*Alpina*) foliis triangularibus obtuſis ſpicâ breviore. *Betony with obtuſe triangular leaves, and a ſhorter ſpike of flowers.* Betonica minima Alpina Helvetica. Park. Theat. 650.
4. Betonica (*Orientalis*) ſpicâ integrâ, corollarum laciniâ labii intermediâ integerrimâ. Flor. Leyd. Prod. 316. *Betony with a whole ſpike, and the middle ſegment of the lower lip entire.* Betonica Orientalis anguſtiſſimo & longiſſimo folio, ſpicâ florum craſſiori. Tourn. Corol. 13.
5. Betonica (*Incana*) foliis lanceolatis obtuſis incanis ſpicâ florum craſſiori. *Betony with obtuſe, ſpear-ſhaped, hoary leaves, and a thicker ſpike of flowers.* Betonica Italica incana flore carneo. Barrel. Icon. 340.

The firſt ſort grows naturally in woods and on ſhady banks in moſt parts of England, ſo is ſeldom cultivated in gardens. This is the ſort which is uſed in medicine, and is greatly eſteemed as a vulnerary herb. There is a variety of this with a white flower, which I have often found growing naturally in Kent.

The ſecond ſort grows naturally in Denmark. This differs greatly from our common ſort, the lower leaves being much broader and heart-ſhaped; thoſe upon the ſtalks are ſpear-ſhaped and rounded at the end, and the ſtalks are larger, ſtand upright, and are terminated by thicker ſpikes of flowers. Theſe differences are conſtant, for I have many years propagated them by ſeeds, and have never found the plants ſo raiſed to vary.

The third ſort grows naturally upon the Alps, where it ſeldom riſes more than four inches high; and when cultivated in a garden, not above ſeven or eight. The leaves of this are much broader at the baſe than thoſe of the common ſort, and are very different in their ſhape, being triangular and blunt at the end. The flowers grow in very ſhort cloſe ſpikes, on the top of the ſtalks. Theſe differences conſtantly hold in the plants raiſed from ſeeds.

The fourth ſort was diſcovered by Dr. Tournefort in the Levant. The leaves of this are very long, narrow, and hairy, and are neatly crenated on their edges. The flowers grow in very cloſe thick ſpikes at the top of the ſtalks, which are larger, and of a lighter purple colour than thoſe of the common ſort.

The fifth ſort grows naturally in Italy, upon the hills, from whence I received the ſeeds. The leaves of this ſort are broader, and not ſo long as thoſe of the common ſort, and are hoary; the ſtalks are ſhorter and much thicker, as are alſo the ſpikes of flowers, than thoſe of the common, and the flowers are larger and of a fleſh colour. This ſort conſtantly keeps the ſame from ſeeds.

There is another ſort which Tournefort and others mention, by the title of Betonica rubicundiſſimo flore montis aurei; which differs but little from the fifth, except in the colour of the flower, ſo I doubt of its being ſpecifically different from that.

All the ſorts are perennial plants, which may be propagated by ſeeds, or parting of their roots. They are all very hardy, but require a ſhady ſituation and a moiſt ſtiff ſoil, in which they will thrive better than in rich ground. The beſt time to tranſplant and ſeparate the roots is in the autumn, but the ſeeds ſhould be ſown in the ſpring upon a ſhady border, and when the plants come up, they will require no other care but to keep them clean from weeds, and to thin them where they are too cloſe.

Theſe all of them flower in May and June, and the ſeeds ripen in Auguſt.

BETONICA AQUATICA. See Scrophularia.

BETONICA PAULI. See Veronica.

BETULA, the Birch-tree.

The Characters are,

It hath male and female flowers, at ſeparate diſtances on the ſame tree; the male flowers are collected in a cylindrical katkin, which is ſcaly, looſe, and imbricated on every ſide, each ſcale having three flowers, which have two minute ſcales on the ſide. The flower is compoſed of three equal florets, fixed to the empalement by a ſingle ſcale; each floret is of one leaf, divided into four oval ſegments which ſpread open; theſe have four ſmall ſtamina, crowned by double ſummits. The female flowers grow in a katkin, in the ſame manner as the male. The common katkin is imbricated, having three ſcales which are every way oppoſite, faſtened to the central ſtring or axis, having two heart-ſhaped flowers pointing toward the apex, where it is ſituated. They have no viſible petals, but a ſhort oval germen, ſupporting two briſtly ſtyles, which are the length of the ſcales of the empalement, and crowned with a plain ſtigma. It hath no pericarpium, but the ſeeds are included in the ſcales of the katkin, which are oval and winged.

This genus of plants is ranged in the fourth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Tetrandia, there being male and female flowers on the ſame plant, and the male having four ſtamina.

The Species are,

1. Betula (*Alba*) foliis ovatis acuminatis ſerratis. Hort. Cliff. 442. *Birch-tree with oval ſawed leaves ending in points; the common Birch-tree.*
2. Betula (*Nana*) foliis orbiculatis. Flor Lap. 266. *Birch-tree with round crenated leaves.* Betula pumila foliis ſubrotundis. Amman. *Dwarf Birch.*
3. Betula (*Lenta*) foliis cordatis oblongis acuminatis ſerratis. Lin. Sp. Plant. 983. *Birch-tree, with oblong, pointed, heart-ſhaped, ſawed leaves.*
4. Betula (*Nigra*) foliis rhombeo-ovatis acuminatis duplicato-ſerratis. Lin. Sp. Plant. 982. *Birch-tree with rhomboid, oval, pointed leaves, which are doubly ſawed.* Betula nigra Virginiana. Pluk. Alm. 67. *Black Virginia Birch-tree.*

The firſt is the common Birch-tree, which is ſo well known as to need no deſcription. This is not much eſteemed for its wood, but however it may be cultivated to advantage upon barren land, where better trees will not thrive; for there is no ground ſo bad, but this tree will thrive in it; for it will grow in moiſt ſpringy land, or in dry gravel or ſand, where there is little ſurface: ſo that upon ground which produced nothing but moſs, theſe trees have ſucceeded ſo well, as to be fit to cut in ten years after planting, when they have been ſold for near 10 l. per acre ſtanding, and the after produce has been conſiderably increaſed. And as many of the woods near London, which were chiefly ſtocked with theſe trees, have been of late years grubbed up, ſo the value of theſe plantations have advanced in proportion. Therefore thoſe perſons who are poſſeſſed of ſuch poor land, cannot employ it better, than by planting it with theſe trees, eſpecially as the expence of doing it is not great.

The beſt method to cultivate this tree, is to furniſh yourſelf with young plants from the woods where they naturally grow, and are generally found there in great plenty; but in places where there are no young plants to be procured near, they may be raiſed from ſeeds, which ſhould be carefully gathered in the autumn, as ſoon as the ſcales under which they are lodged begin to open, otherwiſe they will ſoon fall out and be loſt: the ſeeds are ſmall, ſo ſhould not be buried deep in the ground. The autumn is the beſt ſeaſon to ſow them, and in a ſhady ſituation, the plants will thrive better than when they are expoſed to the full ſun; for in all places where there are any large trees their ſeeds fall, and the plants come up well without care; ſo that if the young plants are not deſtroyed by cattle, there is generally plenty of them in all the woods where there are any of theſe trees. Theſe wild plants ſhould be carefully taken up, ſo as not to deſtroy their roots. The ground where they are to be planted, will require no preparation; all that is neceſſary to be done, is to looſen it with a ſpade or mattock, in the places where the plants are to ſtand, making holes to receive their roots, covering them again when the plants are placed, and cloſing the earth hard to their roots. If the plants are young, and have not much top, they will require no pruning; but where they have buſhy heads, they ſhould be ſhortened to prevent their being ſhaken and diſplaced by the wind. When the plants have taken root, they will require no other care, but to cut down the great weeds which would over-hang the plants; which may be done with a ſickle, being careful not to cut or injure the young trees. This need not be repeated oftener than two or three times in a ſummer the two firſt years, after which time the plants will be ſtrong enough to keep down the weeds, or at leaſt be out of danger from them.

Theſe may be planted any time from the middle of October till the middle of March, when the ground is not frozen; but in dry land the autumn is the beſt ſeaſon, and the ſpring for moiſt. The diſtance which they ſhould be planted, is ſix feet ſquare, that they may ſoon cover the ground, and by ſtanding cloſe, they will draw each other up; for in ſituations where they are much expoſed, if they are not pretty cloſe, they will not thrive ſo well.

If the plants take kindly to the ground, they will be fit to cut in about ten years; and afterward they may be cut every ſeventh or eighth year, if they are deſigned for the broom-makers only; but where they are intended for hoops, they ſhould not be cut oftener than every twelfth year.

The expence of making theſe plantations in places where the young plants can be eaſily procured, will not exceed forty ſhillings per acre, and the after expence of cleaning about twenty ſhillings a year more; ſo that the whole will not be more than 3l. and if the land ſo planted be of little value, the proprietor cannot make better uſe of his money; for when the wood is cut, it will repay the expence with intereſt, and a perpetual ſtock upon the ground. I have ſeen ſeveral of theſe plantations made upon land which would not lett for one ſhilling per acre, which has produced from 10 to 12l. an acre, clear of the expence in cutting, and this every twelfth year. The broom-makers are conſtant cuſtomers for Birch, in all places within twenty miles of London, or where it is near water carriage; in other parts the hoop-benders are the purchaſers; but the larger trees are often bought by the turners, and the wood is uſed for making ox-yokes, and other inſtruments of huſbandry.

In ſome of the northern parts of Europe, the wood of this tree is greatly uſed for making of carriages and wheels, being hard and of long duration. In France it is generally uſed for making wooden ſhoes. It makes very good fuel.

In ſome places theſe trees are tapped in the ſpring, and the ſap drawn out to make Birch wine, which has been recommended for the ſtone and gravel, as is alſo the ſap unfermented. The bark of the Birch-tree is almoſt incorruptible. In Sweden the houſes are covered with it, where it laſts many years. It frequently happens, that the wood is entirely rotten, and the bark perfectly ſound and good.

The ſecond ſort grows naturally in the northern parts of Europe, and upon the Alps; this ſeldom riſes above two or three feet high, having ſlender branches, garniſhed with round leaves, but ſeldom produces either male or female flowers here. It is preſerved in ſome curious gardens for the ſake of variety, but is a plant of no uſe.

The third and fourth ſorts grow naturally in North America, from whence their ſeeds have been brought to Europe, and many of the plants have been raiſed, which thrive very faſt here. In Canada theſe trees grow to a large ſize, where the third ſort is called Meriſier. The natives of that country make canoes of the bark of theſe trees, which are very light, and of long duration.

Both theſe ſorts may be propagated by ſeeds in the ſame manner as the firſt, and are equally hardy; ſome of the trees now begin to produce their katkins in England, ſo that we may hope to have plenty of their ſeeds of our own growth, for at preſent we are ſupplied with them from America. As theſe grow more vigorouſly than the common ſort, and thrive on the moſt barren ground, they may be cultivated to great advantage in England, for their wood is much eſteemed in Canada, where the trees grow to a large ſize: and they are by no means an unſightly tree in parks, for their ſtems are ſtrait, the bark ſmooth, and their leaves are much larger than thoſe of the common Birch, ſo may be planted in ſuch places where few other trees will thrive.

BIDENS. Tourn. Inſt. R. H. 362. tab. 262. Lin. Gen. Plant. 840. Water Hemp Agrimony.

The CHARACTERS are,

The common empalement is erect, and often equal, compoſed of ſmall, oblong, concave leaves; it hath a compound flower; the middle or diſk is compoſed of hermaphrodite florets, which are funnel-ſhaped and quinquefid. Theſe have five ſhort capillary ſtamina, with cylindrical ſummits, and an oblong germen ſupporting a ſingle ſtyle the length of the ſtamina, crowned by two oblong reflexed ſtigma. The female florets which compoſe the border are naked; theſe are all ſucceeded by a ſingle, angular, obtuſe ſeed, having two or more briſtles or teeth, by which they faſten themſelves to whatever paſſes by them when ripe.

This genus is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis, the flowers being compoſed of hermaphrodite and female florets, which are ſucceeded by ſeeds.

There are ſeveral ſpecies of this plant, which are ſeldom admitted into gardens, ſome of which are common weeds in England, therefore I ſhall only mention thoſe which are frequently preſerved in the gardens of the curious.

1. BIDENS (*Frondoſa*) foliis pinnatis ſerratis ſeminibus erecto-conſtantibus calycibus frondoſis corollis radiatis. Lin. Sp. Plant. 832. *Water Hemp Agrimony with winged ſawed leaves, ſeeds ſtanding erect, a very buſhy empalement, and radiated flower.* Bidens Canadenſis latifolia flore luteo. Tourn. Inſt. 362.
2. BIDENS (*Nodiflora*) foliis oblongis integerrimis caule dichotomo floribus ſolitariis ſeſſilibus. Lin. Sp. Plant. 832. *Hemp Agrimony with oblong entire leaves, a forked ſtalk, and a ſingle flower growing cloſe to the ſtalk.* Bidens nodiflorâ brunellæ folio. Hort. Elth. 52.
3. BIDENS (*Nivea*) foliis ſimplicibus ſubhaſtatis ſerratis petiolatis, floribus globoſis, pedunculis elongatis ſeminibus lævibus. Lin. Sp. Plant. 833. *Hemp Agrimony with ſingle ſawed leaves having foot-ſtalks, globular flowers with longer foot-ſtalks, and ſmooth ſeeds.* Bidens ſcabra flore nivea, folio trilobato. Hort. Elth. 55.
4. BIDENS (*Fruteſcens*) foliis ovatis ſerratis petiolatis, caule fruticoſo. Hort. Cliff. 399. *Hemp Agrimony with oval ſawed leaves having foot-ſtalks, and a ſhrubby ſtalk.*
5. BIDENS (*Scandens*) foliis ternatis acutis ſerratis caule ſcandente floribus paniculatis. *Three-leaved Hemp Agrimony, with pointed ſawed lobes, a climbing ſtalk, and flowers growing in panicles.* Chryſanthemum trifoliatum ſcandens, flore luteo ſemine longo roſtrato bidente. Sloan. Cat. Jam. 125.
6. BIDENS (*Bullata*) foliis ovatis ſerratis, inferioribus oppoſitis, ſuperioribus ternatis intermedio majore. Lin.

Sp. Plant. 833. *Hemp Agrimony with oval ſawed leaves, the lower ones growing oppoſite, but the upper having three lobes, the middle of which is the largeſt.* Cryſanthemum conyzoides nodiflorum ſemine roſtrato bidente. Sloan. Cat. Jam. 126.

The firſt ſort grows naturally in Virginia, Maryland, and Canada, where it is often a troubleſome weed. It riſes about three feet high, ſending out many horizontal branches, garniſhed with trifoliate leaves, deeply ſawed on their edges; the flowers are produced at the end of the branches in ſmall cluſters, which are yellow, and ſucceeded by oblong ſquare ſeeds, having two crooked horns, by which they faſten themſelves to the clothes of thoſe who paſs near them. There are two ſorts of this, one whoſe flowers have a ſhort empalement, which is Tournefort's broad-leaved Canada Bidens; the other hath a leafy empalement, and is by Juſſieu diſtinguiſhed by the title of Capite folioſo. But I am not very ſure of their being diſtinct ſpecies, though I have many years cultivated both; for their ſeeds when ripe ſpread ſo far, that in a ſmall garden they cannot be kept ſeparate. It is eaſily propagated by ſeeds ſown in the ſpring, in an open ſituation, where, if the ſeeds are permitted to ſcatter, the plants will come up the following ſpring, and two or three of them may be tranſplanted where they are to grow, and after they are rooted, will require no farther care. This is an annual plant, ſo decays ſoon after the ſeeds are ripe.

The ſecond ſort grows naturally in warm countries. This is an annual plant, which riſes near three feet high, dividing upward into ſeveral branches, which are garniſhed with oblong entire leaves; the flowers come out ſingle at the diviſions of the branches, ſitting cloſe; theſe are white, and ſucceeded by ſmooth ſeeds.

This ſort muſt be ſown upon a moderate hot-bed in the ſpring, and afterward treated like other hardy annual plants, planting them into the full ground the latter end of May. They will flower in June, and their ſeeds ripen in autumn, ſoon after which the plants will decay.

The third ſort grows naturally in South Carolina, and alſo at Campeachy. This is alſo an annual plant, which riſes three feet high, dividing upward into many ſlender branches, whoſe joints are far aſunder; the leaves come out by pairs at each joint upon long ſlender foot-ſtalks, which are oval, ending in a point. The flowers grow at the extremity of the branches in ſmall globular heads, which are very white, ſtanding upon very long foot-ſtalks, and are ſucceeded by ſmooth ſeeds. This muſt be ſown upon a hot-bed, and treated as the former. It flowers and ſeeds about the ſame time.

The fourth ſort riſes with a ſhrubby ſtalk to the height of ſix or ſeven feet, dividing into many branches, whoſe joints are very diſtant, at each of which are placed two oval leaves, ſlightly ſawed on their edges, and have ſhort foot-ſtalks. The flowers are produced at the end of the branches in ſmall cluſters, each ſtanding upon a long naked foot-ſtalk; theſe are ſucceeded by flat ſeeds, having two ſhort teeth at their extremity. I received the ſeeds of this ſort from Carthagena in New Spain. This is propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring; and when the plants are fit to remove, they muſt be each planted into a ſeparate ſmall pot, and plunged into a freſh hot-bed, and treated as other tender plants from the ſame countries, and in autumn placed in the ſtove: the following ſummer they will abide ſome years with proper management.

The fifth ſort riſes with a climbing ſlender ſtalk to the height of ten feet, dividing into many branches, garniſhed with trifoliate ſawed leaves: the flowers grow in large panicles at the end of the branches; they are yellow, and are ſucceeded by flat ſeeds having two teeth. This plant grows naturally in Jamaica, from whence I received the ſeeds. It muſt be treated in the ſame manner as the former ſort, and will continue two or three years.

The ſixth ſort is annual. This riſes about two feet high, and ſends out ſeveral lateral ſhoots, which at the bottom have oval leaves placed by pairs at the joints, but upward they are trifoliate, the middle lobe being very large, and the two ſide ones ſmall; the flowers are produced at the wings of the leaves upon ſhort leafy foot-ſtalks, and are yellow, but very ſmall. It flowers in July, and the ſeeds ripen in autumn; the ſeeds of this muſt be ſown upon a hot-bed, and treated as the ſecond ſort.

BIFOLIUM, Twyblade. See Ophrys.

BIGNONIA. Tourn. Inſt. 164. Lin. Gen. Plant. 677. [M. Tournefort called this plant Bignonia, in memory of abbot Bignon, librarian to Lewis XIV. king of France, he being a great encourager of learning.] The Trumpet Flower, or Scarlet Jaſmine.

The Characters are,

The empalemnet is cup-ſhaped, quinquefid, and of one leaf. The flower is of the ringent, or grinning kind, tubulous, with long chaps, which are ſwelling, and bell-ſhaped, divided into five parts at the top; the two upper ſegments are reflexed, and the under ſpread open; it hath four awl-ſhaped ſtamina ſhorter than the petal, two longer than the other, having oblong reflexed ſummits. In the center is an oblong germen, ſupporting a ſlender ſtyle, crowned by a roundiſh ſtigma. The germen afterward becomes a bivalve pod, with two cells, filled with compreſſed winged ſeeds, lying over each other imbricatim.

This genus of plants is ranged in the ſecond diviſion of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhort ſtamina, and the ſeeds included in a capſule.

The Species are,

1. Bignonia (*Radicans*) foliis pinnatis, foliolis inciſis, caule geniculis radicatis. Lin. Hort. Cliff. 217. *Bignonia with winged leaves, which are cut on their edges, and roots coming out at the joints of the ſtalk.* Bignonia Americana Fraxini folio flore amplo Phœnicio. Tourn. Inſt. 164.
2. Bignonia (*Catalpa*) foliis ſimplicibus cordatis, caule erecto, floribus diandris. Lin. Sp. Plant. 622. *Bignonia with ſingle heart-ſhaped leaves, an upright ſtalk, and flowers with two ſtamina.* Bignonia Urucu foliis, flore ſordidè albo, intus maculis purpureis & luteis adſperſo, ſiliquâ longiſſimâ & anguſtiſſimâ. Cateſb. Carol. 1. p. 49.
3. Bignonia (*Fruteſcens*) foliis pinnatis, foliolis lanceolatis acutis ferratis, caule erecto, floribus paniculatis erectis. *Bignonia with winged leaves, having acute ſawed lobes, an upright ſtalk, and flowers growing in panicles erect.* Bignonia arbor flore luteo Fraxini folio. Plum. Sp. Plant. 5.
4. Bignonia (*Pubeſcens*) foliis conjugatis cirrhoſis foliolis cordato-lanceolatis foliis imis ſimplicibus. Vir. Cliff. 59. *Bignonia with conjugated leaves having tendrils, the leaves ſpear-ſhaped, and the lower leaves ſingle.* Bignonia Americana Capreolis donata ſiliqua breviore. Breyn. Ic. 33.
5. Bignonia (*Unguis Cati*) foliis conjugatis, cirrho breviſſimo arcuato tripartito. Lin. Sp. Plant. 623. *Bignonia with conjugated leaves, and ſhort arched tendrils, divided into three parts.* Bignonia Americana capreolis aduncis donatâ, ſiliquâ longiſſimâ. Tourn. Inſt. 164.
6. Bignonia (*Æquinoctialis*) foliis conjugatis cirrhoſis, foliolis ovato-lanceolatis, pedunculis bifloris ſiliquiis linearibus. Lin. Sp. 869. *Bignonia with conjugated leaves, having tendrils, whoſe lobes are oval, ſpear-ſhaped, and linear pods.*
7. Bignonia (*Sempervirens*) foliis ſimplicibus lanceolatis caule volubili. Lin. Sp. Plant. 623. *Bignonia with ſingle ſpear-ſhaped leaves, and a twining ſtalk.* Gelſeminum ſive Jaſminum luteum odoratum Virginianum ſcandens & ſempervirens. Park. Cateſb. 1. p. 53.
8. Bignonia (*Pentaphylla*) foliis digitatis foliolis integerrimis obovatis. Hort. Cliff. 497. *Bignonia with fingered leaves, whoſe lobes are entire.* Bignonia arbor pentaphylla flore roſeo. Plum. Sp. Plant. 5.

9. **Bignonia** (*Leucoxylon*) foliis digitatis foliolis integerrimis ovatis acuminatis. Lin. Sp. Plant. 870. *Bignonia with fingered leaves, whoſe lobes are oval, pointed, and entire.* Leucoxylon arbor ſiliquoſa, quinis foliis, floribus Nerii, alato ſemine. Pluk. Alm. 215. tab. 200. f. 4. *commonly called in America Tulip Flower.*

10. **Bignonia** (*Paniculata*) foliis conjugatis cirrhoſis, foliolis cordato-ovatis, floribus racemoſo-paniculatis. Lin. Sp. Plant. 623. *Bignonia with conjugated leaves, having tendrils, the lobes oval and heart-ſhaped, and flowers in branching panicles.* Bignonia bifolia ſcandens, flore violaceo odoro, fructu ovato duro. Plum. Cat. 5.

11. **Bignonia** (*Cærulea*) foliis bipinnatis foliolis lanceolatis integris. Lin. Sp. Plant. 625. *Bignonia with double winged leaves, which are entire and ſpear-ſhaped.* Arbor Guajaci latiore folio, Bignoniæ flore cæruleo, fructu duro in duas partes diſſiliente ſeminibus alatis imbricatim poſitis. Cateſb. Carol. 1. p. 42.

12. **Bignonia** (*Crucigera*) foliis conjugatis cirrhoſis foliolis cordatis. Vir. Cliff. 60. *Bignonia with conjugated heart-ſhaped leaves, having tendrils, and a ſtalk having tendrils.* Pſeudo Apocynum folliculis maximis obtuſis ſeminibus ampliſſimis alis membranaceis. Mor. Hiſt. 3. p. 62.

13. **Bignonia** (*Capreolata*) foliis conjugatis cirrhoſis foliolis cordato-lanceolatis, foliis imis ſimplicibus. Lin. Sp. 870. *Bignonia with conjugated heart-ſhaped leaves, having tendrils, whoſe lower leaves are ſingle, growing in panicles, and long compreſſed pods.*

14. **Bignonia** (*Triphylla*) foliis ternatis glabris, foliolis ovatis acuminatis, caule fruticoſo erecto. Lin. Sp. 870. *Smooth three-leaved Bignonia, with oval lobes ending in a point, and a ſhrubby ſtalk.* Bignonia fruteſcens triphylla glabra, ſiliquis longis compreſſis. Houſt. Cat.

The firſt ſort grows naturally in Virginia and Canada. It hath large rough ſtems, which ſend out many trailing branches, putting out roots at their joints, which faſten themſelves to the trees in their natural places of growth, whereby they climb to a great height; and in Europe, where they are generally planted againſt walls, they faſten themſelves thereto by their roots, which ſtrike into the mortar of the joints ſo ſtrongly, as to ſupport their branches, and will riſe to the height of forty or fifty feet. The branches are garniſhed with winged leaves at every joint, placed oppoſite, compoſed of four pair of ſmall leaves, terminated by an odd one; theſe are ſawed on their edges, and end in a long ſharp point. The flowers are produced at the ends of the ſhoots of the ſame year, in large bunches; theſe have long ſwelling tubes, ſhaped ſomewhat like a trumpet, from whence it had the appellation of Trumpet Flower. They are of an Orange colour, and appear the beginning of Auguſt.

This ſort is very hardy, ſo will thrive in the open air; but as the branches trail, they muſt be ſupported, therefore are uſually planted againſt walls or buildings, where, if the branches have room, they will ſpread to a great diſtance, and riſe very high, ſo are very proper for covering of buildings, which are unſightly. They may alſo be trained up againſt the ſtems of trees, where they may be ſo managed, as to make a fine appearance when they are in flower.

This is propagated by ſeeds, but the young plants ſo raiſed do not flower in leſs than ſeven or eight years; therefore thoſe which are propagated by cuttings or layers from flowering plants, are moſt eſteemed, becauſe they will flower in two or three years after planting. The old plants alſo ſend out many ſuckers from the roots, which may be taken off, and tranſplanted where they are to remain, for theſe plants will not tranſplant ſafely if they are old.

The neceſſary culture for theſe plants after they are eſtabliſhed, is to cut away all the ſmall weak ſhoots of the former year in winter, and ſhorten the ſtrong ones to about two feet long, that young ſhoots may be obtained for flowering the following ſummer; theſe plants are of long duration. There are ſome in gardens which have been planted more than ſixty years, which are now very vigorous, and produce flowers in plenty every ſeaſon.

If the plants are propagated by ſeeds, they ſhould be ſown upon a moderate hot-bed to bring them up, which ſhould be ſoon inured to the open air, to prevent their being drawn up weak; and the firſt winter theſe young plants ſhould be ſcreened from hard froſt, which will kill their tender ſhoots; but the ſpring following they may be planted in the full ground, in a nurſery-bed, at a foot diſtance from each other, where they may remain one or two years to get ſtrength, and afterwards be planted where they are deſigned to grow.

The ſecond ſort was brought into England by Mr. Cateſby, about forty years paſt, who found it growing naturally on the back of South Carolina, at a great diſtance from the Engliſh ſettlements. It is now very plenty in the Engliſh gardens, eſpecially near London, where there are ſome of them near twenty feet high, with large ſtems, and have the appearance of trees.

This ſort riſes with an upright ſtem, covered with a ſmooth brown bark, and ſends out many ſtrong lateral branches, garniſhed with very large heart-ſhaped leaves, placed oppoſite at every joint. The flowers are produced in large branching panicles toward the end of the branches, of a dirty white colour, with a few purple ſpots, and faint ſtripes of yellow on their inſide. The tube of the flower is much ſhorter, and the upper part more expanded, than thoſe of the former ſort, and the ſegments deeper cut, and waved on their edges. The flowers are in America ſucceeded by very long taper pods, filled with flat winged ſeeds, lying over each other like the ſcales of fiſh. In England there has not as yet been any of the pods produced, but the ſeeds are annually brought over from South Carolina. Theſe ſhould be ſown in pots, and plunged into a moderate hot-bed to bring up the plants, which ſhould be inured to the open air by degrees; and, in the beginning of June, placed abroad in a ſheltered ſituation till autumn, when they ſhould be placed under a common frame to ſcreen them from froſt in winter; but in mild weather they muſt be fully expoſed to the open air. The following ſpring theſe may be taken out of the pots, and planted in a nurſery-bed, in a warm ſituation, where they may remain two years to get ſtrength, and afterwards planted in the places where they are deſigned to remain. Theſe plants, when young, are frequently injured by froſt, for they ſhoot pretty late in the autumn, ſo that the early froſts often kill the extremity of their branches; but as the plants advance in ſtrength, they become more hardy, and are ſeldom injured but in very ſevere winters. It is late in the ſpring before theſe trees come out, which has often cauſed perſons to believe they were dead; and ſome have been ſo imprudent, as to cut them down on that ſuppoſition, before the tree was well known.

It may alſo be propagated by cuttings, which ſhould be planted in pots in the ſpring before the trees begin to puſh out their ſhoots, and plunged into a moderate hot-bed, obſerving to ſhade them from the ſun in the middle of the day, and refreſh them occaſionally with water, which muſt not be given to them in too great plenty. In about ſix weeks theſe will have taken root, and made ſhoots above, ſo ſhould have plenty of air admitted to them conſtantly, and hardened by degrees to bear the open air, into which they ſhould be removed, and treated in the ſame manner as the ſeedling plants, and the ſpring following planted out into a nurſery-bed, as is before directed.

As theſe trees have very large leaves, they require a ſheltered ſituation; for where they are much expoſed to ſtrong winds, their leaves are often torn and rendered unſightly, and many times their branches are ſplit and broken by the winds, their leaves being ſo large, as that the wind has great force againſt them. Theſe produce their flowers in Auguſt. They delight in a light moiſt ſoil, where they make great progreſs, and in a few years will produce flowers. It is generally known in the gardens by the Indian title of Catalpa.

The third ſort is a native of the warmer parts of America, where it was diſcovered by father Plumier, who made a drawing of it, and gave the title of Clematitis to it, which he afterward altered to Bignonia, when he became better acquainted with Tournefort's Syſtem of Botany. This riſes with an upright ſtem, to the height of twelve or fourteen feet, ſending out many ſide branches, garniſhed at every joint by two long winged leaves placed oppoſite; the ſmall leaves which compoſe theſe, are long and ſpear-ſhaped, ending in a point, and ſlightly ſawed on their edges, each leaf being compoſed of ſix pair, terminated by an odd one. The flowers are produced in looſe panicles at the ends of the branches, and are ſhaped like thoſe of the other ſpecies, but ſpread open more at the top. Theſe are yellow, and ſucceeded by compreſſed pods about ſix inches long, having two rows of flat winged ſeeds, like thoſe of the other ſpecies.

I received this ſort firſt in 1729, from La Vera Cruz, in New Spain, where the late Dr. Houſtoun found it growing naturally in great plenty; ſince which time I have received the ſeed from the iſland of Bermuda, by the title of Candle Wood.

It is propagated by ſeeds, which muſt be ſown on a hot-bed, and the plants afterward tranſplanted into ſeparate ſmall pots, filled with light freſh earth, and plunged into a freſh hot-bed to bring them forward, that they may obtain ſtrength before winter; in the autumn they muſt be removed into the bark-ſtove, and during the winter ſhould have but little water, but in ſummer they muſt be frequently refreſhed with it, but not given in too great plenty. The plants ſhould conſtantly remain in the bark-ſtove, and be treated in the ſame manner as other tender plants from thoſe countries. The third year from ſeed they will flower, but they do not produce ſeeds in England.

The fourth ſort grows naturally in Virginia, and ſeveral other parts of America; this hath very ſlender trailing ſtalks, which muſt be ſupported; in the places where it naturally grows, the branches faſten themſelves by their tendrils to whatever plants are near them, and extend to a great diſtance. In this country they require the aſſiſtance of a wall, and to have a good aſpect, for they are impatient of much cold, ſo ſhould be ſheltered in ſevere froſt; the branches are garniſhed with oblong leaves, which are green all the year; theſe are often ſingle at bottom, but upward are placed by pairs oppoſite at each joint; the flowers are produced at the wings of the leaves, which are yellow, and ſhaped like thoſe of the Foxglove. Theſe appear in Auguſt, but are not ſucceeded by pods in this country. This is propagated by ſeeds, which ſhould be ſown on a moderate hot-bed, and treated in the ſame manner as the firſt ſort. When theſe plants are planted in the full ground againſt walls, the ground about the roots ſhould be covered in the autumn with ſome old tanners bark to keep out the froſt in winter; and in very ſevere froſt, the branches ſhould be covered with mats, to prevent their being deſtroyed. With this management I have had the plants flower very well in the Chelſea garden.

The fifth ſort hath ſlender ſtalks like the former, which require the ſame ſupport; theſe are garniſhed with ſmall oval leaves, which are entire, placed oppoſite at every joint; at the ſame places come out the tendrils, by which they faſten themſelves to the plants which grow near them; theſe end in three diſtinct parts; the flowers come out from the wings of the leaves, which are ſhaped like thoſe of the former ſort, but are ſmaller, and are not ſucceeded by ſeeds in this country. This grows naturally in Carolina and the Bahama Iſlands, but will live in the open air, if it is planted againſt a wall to a ſouth aſpect, and ſheltered in very ſevere froſt. It is propagated in the ſame manner as the former ſort.

The ſixth ſort hath very weak ſlender branches, which put out tendrils at the joints, by which they faſten themſelves to the neighbouring plants: at each joint there are four leaves, two on each ſide oppoſite; theſe are oval pointed, and waved on their edges, of a bright green, and continue through the year; the branches ramble very far where they have room: the flowers are large, yellow, and are produced at the joints of the ſtalks, but are not ſucceeded by pods in this country. I received this ſort from La Vera Cruz, in New Spain; but it thrives againſt a warm wall in the open air very well, with the ſame treatment as the two former ſorts.

The ſeventh ſort grows naturally in South Carolina, where it ſpreads over the hedges, and at the ſeaſon of flowering, perfumes the air to a great diſtance; it alſo grows in ſome parts of Virginia, but not in ſo great plenty as at Carolina. The inhabitants there call it Yellow Jaſmine, I ſuppoſe from the ſweet odour of its flowers.

This riſes with ſlender ſtalks, which twiſt themſelves round the neighbouring plants, and mount to a conſiderable height; the branches are garniſhed with oblong pointed leaves, which come out ſingle and oppoſite to each other at every joint; theſe remain green through the year. The flowers come out from the wings of the leaves at every joint, ſometimes but two, at other times four at each joint; theſe ſtand erect, are trumpet-ſhaped, yellow, and have a very ſweet ſcent; and in the countries where they naturally grow, they are ſucceeded by ſhort taper pods, filled with ſmall winged ſeeds.

The plants of this ſort, when young, are impatient of cold, ſo muſt be ſheltered in the winter until they have obtained ſtrength, when they ſhould be planted againſt a warm wall, and in winter protected from froſt by coverings of mats, and the ground about their roots covered with tan. With this management I have had them flower very well in the Chelſea garden. It is propagated by ſeeds in the ſame manner as the former ſorts.

The eighth ſort was ſent me from Jamaica by the late Dr. Houſtoun. This riſes with an upright ſtem near twenty feet high, ſending out many lateral branches, covered with a white bark. The leaves come out oppoſite at the joints upon long foot-ſtalks; they are compoſed of five oval ſtiff leaves, which are joined in one center at their baſe, where they are narrow, but widen toward the top, where they are rounded and obtuſe. They are of a pale green, inclining to white on their under ſide; the flowers are produced at the ends of the branches four or five together, on very ſhort foot-ſtalks; they are narrow at bottom, but the tube enlarges upward, and at the top ſpreads open wide, of a pale bluiſh colour, and ſmell ſweet; they are ſucceeded by taper crooked pods about four inches long, which are filled with oval compreſſed ſeeds, with wings of a ſilver colour.

This ſort is a native of the warmer parts of America, therefore will not thrive in this country, but in a ſtove. It is propagated by ſeeds, which muſt be ſown on a hot-bed, and the plants treated in the ſame manner as the fourth ſort.

The ninth ſort I received from Barbadoes, by the title of White Wood. This riſes with an upright ſtem to the height of forty feet, in the natural country of its growth; and the ſeeds are diſperſed by wind to the neighbouring lands, where the plants come up in great plenty. This and the former ſort have been generally confounded, and ſuppoſed to be the ſame, but the growing plants are extremely different; for the under leaves of this are ſometimes compoſed of five, at other times of four oval leaves; and on the upper part of the branches, they come out ſingle, placed by pairs oppoſite: theſe are as large as thoſe of the Bay-tree, and of equal thickneſs, rounded at their end; each of theſe have a long foot-ſtalk, whereas thoſe of the former join at their baſe to one center. The flowers of this ſort are produced ſingle at the wings of the leaves, which have a narrow tube near two inches long, but ſpread open very wide at the top, where they are cut into five unequal ſegments, which are fringed on their borders. The flowers are white, and have an agreeable odour, but the pod I have not ſeen.

The plants muſt be preſerved in the bark-ſtove, and treated as the fourth ſort. It is propagated by ſeeds, and will alſo take root from cuttings in the ſummer, if they are planted in pots, and plunged into a bark-bed. It has flowered ſeveral years in the Chelſea garden, in Auguſt.

The tenth ſort was ſent me from La Vera Cruz, by the late Dr. Houſtoun; this riſes with ligneous ſtalks, which put out tendrils at the joints, whereby they faſten themſelves to the neighbouring plants; the leaves come out on each ſide the branches, upon pretty long foot-ſtalks, two at each joint oppoſite, which are heart-ſhaped and entire, having a fine hairy down on their under ſide. The flowers grow in looſe ſpikes at the end of the branches, which are tubulous, and do not ſpread much at the top; they are of a Violet colour, and ſmell very ſweet. Theſe in their native country are ſucceeded by oval, hard, ligneous ſeed-veſſels, which open in four parts, and are full of compreſſed winged ſeeds.

This ſort is propagated by ſeeds, which muſt be ſown on a hot-bed, and the plants muſt be treated in the ſame manner as the third ſort, for they will not thrive in this country unleſs they are placed in the bark-ſtove.

The eleventh ſort grows naturally in the Bahama Iſlands, from whence Mr. Cateſby ſent the ſeeds in 1724, and many of the plants were raiſed in the gardens near London. This, in the country where it grows naturally, riſes to the height of twenty feet, ſending out many lateral branches, garniſhed with compound winged leaves, each having eleven alternate wings, with ſpear-ſhaped ſmall lobes, which grow alternate, and are entire; at the ends of the branches the flowers are produced in very looſe panicles; the foot-ſtalks branching into three or four, each ſuſtaining a ſingle blue flower, with a long ſwelling tube, cut into five unequal ſegments at the top, where it ſpreads open. The flowers are ſucceeded by oval ſeed-veſſels, which open in two parts, and are filled with flat winged ſeeds.

The twelfth ſort hath a woody ſtem, ſending out many branches, which have four narrow borders or wings running longitudinally, ſo as to reſemble a ſquare ſtalk; the leaves are produced by pairs, on each ſide the branches; they are heart-ſhaped, ſmooth, and have ſhort foot-ſtalks; theſe have tendrils coming out by their foot-ſtalks, which faſten themſelves to the plants which grow near them, and thereby riſe to a great height. The flowers are produced in ſmall cluſters from the wings of the leaves, which have pretty long tubes, ſpread open at the top, and are of a pale yellow colour; theſe are ſucceeded by flat pods a foot in length, which have two rows of flat winged ſeeds, joined to the intermediate partition.

This ſort was ſent me from Campeachy, where it naturally grows, and riſes to the tops of the talleſt trees, to whoſe branches theſe plants faſten themſelves by their tendrils or claſpers, and are thereby ſupported. This is propagated by ſeeds, which muſt be ſown on a hot-bed, and the plants treated in the ſame manner as the fourth ſort; for they will not thrive in this country, unleſs they have a warm ſtove, where the branches will riſe to the height of twenty feet in three years; and if permitted, will ſpread to a great diſtance. It has flowered in the garden at Chelſea, but doth not produce pods in England.

The thirteenth ſort was ſent me from Campeachy, by Mr. Robert Millar; this hath woody ſtalks, which riſe to a great height, climbing on the trees which grow near it, faſtening themſelves to their branches by its claſpers, and ſending out many ligneous branches, which are garniſhed with oval heart-ſhaped leaves, by fours, two on each ſide, growing oppoſite at the joints; theſe are covered on their under ſide with a ſoft hairy down, of a yellowiſh colour. The flowers are produced in looſe panicles at the end of the branches, which are ſhaped like thoſe of the Foxglove, and are of a pale yellow colour, and are ſucceeded by flat pods a foot long, having a border on each ſide, and contain two rows of flat winged ſeeds.

This plant is tender, ſo muſt be conſtantly kept in the bark-ſtove, and treated in the ſame manner as the fourth ſort. It is propagated by ſeeds, which muſt be obtained from the country where it grows naturally, for it doth not produce any in England.

The fourteenth ſort was ſent me from La Vera Cruz in New Spain, by the late Dr. Houſton. This hath a woody ſtem covered with an Aſh-coloured bark, which riſes to the height of ten feet, ſending out many ſide branches, garniſhed with trifoliate leaves, placed oppoſite at each joint, which are very ſmooth, oval, and ending in points. The flowers come out at the extremity of the branches in looſe panicles, and are of a dirty white colour. Theſe are ſucceeded by flat narrow pods, containing two rows of flat winged ſeeds.

This ſort is propagated by ſeeds, which muſt be ſown on a hot-bed, and the plants afterward treated as the fourth ſort, and muſt conſtantly remain in the bark-ſtove.

BIHAI. See Musa.

BINDWEED. See Convolvulus.

BIRCH-TREE. See Betula.

BISCUTELLA. Lin. Gen. Plant. 724. Thlaſpidium. Tourn. Inſt. R. H. 214. tab. 101. Buckler Muſtard, or Baſtard Mithridate Muſtard.

The Characters are,

The empalement is compoſed of four leaves, which are pointed. The flower hath four petals, placed in form of a croſs, which are obtuſe and ſpread open; it hath ſix ſtamina, four long and two ſhort, placed oppoſite, having ſingle ſummits. In the center is ſituated an orbicular compreſſed germen, ſupporting a ſingle permanent ſtyle, crowned with an obtuſe ſtigma; the germen afterward becomes a plain, compreſſed, erect capſule, with two convex lobes, having two cells, terminated by the rigid ſtyle, which is joined to the ſide of the partition, each cell containing one compreſſed ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliculoſa, the flower having four long, and two ſhort ſtamina, and are ſucceeded by very ſhort pods.

The Species are,

1. Biscutella (*Auriculata*) calycibus nectario utrinque gibbis, ſiliculis in ſtylum coëuntibus. Lin. Hort. Cliff. 329. *Buckler Muſtard, with the cup of the nectarium ſwelling on each ſide, and ſmall pods joined to the ſtyle.* Thlaſpidium hirſutum calyce floris auriculato. Inſt. R. H. 214.
2. Biscutella (*Didyma*) ſiliculis orbiculato-didymis à ſtylo divergentibus. Hort. Cliff. 329. *Buckler Muſtard, with a double orbicular pod diverging from the ſtyle.* Thlaſpidium Monſpelienſe hieracii folio hirſuto. Tourn. Inſt. 214.
3. Biscutella (*Apula*) hirſuta foliis oblongis dentatis ſemiamplexicaulibus floribus ſpicatis ſtylo breviore. *Hairy Buckler Muſtard, with oblong indented leaves which half embrace the ſtalk, flowers growing in ſpikes, and a ſhorter ſtyle.* Thlaſpidium Apulum ſpicatum. Tourn. Inſt. 214.

The firſt ſort grows naturally in the ſouth of France and Italy, where it riſes about a foot high; but in a garden generally grows near two feet high, dividing into ſeveral branches; and at every joint there is one oblong entire leaf a little indented, thoſe on the lower part of the ſtalk being broader and more obtuſe than thoſe on the upper. The flowers are produced at the ends of the branches in looſe panicles, which are compoſed of four obtuſe petals of a pale yellow colour; theſe are ſucceeded by double, round, compreſſed ſeed-veſſels, ſwelling in the middle, where is lodged a ſingle, round, flat ſeed, the ſtyle of the flower ſtanding upright between the two ſmall veſſels, joined to their borders.

The ſecond ſort grows naturally in the ſouth of France, Italy, and Germany, from whence I received the

the ſeeds, and dried ſamples of the plant, which are not more than ſix inches high, though they are the entire plants with their roots, but in the garden they grow almoſt two feet high. This hath many long, narrow, hairy leaves, ſpreading near the ground, which are deeply indented on each ſide, reſembling thoſe of Hawkweed; from the center ariſes the ſtalk, which divides upward into many ſmall branches, having no leaves on them, and are terminated by looſe panicles of yellow flowers, compoſed of four petals, placed in form of a croſs. Theſe are ſucceeded by round compreſſed ſeed-veſſels like the former, but are ſmaller, and the ſtyle of the flowers bends from them.

The third ſort ſends out many oblong hairy leaves, which are ſlightly indented on their edges; from among theſe there ariſes a hairy branching ſtalk, which grows two feet high, and at each joint is placed one oblong indented leaf, which half embraces the ſtalk at the baſe; each branch is terminated by a cloſe ſpike of pale yellow flowers, which are ſucceeded by round compreſſed ſeed-veſſels like the other ſorts, but the ſtyle of the flower, which is joined to them, is ſhorter than thoſe of the other ſpecies.

Theſe are all annual plants, which periſh ſoon after they have perfected their ſeeds. Theſe ſhould be ſown either in ſpring, or the autumn, upon a border of light earth, in an open ſituation, where they are to remain for good. Thoſe which are ſown in autumn will come up in about three weeks, and the plants will live through the winter without any protection, ſo will flower earlier the following ſummer, whereby good ſeeds may always be obtained; whereas thoſe which are ſown in the ſpring, do, in bad ſeaſons, decay before their ſeeds are ripe. The autumnal plants flower in June, and the ſpring in July, and their ſeeds ripen about ſix weeks after; which, if permitted to ſcatter, there will be plenty of young plants produced without any care.

Theſe require no farther culture, but to keep them clean from weeds, and thin the plants where they are too cloſe, leaving them eight or nine inches aſunder. They are preſerved in the gardens of thoſe who are curious in botany, but they have no great beauty to recommend them. I have cultivated theſe ſorts many years, and have never obſerved either of them to vary, therefore make no doubt of their being diſtinct ſpecies.

BISERRULA. Lin. Gen. Plant. 800. Pelecinus. Tourn. Inſt. 417. tab. 234.

The CHARACTERS are,

The flower hath a tubulous empalement of one leaf, which is erect, and ſlightly indented at the top in five equal parts, the two upper ſtanding at a diſtance. The flower is papilionaceous, having a large roundiſh ſtandard, whoſe edges are reflexed. The wings are oblong, but ſhorter than the ſtandard; and the obtuſe keel is of the ſame length with the wings, bending upward. It hath ten ſtamina, nine of which are joined, and the other ſingle, with their ends pointing upward. In the center is ſituated an oblong compreſſed germen, ſupporting an awl-ſhaped ſtyle, crowned by a ſingle ſtigma; theſe are included in the keel. The germen afterward becomes a flat narrow pod, indented on both edges like the ſaw of the ſword fiſh, having two cells, filled with kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, the flower having ten ſtamina, joined in two bodies.

We have but one SPECIES of this genus, which is,

BISERRULA. (*Pelecinus.*) Hort. Cliff. 361. We have no Engliſh name for this plant. Pelecinus vulgaris. Tourn. Inſt. 417.

This is an annual plant, which grows naturally in Italy, Sicily, Spain, and the ſouth of France. It ſends out many angular ſtalks, which trail on the ground, ſubdivided into many branches, garniſhed with long winged leaves, compoſed of many pair of lobes, terminated by an odd one; theſe are heart-ſhaped: toward the upper part of the branches come out the foot-ſtalk of the flowers, which ſuſtains ſeveral ſmall Butterfly flowers, of a purpliſh colour, collected together, which are ſucceeded by plain pods, about one inch long, indented on both ſides the whole length, divided in the middle by a longitudinal nerve, containing two rows of kidney-ſhaped ſeeds.

It is propagated by ſeeds, which in this country ſhould be ſown in the autumn, on a bed of light earth, where the plants will come up in about three weeks, and will live in the open air very well. Theſe ſhould be ſown where they are deſigned to remain, or tranſplanted very young; for when they are large, they will not bear removing. When the plants are come up, they will require no other care, but to keep them clean from weeds; and where they are too near, they ſhould be thinned to about a foot diſtance from each other. They flower in June, and the ſeeds ripen in September.

The ſeeds of this plant may alſo be ſown in the ſpring, and treated in the ſame manner as before directed; but theſe will not flower till the middle or end of July, ſo unleſs the autumn proves warm, they will not ripen ſeeds; for which reaſon I have directed their being ſown in the autumn, as ſoon as they are ripe. Two or three of theſe plants may be allowed a place in gardens for the ſake of variety, but they have not much beauty.

BISLINGUA. See RUSCUS.

BISTORTA [ſo called, becauſe the root is turned or wreathed into various rings or ſpires,] Biſtort, or Snakeweed.

This genus is joined to the Polygonum by Dr. Linnæus. This plant flowers in May, and if the ſeaſon proves moiſt, will continue to produce new ſpikes of flowers till Auguſt: it may be propagated by planting the roots in a moiſt ſhady border, either in ſpring or autumn, which will ſoon furniſh the garden with plants, for it greatly increaſes by its creeping roots.

The roots of this plant have been recommended for tanning of leather, but the trouble of procuring them in a ſufficient quantity is too great to anſwer the intention.

BIVALVULAR, or Bivalve [of bivalvis] Huſk, is one that opens and gapes the whole length, like a door that opens in two parts.

BIXA. Lin. Gen. Plant. 581. Urucu. Sloan. Cat. Jam. Orleana. H. L. Mitella. Tourn. Inſt. 242. Anotta, by the French Roucou.

The CHARACTERS are,

It hath a plain, ſmall, obtuſe empalement, which is permanent; the flower hath a double ſeries of petals, the outer conſiſting of five, which are large, oblong, and equal, the inner of the ſame number and ſhape, but narrower. It hath a great number of briſtly ſtamina, which are but half the length of the petals, terminated by erect ſummits. In the center is ſituated an oval germen, ſupporting a ſlender ſtyle of the ſame length with the ſtamina, crowned by a bifid, compreſſed, parallel ſtigma. The germen afterward becomes an oval heart-ſhaped capſule, a little compreſſed, covered with ſharp briſtles, opening with two valves, with one cell, and filled with angular ſeeds, adhering to a linear receptacle, which runs longitudinally through the capſule.

This genus is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flower having many ſtamina and one ſtyle.

We have but one SPECIES of this genus, viz.

BIXA. (*Orellana.*) Hort. Cliff. 211. *The Arnotta, or Anotta, by the French Roucou.* Mitella Americana maxima tinctoria. *Achioti of Hernandez.*

This ſhrub grows naturally in the warm parts of America, where it riſes with an upright ſtem to the height of eight or ten feet, ſending out many branches at the top, forming a regular head. Theſe are garniſhed with heart-ſhaped leaves ending in a point, which have long foot-ſtalks, and come out without any order. The flowers are produced in looſe panicles at the end of the branches, of a pale Peach colour, having large petals, and a great number of briſtly ſtamina of the ſame colour, in the center. After the flower is paſt, the germen becomes a heart-ſhaped, or rather a mitre-ſhaped ſeed-veſſel, covered on the outſide with briſtles, opening with two valves, and filled with angular ſeeds, covered with a red pulp or paſte, which colours the hands of thoſe who touch it, and is collected for the uſe of dyers and painters.

This plant is propagated by ſeeds, which are annually brought from the Weſt-Indies in plenty. Theſe ſhould be ſown in a ſmall pot, filled with light rich earth, and plunged into a hot-bed of tanners bark; where, if the bed is of a proper temperature of heat, the plants will appear in about a month after: when theſe are about an inch high, they ſhould be ſhaken out of the pot and carefully ſeparated, ſo as not to tear off their tender roots, and each planted in a ſmall pot filled with ſome rich light earth, and plunged into a freſh hot-bed of tanners bark, obſerving to ſhade them every day until they have taken new root; after which they muſt be treated as other tender plants from the ſame country, by admitting freſh air to them in proportion to the warmth of the ſeaſon; and when the heat of the tan declines, it ſhould be turned up to the bottom, and, if neceſſary, ſome freſh tan added to renew the heat. The plants muſt be refreſhed three times a week with water in ſummer, but they muſt not have it in great quantities, for their roots often rot with much wet. If the plants are raiſed early in the ſpring, and properly managed, they will be a foot and a half high by the autumn, when they ſhould be removed into the bark-ſtove, and plunged into the tan-bed. During the winter, they muſt have but little water, and while the plants are young, they muſt have a good ſhare of warmth, otherwiſe they are very ſubject to caſt their leaves, and frequently loſe their tops, which renders them unſightly. They muſt be conſtantly kept in the bark-ſtove, for thoſe plants which have been placed in a dry ſtove, have never made much progreſs. I have had many of theſe plants ſeven or eight feet high, with ſtrong ſtems and large heads, but have only had one produce flowers; nor have I heard of its flowering in any of the gardens in Europe, for in the Dutch gardens they have no plants of any ſize.

The paſte which ſurrounds the ſeeds is taken off, by ſteeping the ſeeds in hot water, and with the hands waſhed until the ſeeds are clean; then after pouring away the water, they leave the ſediment to harden, and make it up in balls, which are ſent to Europe, where they are uſed in dying and painting. It is alſo uſed by the Americans to dye their chocolate, and the natives uſed to paint their bodies with it when they went to the wars.

BLADDER-NUT. See Staphylea.

BLATTARIA. See Verbascum.

BLIGHTS.

There is nothing ſo deſtructive to a fruit garden as blights; nor is there any thing in the buſineſs of gardening which requires more of our ſerious attention, than the endeavouring to prevent or guard againſt this great enemy of gardens.

In order therefore to remedy this evil, it will be neceſſary firſt to underſtand the true cauſes of blights; for, although many curious perſons have attempted to explain the cauſes of them, yet very few of them have come near the truth, except the Rev. and learned Dr. Hales, who hath, in his curious book, intitled Vegetable Statics, given us ſome accurate experiments upon the growth and perſpiration of plants, together with the various effects the air hath upon vegetables; that by carefully attending thereto, together with diligent obſervations, we need ſeldom to be at a loſs how to account for the cauſes of blights whenever they may happen.

But here I cannot help taking notice of the ſeveral cauſes of blights, as they have been laid down by ſome of our modern writers on gardening, together with their various methods preſcribed to prevent their deſtruction of fruits, &c.

Some have ſuppoſed, that blights are uſually produced by an eaſterly wind, which brings vaſt quantities of inſects eggs along with it from ſome diſtant place; which, being lodged upon the ſurface of the leaves and flowers of fruit-trees, cauſe them to ſhrivel up and periſh. To cure this diſtemper, they adviſe the burning of wet litter on the windward ſide of the trees, that the ſmoke thereof may be carried to them by the wind, which they ſuppoſe will ſtifle and deſtroy thoſe inſects, and thereby cure the diſtemper.

Others direct the uſe of Tobacco-duſt, or to waſh the trees with water wherein Tobacco-ſtalks have been infuſed for twelve hours, which, they ſay, will deſtroy theſe inſects, and recover the trees; and Pepper-duſt, ſcattered upon the bloſſoms of fruit-trees, has been recommended as very uſeful in this caſe: and there are ſome that adviſe the pulling off the leaves of the tree, as the beſt remedy when they are ſhrivelled up and wither; and to cut off the ſmaller branches when they produce crooked and unnatural ſhoots, and to ſprinkle the tree with a watering-pot, or a hand-engine.

Theſe conjectures concerning blights, how ſpecious ſoever they may appear at firſt ſight, yet, when duly conſidered, will be found far ſhort of the true cauſe, as will hereafter be ſhewn.

But let us now examine the true cauſes of blights, ſo far as we have been enabled to judge from repeated obſervations and experiments.

1. Blights then are often cauſed by a continued dry eaſterly wind for ſeveral days together, without the intervention of ſhowers, or any morning dew, by which the perſpiration in the tender bloſſoms is ſtopped, ſo that in a ſhort time their colour is changed, and they wither and decay; and if it ſo happen, that there is a long continuance of the ſame weather, it equally affects the tender leaves; for their perſpiring matter is hereby thickened and rendered glutinous, cloſely adhering to the ſurface of the leaves, and becomes a proper nutriment to thoſe ſmall inſects, which are always found preying upon the leaves and tender branches of fruit-trees, whenever this blight happens; but it is not theſe inſects which are the firſt cauſe of blights, as hath been imagined by ſome; though it muſt be allowed, that whenever theſe inſects meet with ſuch a proper food, they multiply exceedingly, and are inſtrumental in promoting the diſtemper; ſo that many times, when the ſeaſon proves favourable to them, and no proper care hath been taken to prevent their miſchief, it is ſurpriſing to think how whole walls of trees have ſuffered by this infection.

The beſt remedy for this diſtemper, that I have yet known ſucceed, is, gently to waſh and ſprinkle over the trees, from time to time, with common water (that is, ſuch as hath not had any thing ſteeped in it;) and the ſooner this is performed (whenever we apprehend danger,) the better; and if the young and tender ſhoots ſeem to be much infected, waſh them with a woollen cloth, ſo as to clear them, if poſſible, from all this glutinous matter, that their reſpiration and perſpiration may not be obſtructed; and if we place ſome broad flat pans or tubs of water near the trees, that the vapours exhaled from the water may be received by the trees, it will keep their tender parts in a ductile ſtate, and greatly help them; but whenever this operation of waſhing the trees is performed, it ſhould be early in the day, that the moiſture may be exhaled before the cold of the night comes on; eſpecially if the nights are froſty: nor ſhould it be done when the ſun ſhines very hot upon the wall, which would be ſubject to ſcorch up the tender bloſſoms.

Another cauſe of blights in the ſpring is, ſharp hoary froſts, which are often ſucceeded by hot ſunſhine in the day time; which is the moſt ſudden and certain deſtroyer of fruits that is known; for the cold of the night ſtarves the tender parts of the bloſſoms, and the ſun riſing hot upon the walls before the moiſture is dried from the bloſſoms (which, being in ſmall globules, collects the rays of the ſun,) a ſcalding heat is thereby acquired; which ſcorches the tender flowers, and other parts of plants.

But that blights are frequently no more than an inward weakneſs or diſtemper in trees, will evidently appear, if we conſider how often it happens, that trees againſt the ſame wall, expoſed to the ſame aſpect, and equally enjoying the advantages of ſun and air, with every other circumſtance which might render them equally healthy, yet very often are obſerved to differ greatly in their ſtrength and vigour; and as often we obſerve the weak trees to be continually blighted, when the vigorous ones, in the ſame ſituation ſhall eſcape very well; which muſt, therefore, in a great meaſure, be aſcribed to their healthy conſtitution. This weakneſs, therefore, in trees, muſt proceed either from a want of a ſufficient ſupply of nouriſhment to maintain them in perfect vigour, or from ſome ill qualities in the ſoil where they grow, or, perhaps, from ſome bad quality in the ſtock, or inbred diſtemper of the buds or cyons, which they had imbibed from their mother tree, or from miſmanagement in the pruning, &c. all which are productive of diſtempers in trees, and of which they are with difficulty cured. Now, if this is occaſioned by a weakneſs in the tree, we ſhould endeavour to trace out the true cauſe; firſt, whether it has been occaſioned by ill management in the pruning, which is too often the caſe; for how common is it to obſerve Peach-trees trained up to the full length of their branches every year, ſo as to be carried to the top of the wall in a few years after planting, when at the ſame time the ſhoots for bearing have been ſo weak, as ſcarcely to have ſtrength to produce their flowers: but this being the utmoſt of their vigour, the bloſſoms fall off, and, many times, the branches decay, either the greateſt part of their length, or quite down to the place where they were produced; and this, whenever it happens to be the caſe, is aſcribed to a blight.

Others there are, who ſuffer their trees to grow juſt as they are naturally diſpoſed, during the ſummer ſeaſon, without ſtopping of ſhoots, or diſburdening their trees of luxuriant branches; by which means two, three, or four ſhoots ſhall exhauſt the greateſt part of the nouriſhment of the trees all the ſummer; which ſhoots, at the winter pruning, are entirely cut out; ſo that the ſtrength of the tree was employed only in nouriſhing uſeleſs branches, while the fruit branches are thereby rendered ſo weak, as not to be able to preſerve themſelves. The remedies to this evil ſhall be explained in the article of PRUNING Peach-trees, &c.

But if the weakneſs of the tree proceeds from an inbred diſtemper, it is the better way to remove the tree at firſt; and after renewing your earth, plant a new one in its place.

Or if your ſoil be a hot burning gravel or ſand, in which your Peach-trees are planted, you will generally find this will be conſtantly their caſe, after their roots have got beyond the earth of your borders; for which reaſon, it is much more adviſeable to dig them up, and plant Grapes, Figs, Apricots, or any other ſort of fruit, which may do well in ſuch a ſoil, rather than to be annually diſappointed of your hopes; for, by a variety of experiments, it hath been found, that Apricots attract and imbibe moiſture with a much greater force than Peaches and Nectarines; and conſequently, are better able to attract the nutritive particles from the earth, than the other, which require to be planted in a generous ſoil, capable of affording them a ſufficiency of nouriſhment without much difficulty: and it is in ſuch places we often ſee Peaches do wonders, eſpecially if aſſiſted by art; but as for the Vine and Fig-tree, they perſpire very ſlowly, and are very often in an imbibing ſtate (ſo that a great part of that fine racy flavour, with which their fruits abound when planted in a dry ſoil, is probably owing to thoſe refined aërial principles, which are collected when in a ſtate of reſpiration;) and therefore, as theſe trees delight not in drawing much watery nouriſhment from the earth, ſo they will much better ſucceed in ſuch a ſoil, than in one that is more generous: we ſhould therefore always endeavour to ſuit the particular ſorts of fruits to the nature of our ſoil, and not pretend to have all ſorts of fruit good in the ſame.

But there is another ſort of blight, againſt which it is very difficult to guard our fruit-trees; this is ſharp, pinching, froſty mornings, which often happen at the time when the trees are in flower, or while the fruit is very young, and occaſion the bloſſoms or fruit to drop off; and, ſometimes, the tender parts of the ſhoots and leaves are greatly injured thereby.

The only method yet found out to prevent this miſchief, is, by carefully covering the walls, either with mats, canvas, reeds, &c. which being faſtened ſo as not to be diſturbed with the wind, and ſuffered to remain on during the night, and taking them off every day, if the weather permits, is the beſt and ſureſt method that hath yet been found ſucceſsful; which, although it has been ſlighted, and thought of little ſervice by ſome, yet the reaſon of their being not ſo ſerviceable as has been expected, was, becauſe they have not been rightly uſed, either by ſuffering the trees to remain too long covered; by which means the younger branches and leaves have been rendered too weak to endure the open air, when they are expoſed to it; which has often proved of worſe conſequence to trees, than if they had remained entirely uncovered, or by incautiouſly expoſing them to the air, after having been long covered.

Whereas, when the covering before-mentioned has been performed as it ought to be, it has proved very ſerviceable to fruits; and many times, when there has been almoſt a general deſtruction of fruits in the neighbouring gardens, there has been a plenty of them in ſuch places where they have been properly covered: and though the trouble may ſeem to ſome very great, yet, if theſe coverings are fixed near the upper part of the wall, and are faſtened to pullies, ſo as to be drawn up, or let down, it will be ſoon and eaſily performed; and the ſucceſs will ſufficiently repay the trouble.

But there is another ſort of blight that ſometimes happens later in the ſpring, viz. in April or May, which is often very deſtructive to orchards, and open plantations, and againſt which we know of no remedy. This is what is called a fire blaſt; which, in a few hours, hath not only deſtroyed the fruit and leaves, but, many times, parts of trees, and, ſometimes, entire trees have been killed by it.

This is ſuppoſed to be effected by volumes of tranſparent flying vapours, which, among the many forms they revolve into, may ſometimes approach ſo near to an hemiſphere, or hemicylinder, either in their upper or lower ſurfaces, as thereby to make the beams of the ſun converge enough to ſcorch the plants or trees they fall upon, in proportion to the greater or leſs convergency of the ſun's rays.

The learned Boerhaave, in his Theory of Chemiſtry, obſerves, “ That thoſe white clouds which appear in
“ ſummer time, are, as it were, ſo many mirrors,
“ and occaſion exceſſive heat: theſe cloudy mirrors
“ are ſometimes round, ſometimes concave, poly-
“ gonous, &c. When the face of the heavens is co-
“ vered with ſuch white clouds, the ſun, ſhining
“ among them, muſt, of neceſſity, produce a ve-
“ hement heat; ſince many of his rays, which would
“ otherwiſe, perhaps, never touch our earth, are
“ hereby reflected to us: thus, if the ſun be on one
“ ſide, and the clouds on the oppoſite one, they will
“ be perfect burning glaſſes: and hence the phæno-
“ menon of thunder.
“ I have ſometimes, continues he, obſerved a kind
“ of hollow clouds, full of hail and ſnow, during
“ the continuance of which the heat was extreme;
“ ſince, by ſuch condenſation, they were enabled to
“ reflect much more ſtrongly: after this came a ſharp
“ cold, and then the clouds diſcharged their hail in
“ great quantities, to which ſucceeded a moderate
“ warmth. Frozen concave clouds therefore, by

“ their great reflexions, produce a vigorous heat; “ and the ſame, when reſolved, exceſſive cold.” Whence (as Dr. Hales obſerves) we ſee, that blaſts may be occaſioned by the reflexions of the clouds, as well as by the above-mentioned refraction of denſe tranſparent vapours.

Againſt this enemy to fruits, &c. as hath been ſaid, there is no guard to our fruit-trees, nor any remedy to cure it: but as this more frequently happens in cloſe plantations (where the ſtagnating vapours from the earth, and the plentiful perſpirations from the trees, are pent in for want of a free air to diſſipate and diſpel them; which are often obſerved, in ſtill weather, to aſcend in ſo plentiful a manner, as to be ſeen by the naked eye, but eſpecially with reflecting teleſcopes, ſo as to make a clear and diſtinct object become dim and tremulous,) than in thoſe that are planted at a greater diſtance, or are not ſurrounded with hills or woods; this directs us, in the firſt planting of kitchen-gardens and orchards, &c. that we ſhould allow a greater diſtance between the trees, and to make choice of clear healthy ſituations, that the air may freely paſs between the trees to diſſipate thoſe vapours before they are formed into ſuch volumes, whereby the circumambient air will be clear, and leſs ſubject to injuries; as alſo the fruits which are produced in this clearer air, will be much better taſted than thoſe that are ſurrounded with a thick rancid air; for as fruits are often in a reſpiring ſtate, they conſequently, by imbibing a part of theſe vapours, are rendered crude and ill-taſted, which is often the caſe with a great part of our fruits in England.

BLITUM. Lin. Gen. Plant. 14. Chenopodio-morus. Boerh. Ind. Morocarpus. Rupp. Strawberry Blite.

The CHARACTERS are,

It hath a tripartite ſpreading empalement, which is permanent; the flower hath no petals, but one briſtly ſtamina the length of the empalement, with a double ſummit. In the center is ſituated an oval pointed germen ſupporting two ſtyles, the length of the ſtamina, with a ſingle ſtigma. The empalement afterward becomes an oval compreſſed capſule, including one globular compreſſed ſeed, the ſize of the capſule.

This genus of plants is ranged in the ſecond order of Linnæus's firſt claſs, intitled Monandria Digynia, the flower having but one ſtamina and two ſtyles.

The SPECIES are,

1. BLITUM (*Capitatum*) capitellis ſpicatis terminalibus. Hort. Upſal. 3. *Blite with ſpikes terminated by little heads.* Chenopodio-morus major. Boerh. Ind. alt. 2. 91. *Commonly called Strawberry Blite, or Strawberry Spinach.*
2. BLITUM (*Virgatum*) capitellis ſparſis lateralibus. Hort. Upſal. 3. *Blite with ſmall heads growing ſcatteringly from the ſides of the ſtalks.* Chenopodio-morus minor. Boerh. Ind. alt. 2. 91. *Wild Atriplex with a Mulberry fruit.*
3. BLITUM (*Tartaricum*) foliis triangularibus acutè dentatis, capitellis ſimplicibus lateralibus. *Blite with triangular leaves ſharply indented, and ſingle heads proceeding from the ſides of the ſtalks.* Blitum fragiferum maximum polyſpermum. Amman. Ruth.

The firſt ſort grows naturally in Spain and Portugal, but hath been long preſerved in the Engliſh gardens. This is an annual plant, which hath leaves ſomewhat like thoſe of Spinach; the ſtalk riſes about two feet and a half high, the lower part of which is garniſhed with leaves of the ſhape with thoſe at bottom, but ſmaller; the upper part of the ſtalk hath flowers coming out in ſmall heads at every joint, and is terminated by a ſmall cluſter of the ſame: after the flowers are paſt, the little heads ſwell to the ſize of Wood Strawberries, and when ripe have the ſame appearance; being very ſucculent, and full of a purple juice, which ſtains the hands of thoſe who bruiſe them, of a deep purple colour.

The ſecond ſort grows naturally in the ſouth of France and Italy. This ſeldom grows more than one foot high, with ſmaller leaves than the firſt, but of the ſame ſhape; the flowers are produced at the wings of the leaves, almoſt the length of the ſtalk, which are ſmall, and collected in little heads, which are ſhaped like thoſe of the firſt, but ſmaller and not ſo deeply coloured.

The ſeeds of the third ſort were ſent me by the late Dr. Amman, who was profeſſor of botany at Peterſburgh. This riſes near three feet high; the leaves are triangular, ending in very acute points, as do alſo the indentures on the edges of the leaves. The flowers come out from the wings of the leaves in ſmall heads, which are ſucceeded by berries of the ſame ſhape and colour as thoſe of the firſt, but ſmaller. This ſort differs from the firſt in the ſhape and indentures of the leaves, and in having leaves placed between the berries the whole length of the ſtalk, which is not terminated by heads as the firſt, but hath leaves above the heads.

Theſe are all of them annual plants, which will drop their ſeeds if permitted, and the plants will come up in plenty the following ſpring: or if the ſeeds of either of the ſorts are ſown in March or April, upon a bed of common earth, in an open ſituation, the plants will come up in a month or five weeks after; and, if they are to remain in the place where they are ſown, will require no other care but to keep them clear from weeds, and to thin them out, ſo as to leave them ſix or eight inches apart; and in July the plants will begin to ſhew their berries, when they will make a pretty appearance. But many people tranſplant them into the borders of the flower-gardens, and others plant them in pots, to have them ready for removing to court-yards, or to place upon low walls, among other annual flowers, to adorn thoſe places.

When theſe plants are deſigned to be removed, they ſhould be tranſplanted before they ſhoot up their flower-ſtems, for they will not bear tranſplanting well afterward: and if they are planted in pots, they will require to be duly watered in dry weather, otherwiſe the plants will ſtint, and not grow to any ſize; and, as the flower-ſtems advance, they ſhould be ſupported by ſticks; for if they are not, the branches will fall to the ground, when the berries are grown pretty large and weighty.

BLOODWORT. See LAPATHUM.

BOCCONIA.

This plant was ſo called after the Reverend Paul Boccone, of Sicily, who has publiſhed ſome curious books of botany.

The CHARACTERS are,

The flower hath an empalement compoſed of two oval, obtuſe, concave leaves; it hath four narrow petals, with a great number of very ſhort ſtamina, crowned by erect ſummits, which are the length of the empalement. In the center is ſituated a roundiſh germen, contracted at both ends, ſupporting a ſingle ſtyle, which is bifid at the top, crowned by a ſingle ſtigma. The germen afterward becomes an oval fruit, contracted at both ends, and a little compreſſed, having one cell, full of pulp, including a ſingle round ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flower having many ſtamina and one ſtyle.

There is but one SPECIES of this genus at preſent known, which is,

BOCCONIA. (*Fruteſcens.*) Lin. Sp. Plant. 505. Bocconia racemoſa, ſphondylii folio tomentoſo. Plum. Nov. Gen.

This plant is called, by Sir Hans Sloane, in his Natural Hiſtory of Jamaica, Chelidonium majus arboreum, foliis quercinis; or *Greater Tree Celandine with Oak leaves.*

It is very common in Jamaica, and ſeveral other parts of America, where it grows to the height of ten or twelve feet, having a ſtrait trunk as large as a man's arm, which is covered with a white ſmooth bark. At the top it divides into ſeveral branches, on which the leaves are placed alternately. Theſe leaves are eight or nine inches long, and five or ſix broad, deeply ſinuated, ſometimes almoſt to the mid-rib, and are of a fine glaucous colour; ſo that this plant makes a beautiful variety among other exotic plants in the ſtove. The whole plant abounds with a yellow juice like the greater Celandine, which is of an acrid nature; ſo that it is uſed by the inhabitants of America, to take off warts, and ſpots from the eyes.

It is propagated by ſeeds, which ſhould be ſown in a pot filled with light freſh earth, early in the ſpring, and plunged into a hot-bed of tanners bark, obſerving to water it now and then gently, otherwiſe the ſeeds will not grow. When the plants are come up, they ſhould be each tranſplanted into ſeparate ſmall pots filled with light ſandy earth, and plunged into the hot-bed again, obſerving to ſhade the glaſſes in the heat of the day, until the plants have taken root. They muſt be alſo gently watered, but it ſhould be done ſparingly while they are young; for their ſtems being very tender, and full of juice, will rot, if they receive too much moiſture; but after their ſtems are become woody, they will require it often, eſpecially in hot weather; when alſo they ſhould have a large ſhare of air, by raiſing the glaſſes of the hot-bed. The plants, in two months after tranſplanting, will have filled theſe ſmall pots with their roots; therefore they ſhould be ſhaken out of them, and planted into pots one ſize larger, filled with light freſh earth, and plunged into the bark-ſtove, where they ſhould have a good ſhare of freſh air in warm weather. With this management I have raiſed theſe plants upwards of two feet high in one ſeaſon, which were alſo very ſtrong in their ſtems: they muſt be conſtantly kept in the ſtove, being too tender to thrive in this country in any other ſituation. This plant has flowered in the phyſic garden at Chelſea, and perfected ſeeds; but if it were not to flower, the ſingular beauty of the plant renders it worthy of a place in every curious collection of plants; and it ſeems the Indians were very fond of it, for Hernandez tells us, the Indian kings planted it in their gardens.

BOERHAAVIA. This genus of plants was ſo named by Monſ. Vaillant, profeſſor of botany at Paris, in honour of the famous Dr. Boerhaave, who was profeſſor of botany, chemiſtry, and phyſic, in the univerſity of Leyden.

The CHARACTERS are,

The flower hath no empalement, and but one bell-ſhaped petal, which is pentangular and entire. It hath in ſome ſpecies one, and in others two ſhort ſtamina, crowned by a double globular ſummit. The germen is ſituated below the receptacle, ſupporting a ſhort ſlender ſtyle, with a kidney-ſhaped ſtigma; the germen afterward becomes a ſingle oblong ſeed, having no cover.

This genus of plants is ranged in the firſt ſection of Linnæus's firſt claſs, intitled Monandria Monogynia, the flower having but one ſtamina and a ſingle ſtyle.

The SPECIES are,

1. BOERHAAVIA (*Erecta*) caule erecto glabro. Lin. Sp. Plant. 3. *Boerhaavia with an erect ſtalk.* Boerhaavia Solanifolia erecta glabra, floribus carneis laxiùs diſpoſitis. Houſt. MSS.
2. BOERHAAVIA (*Diffuſa*) caule diffuſo. Lin. Sp. Plant. 3. *Boerhaavia with a diffuſed ſtalk.* Boerhaavia Solanifolia major. Vail. Deſ. 50.
3. BOERHAAVIA (*Scandens*) caule ſcandente floribus diandris. Lin. Sp. Plant. 3. *Boerhaavia with a climbing ſtalk.* Boerhaavia alſines folio ſcandens, floribus pallidè luteis majoribus in umbellæ modum diſpoſitis ſemine aſpero. Houſt. MSS.
4. BOERHAAVIA (*Coccinea*) foliis ovatis, floribus lateralibus compactis, caule hirſuto procumbente. *Boerhaavia with oval leaves, flowers coming from the wings of the leaves in cloſe heads, and a hairy trailing ſtalk.* Boerhaavia Solanifolia procumbens & hirſuta floribus coccineis compactis. Houſt. MSS.

The firſt ſort was diſcovered by the late Dr. Houſtoun, at La Vera Cruz, in 1731. This riſes with an upright ſmooth ſtalk, two feet high, and at each joint hath two oval pointed leaves growing oppoſite, upon foot-ſtalks, an inch long, of a whitiſh colour on their under ſide. At the joints, which are far aſunder, come out ſmall ſide branches, growing erect; theſe, as alſo the large ſtalk, are terminated by looſe panicles of fleſh-coloured flowers, which are each ſucceeded by oblong glutinous ſeeds.

The ſeeds of the ſecond ſort were ſent me by the ſame gentleman from Jamaica, where it naturally grows. This ſends out many diffuſed ſtalks a foot and a half or two feet long, garniſhed with ſmall roundiſh leaves at each joint. The flowers grow very ſcatteringly upon long branching foot-ſtalks from the wings of the leaves, as alſo at the end of the branches, which are of a pale red colour, and are ſucceeded by ſeeds like the former.

The third ſort was ſent me from Jamaica with the former. This ſends out ſeveral ſtalks from the root, which divide into many branches, and trail over whatever plants grow near them, and riſe to the height of five or ſix feet, garniſhed with heart-ſhaped leaves, growing by pairs at each joint upon long foot-ſtalks, which are of the colour and conſiſtence of thoſe of the greater Chickweed. The flowers grow in looſe umbels at the extremity of the branches, which are yellow, and are ſucceeded by ſmall, oblong, viſcous ſeeds.

The fourth ſort was ſent me from Jamaica with the two former: this ſends out many trailing hairy ſtalks, which divide into ſmaller branches, garniſhed with oval leaves at every joint; and at the wings of the leaves come out the naked foot-ſtalks, ſuſtaining a ſmall cloſe head of ſcarlet flowers, which are very fugacious, ſeldom ſtanding more than half a day before their petals drop; theſe are ſucceeded by ſhort oblong ſeeds.

The firſt, ſecond, and fourth ſorts are annual plants, which decay in autumn, but the third ſort is perennial: they are all tender plants, ſo will not thrive in the open air in England; they are propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring, and when the plants are fit to be removed, they ſhould be each planted in a ſmall pot and plunged into the hot-bed, and treated as other tender exotic plants. When they are grown too tall to remain under a common frame, a plant or two of each ſort ſhould be placed in the ſtove; the other may be turned out of the pots, and planted in a warm border, where, if the ſeaſon proves warm, they will perfect their ſeeds; but as theſe are ſubject to fail in cold ſeaſons, ſo thoſe in the ſtove will always ripen their ſeeds in autumn; the third ſort may be preſerved in a warm ſtove two or three years.

BOMBAX. Lin. Gen. Plant. 580. Ceiba. Plum. Nov. Gen. 32. Silk Cotton-tree.

The CHARACTERS are,

It hath a permanent empalement of one leaf, which is bell-ſhaped, erect, and quinquefid. The flower is quinquefid and ſpreading, the petals are oval and concave. It hath many awl-ſhaped ſtamina, which are the length of the petal, crowned with oblong incurved ſummits. In the center is ſituated the round germen, ſupporting a ſlender ſtyle the length of the ſtamina, with a round ſtigma. The empalement afterward becomes a large, oblong, turbinated capſule, having five cells, opening with five valves, which are ligneous, containing many roundiſh ſeeds, wrapped in a ſoft down, and fixed to a five-cornered column.

This genus of plants is ranged in the fifth order of Linnæus's ſixteenth claſs, intitled Monadelphia Polyandria, the flower having many ſtyles and ſtamina joined to a column.

The SPECIES are,

1. BOMBAX (*Ceiba*) floribus polyandris, foliis quinatis. Jacq. Amer. 26. *Silk Cotton-tree whoſe flowers have many ſtyles, and leaves with five lobes.* Ceiba viticis foliis caudice aculeato. Plum. Nov. Gen. 42.
2. BOMBAX (*Pentandrum*) floribus pentandris. Jacq. Amer. 26. *Silk Cotton-tree whoſe flowers have five ſtyles.* Ceiba viticis foliis caudice glabro. Plum. Nov. Gen. 42.

3. **Bombax** (*Villoſus*) foliis quinque-angularibus villoſis, caule geniculato. *Silk Cotton with five-cornered hairy leaves, and a jointed ſtalk.*

The firſt and ſecond ſorts grow naturally in both Indies, where they arrive to a great magnitude, being ſome of the talleſt trees in thoſe countries; but the wood is very light, and not much valued, except for making of canoes, which is the chief uſe made of them. Their trunks are ſo large, as when hollowed, to make very large ones. In Columbus's firſt voyage it was reported, there was a canoe ſeen at the iſland of Cuba, made of the hollowed trunk of one of theſe trees, which was ninety-five palms long, and of a proportional width, which would contain a hundred and fifty men: and ſome modern writers have affirmed, that there are trees of theſe ſorts now growing in the Weſt-Indies, ſo large, as not to be fathomed by ſixteen men, and ſo tall as that an arrow cannot be ſhot to their top.

Theſe trees generally grow with very ſtrait ſtems; thoſe of the firſt ſort are cloſely armed with ſhort ſtrong ſpines, but the ſecond hath very ſmooth ſtems, which in the young plants are of a bright green, but after a few years, they are covered with a grey, or Aſh-coloured bark, which turns to a brown as the trees grow older: they ſeldom put out any ſide branches till they arrive to a conſiderable height, unleſs their leading ſhoot be broken or injured. The branches toward their top are garniſhed with leaves compoſed of five, ſeven, or nine oblong ſmooth lobes, which are ſpear-ſhaped, and join to one center at their baſe, where they adhere to the long foot-ſtalk. Theſe fall away every year, ſo that for ſome time the trees are naked, and before the new leaves come out, the flower-buds appear at the end of the branches, and ſoon after the flowers expand, which are compoſed of five oblong purple petals, with a great number of ſtamina in the center; when theſe fall off, they are ſucceeded by oval fruit larger than a ſwan's egg, having a thick ligneous cover, which, when ripe, opens in five parts, and is full of a dark ſhort cotton, incloſing many roundiſh ſeeds as large as ſmall Peaſe.

The down which is incloſed in theſe ſeed-veſſels is ſeldom uſed, except by the poorer inhabitants to ſtuff pillows or chairs, but it is generally thought to be unwholeſome to lie upon.

Theſe two ſpecies have been ſuppoſed the ſame by many writers on natural hiſtory, who have affirmed, that the young trees only have prickles on their trunks, and as they grow old, their trunks become ſmooth; but from many years experience I can affirm, that the ſeeds which have been ſent me of the two ſorts, have always produced plants of the different kinds for which they were ſent, and continue the ſame in plants, which are more than twenty years growth.

There was a few years paſt a fine plant of another ſort in the garden of the late Duke of Richmond, at Goodwood, which was raiſed from ſeeds that came from the Eaſt-Indies. The ſtem of this was very ſtrait and ſmooth; the leaves were produced round the top upon very long foot-ſtalks, each being compoſed of ſeven or nine long, narrow, ſilky, ſmall lobes, joined at their baſe to the foot-ſtalk, in the ſame manner as thoſe of the two former, but they were much longer, and reflexed backward, ſo that at firſt ſight it appeared very different from either of them. This may be the ſpecies, titled by Jacquin, Bombax floribus pentandris, foliis ſeptenatis. Amer. 26.

The third ſort was ſent me from the Spaniſh Weſt-Indies, where it grows naturally, but I do not know to what ſize; the plants which have been raiſed here, have ſoft herbaceous ſtalks very full of joints, and do not appear as if they would become woody, for the plants of ſeveral years growth have ſoft pithy ſtems. The leaves come out on long hairy foot-ſtalks toward the top of the plants; theſe have the appearance of thoſe of the Mallow-tree, but are larger, and of a thicker conſiſtence; on their under ſide are covered with a ſhort, brown, hairy down, and are cut on their edges into five angles. Theſe plants have not as yet flowered in England, nor have I received any information what flower they produce; but by the pods and ſeeds, it appears evidently to be of this genus. The down incloſed in theſe pods, is of a fine purple colour; and I have been informed that the inhabitants of the countries where the trees grow naturally, ſpin it, and work it into garments, which they wear without dyeing it of any other colour.

I received a few years ſince, a few pods of another ſort from Panama, which were not ſo large as thoſe of the common, but were rounder. The down of theſe was red, but the plants raiſed from the ſeeds were ſo like thoſe of the third ſort, as not to be diſtinguiſhed from them, ſo I doubt of their being diſtinct ſpecies. I alſo received ſome ſeeds from Siam, which produced plants of the ſame kind, ſo that theſe trees may be common to many of the hot countries.

The plants are propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring; if the ſeeds are good, the plants will appear in a month, and thoſe of the two firſt ſorts will be ſtrong enough to tranſplant in a month after, when they ſhould be each planted in a ſmall pot, filled with freſh loamy earth, and plunged into a moderate hot-bed of tanners bark, being careful to ſhade them from the ſun till they have taken freſh root; after which they ſhould have a large ſhare of air admitted to them when the weather is warm, to prevent their being drawn up weak; they muſt alſo be frequently refreſhed with water, which muſt not be given in large quantities, eſpecially the third ſort, whoſe ſtalks are very ſubject to rot with much moiſture. In this bed they may remain till autumn (provided there is room for the plants under the glaſſes) but if the heat of the bed declines, the tan ſhould be ſtirred up, and freſh added to it; and if the plants have filled the pots with their roots, they ſhould be ſhifted into pots a little larger; but there muſt be care taken not to over-pot them, for nothing is more injurious to theſe plants, than to be put into large pots, in which they will never thrive. In the autumn they muſt be removed into the bark-ſtove, where they muſt conſtantly remain, being too tender to thrive in this country in any other ſituation. In winter they muſt have but little wet, eſpecially if they caſt their leaves; but in the ſummer they ſhould be frequently refreſhed with water, and in warm weather muſt have plenty of freſh air admitted to them. With this management the plants will make great progreſs, and in a few years will reach the glaſſes on the top of the ſtove, eſpecially if the building is not pretty lofty.

The plants make an agreeable variety in a large ſtove where they have room to grow, their leaves having a different appearance from moſt other plants; but as they are ſeveral years old before they flower in the countries where they grow naturally, there is little hopes of their producing any in England.

BONDUC. See Guilandina.

BONTIA. Lin. Gen. Plant. 709. Plum. Nov. Gen. 23. Hort. Elth. 49. Barbadoes Wild Olive.

The Characters are,

It hath a ſmall erect empalement, which is quinquifid and permanent. The flower is of the ringent kind, having a long cylindrical tube, gaping at the brim; the upper lip is erect and indented, the lower lip is trifid and turns backward. It hath four awl-ſhaped ſtamina, which are as long as the petal, and incline to the upper lip, two of them being longer than the other, having ſingle ſummits. In the center is ſituated the oval germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by a bifid obtuſe ſtigma. The germen afterward becomes an oval berry with one cell, including a nut of the ſame form.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhort ſtamina, and the ſeeds are included in a cover.

The Species are,

1. **Bontia.** (*Daphnoides.*) Lin. Sp. Plant. *Barbadoes Wild Olive.* Bontia arboreſcens thymelææ facie. Plum. Nov. Gen. 32.
2. **Bontia** (*Germinans*) foliis oppoſitis, pedunculis ſpicatis. Lin. Sp. Plant. 891. *Bontia with leaves growing oppoſite, and ſpiked foot-ſtalks of flowers.* Avicennia. Flor. Zeyl. 57.

The firſt ſort is greatly cultivated in the gardens at Barbadoes, for making of hedges, than which there is not a more proper plant for thoſe hot countries, it being an Evergreen, and of quick growth. I have been informed, that from cuttings (planted in the rainy ſeaſon, when they have immediately taken root) there has been a complete hedge, four or five feet high, in eighteen months. And as this will very well bear cutting, it is formed into a very cloſe thick hedge, which makes a beautiful appearance. In England it is preſerved in ſtoves, with ſeveral curious plants of the ſame country. It may be raiſed from ſeeds, which ſhould be ſown on a hot-bed early in the ſpring (that the plants may acquire ſtrength before winter.) When the plants are come up, they muſt be tranſplanted out each into a ſeparate half-penny pot filled with light freſh earth, and plunged into a moderate hot-bed of tanners bark, obſerving to water and ſhade them until they have taken root; after which they muſt have a large ſhare of air in warm weather, and be often refreſhed with water. In winter they muſt be placed in the ſtove, where they ſhould have a moderate degree of warmth, and but little water during that ſeaſon. In ſummer they muſt have a great ſhare of air, but will not do well if expoſed abroad, eſpecially in cold ſummers; ſo that they ſhould remain in the ſtove among plants which require a great ſhare of air, which may be admitted by opening the glaſſes in very hot weather. With this management, theſe plants will produce flowers and fruit in three or four years from ſeed. They may alſo be propagated by cuttings, which ſhould be planted in the ſummer. They muſt be put into pots filled with light rich earth, and plunged into a moderate hot-bed, obſerving to water and ſhade them until they have taken root; after which they muſt be treated as hath been directed for the ſeedling plants. Theſe plants being evergreen, and growing in a pyramidal form, make a pretty variety in the ſtove amongſt other exotic plants.

The ſecond ſort is ſuppoſed to be the Anacardium Orientale; but whether this is the true ſort, I cannot determine, having ſeen only the ſeeds of that plant, which are frequently brought to Europe for marking nuts; and thoſe have been too old to grow, ſo I cannot take upon me to determine how far Mr. Jacquin is right.

BONUS HENRICUS. See Chenopodium.

BORBONIA. Lin. Gen. Plant. 764.

The Characters are,

It hath a turbinated empalement of one leaf, cut at the top into five acute ſegments, which are ſtiff, pungent, and about half the length of the petals. The flower hath five leaves, and is of the butterfly ſhape. The ſtandard is obtuſe and reflexed. The wings are heart-ſhaped and ſhorter than the ſtandard. The keel hath obtuſe lunulated leaves. It hath nine ſtamina joined in a cylinder, and one upper ſtanding ſingle, turning up its point. Theſe have ſmall ſummits. In the center is ſituated an awl-ſhaped germen, ſupporting a ſhort ſtyle, crowned by an obtuſe indented ſtigma. The germen afterward becomes a round pointed pod terminated with a ſpine, having one cell, incloſing a kidney-ſhaped ſeed.

This genus of plants is ranged in the third order of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, the flower having ten ſtamina, nine of which are joined, and the other ſtands ſeparate.

The Species are,

1. **Borbonia** (*Lanceolata*) foliis lanceolatis multinerviis integerrimis. Lin. Sp. Plant. 707. *Borbonia with entire ſpear-ſhaped leaves having many nerves.* Geniſta Africana fruteſcens ruſci nervoſis foliis. Raii Hiſt. 3. 107.
2. **Borbonia** (*Cordata*) foliis cordatis multinerviis integerrimis. Lin. Sp. Plant. 737. *Borbonia with entire heart-ſhaped leaves having many nerves.* Spartium Africanum fruteſcens ruſci folio caulem amplexante. Com. Hort. Amſt. 2. 195.
3. **Borbonia** (*Trinervia*) foliis lanceolatis trinerviis integerrimis. Lin. Sp. Plant. 707. *Borbonia with entire ſpear-ſhaped leaves, having three veins.*

Theſe plants grow naturally at the Cape of Good Hope, from whence I received their ſeeds. In the natural place of their growth, they riſe to the height of ten or twelve feet; but in Europe they ſeldom are more than four or five, having ſlender ſtems divided into ſeveral branches, which are garniſhed with ſtiff leaves, placed alternately; thoſe of the firſt ſort are narrow, long, and end in a ſharp point. The flowers come out from between the leaves at the end of the branches in ſmall cluſters; theſe are yellow, and ſhaped like thoſe of the Broom. It flowers in Auguſt and September, but doth not perfect ſeeds in England.

The ſecond ſort hath broader leaves than the firſt: the ſtalks of this are ſlender, covered with white bark. The leaves embrace theſe at their baſe, where they are broadeſt, and are terminated by ſharp points like thoſe of Kneeholm, or Butchers Broom. The flowers are produced in ſmall cluſters at the end of the branches, which are the ſame ſhape and colour as thoſe of the former, but larger. This flowers at the ſame time with the former, but never produces ſeeds here.

The third ſort hath ſtronger ſtalks than either of the former, garniſhed almoſt their whole length, as are alſo the branches with ſtiff ſpear-ſhaped leaves, having three longitudinal nerves on each; theſe are placed cloſer together than thoſe of the other ſpecies. The flowers are produced at the extremity of the branches, each ſtanding on a ſeparate foot-ſtalk: they are of the ſame ſhape and colour with the former, but larger.

As theſe plants do not perfect their ſeeds in this country, they are with difficulty propagated here. The only method by which I have yet ſucceeded, hath been by laying down their young ſhoots; but theſe are commonly two years before they put out roots fit to be ſeparated from the old plant. In laying of theſe down, the joint which is laid in the ground ſhould be ſlit upward, as is practiſed in laying Carnations, and the bark of the tongue at bottom taken off. The beſt time to lay theſe down, is in the beginning of September; and the ſhoots moſt proper for this purpoſe, are thoſe which come out immediately, or very near the root, and are of the ſame year's growth, not only from their ſituation being near the ground, and thereby better adapted for laying, but theſe are alſo more apt to put out roots than any of the upper branches.

But where good ſeeds can be procured, that is the more eligible method of propagating the plants; for thoſe raiſed from the ſeeds make the ſtraiteſt plants, and are quicker of growth. When good ſeeds are obtained, they ſhould be ſown in pots filled with light loamy earth; as ſoon as they are received; which, if it happens in the autumn, the pots ſhould be plunged into an old bed of tanners bark, under a frame, where they may remain all the winter, being careful that they are ſecured from froſt, and have not much wet. In the ſpring, the pots ſhould be plunged into a hot-bed, which will bring up the plants in five or ſix weeks. When theſe are fit to remove, they ſhould be each planted into a ſeparate ſmall pot, filled with the like loamy earth, and plunged into a moderate hot-bed, obſerving to ſhade them until they have taken freſh root, as alſo to refreſh them with water, as they may require it. After this they muſt by degrees be inured to the open air, into which they ſhould be removed in June, and placed in a ſheltered ſituation, where they may remain till autumn, when they muſt be removed into the green-houſe, and placed where they may enjoy the air and ſun; during the winter ſeaſon, theſe plants muſt be ſparingly watered; but in ſummer, when they are placed abroad, they will require to be frequently refreſhed, but muſt not have too much water given them each time.

Theſe plants make a pretty variety in the green-houſe in winter, and as they do not require any artificial heat to preſerve them, they are worthy of a place in every garden where there is conveniency for keeping them.

BORDERS. The uſe of theſe in a garden, is to bound and incloſe parterres, to prevent them being injured by walking in them: theſe are commonly rendered very ornamental by means of the flowers, ſhrubs, &c. that are planted in them.

Theſe ought to be laid with a riſing in the middle, becauſe, if they are flat, they are not agreeable to the eye.

As for their breadth, five or ſix feet are often allowed for the largeſt, and four for the leſſer.

Borders are of four ſorts: thoſe are the moſt common, that are continued about parterres without any interruption, and are wrought with a gentle riſing in the middle, like an aſs's back, and planted with flowers.

The ſecond ſort of borders is ſuch as are cut into compartments, at convenient diſtances, by ſmall paſſages; and being alſo raiſed in the middle, as beforementioned, are likewiſe ſet off with flowers.

The third ſort is ſuch as are laid even and flat without flowers, having only a verge of graſs in the middle, being edged with two ſmall paths, raked ſmooth and ſanded. Theſe are ſometimes garniſhed with flowering ſhrubs, and flowers of large growth, or with vaſes and flower-pots, placed regularly along the middle of the verge of graſs.

The fourth ſort is quite plain, and only ſanded, as in the parterres of orangery, and is filled with caſes ranged in a regular order along thoſe borders which are edged with Box on the ſides next to the walks; and on the other, with verges and graſs-work next the parterre.

Borders are either made ſtrait, circular, or in cants, and are turned into knots, ſcrolls, and other compartments.

Floriſts alſo make borders either along walks, or detached, and in theſe they raiſe their fineſt and choiceſt flowers. Theſe are frequently encompaſſed with border-boards painted green, which make them look exceeding neat.

But, in large parterres, this is not to be expected; ſince, if they be ſtocked with flowers ſucceeding one another in their ſeveral ſeaſons, it is ſufficient, ſo that nothing appears bare and naked.

It is uſual to diſcontinue the borders at the ends next to the houſe, that the embroidery and riſe of the parterre may not be hidden by the ſhrubs and flowering plants, and that the deſign may be better judged of.

Since the modern way of gardening has been introduced in England, all the French taſte of parterres, ſcroll-borders, and fret-work in Box, has been juſtly baniſhed our gardens: therefore I have only mentioned them here, to expoſe the taſte of thoſe architect-gardeners, who have no idea of the noble ſimplicity of an open lawn of graſs, properly bounded by plantations; but, inſtead of this, divide the part of the garden near the houſe, into various forms of borders edged with Box, with ſand, ſhell, or gravel-walks leading about them, by which the ground is cut into many angles, ſcrolls, &c. which is very hurtful to the eyes of a judicious perſon: therefore, where flowers are deſired, there may be borders continued round the extent of the lawn, immediately before the plantations of ſhrubs; which, if properly planted with hardy flowers to ſucceed each other, will afford a much more pleaſing proſpect than the ſtiff borders made in ſcrolls and compartments, after the French manner, can poſſibly do.

Theſe borders may be made ſix or eight feet wide, in proportion to the extent of the garden and ſize of the lawn: for a ſmall lawn ſhould not have very broad borders, nor ought a large lawn to be bounded by ſmall borders; ſo that a due proportion ſhould be always obſerved in the laying out of gardens.

BORRAGO [or Borago, which ſignifies much the ſame as courage, becauſe it is a good raiſer of the ſpirits.] Borage.

The Characters are,

The empalement is divided into five parts at the top, and is permanent. The flower is of one leaf, having a ſhort tube, ſpread wide open above, being divided into five acute ſegments at the brim. The chaps of the flower are crowned by five prominences, which are obtuſe and indented. It hath five ſtamina which are joined together, crowned by oblong ſummits. It hath four germen ſituated in the center, and a ſingle ſtyle longer than the ſtamina, ſupporting a ſingle ſtigma. The four germen afterward become ſo many roundiſh rough ſeeds, inſerted in the cavities of the receptacle, and included in the large ſwollen empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and a ſingle ſtyle.

The Species are,

1. Borrago (*Officinalis*) foliis omnibus alternis, calycibus patentibus. Hort. Upſal. 34. *Borage with all the leaves growing alternate, and a ſpreading flower-cup.* Borrago floribus cæruleis. J. B.
2. Borrago (*Orientalis*) calycibus tubo corollæ brevioribus, foliis cordatis. Hort. Cliff. 45. *Borage with a flower-cup ſhorter than the tube of the flower, and heart-ſhaped leaves.* Borrago Conſtantinopolitana flore reflexo cæruleo calyce veſicareo. Tourn. Cor. 6.
3. Borrago (*Africana*) foliis ramificationum oppoſitis petiolatis, calycinis foliolis ovatis acutis erectis. Lin. Sp. 197. *African Borage with leaves growing oppoſite to the branches upon foot-ſtalks, and the leaves of the empalement oval, pointed, and erect.* Cynogloſſum Boraginis folio & facie Æthiopicum. Pluk. Alm.
4. Borrago (*Indica*) foliis ramificationum oppoſitis calycinis foliolis ſagittatis. Lin. Sp. Plant. 137. *Borage with oppoſite leaves on the branches, and ſpear-ſhaped leaves to the flower-cup.* Cynogloſſoides folio caulem amplexante. Iſnard. Act. Scien. 1718.

The firſt is the common Borage, whoſe flowers are uſed in medicine, and the herb for cool tankards in ſummer. Of this there are three varieties, which generally retain their difference from ſeeds; one hath a blue, the other a white, and another a red flower; and there is one which hath variegated leaves. Theſe variations have continued ſeveral years in the Chelſea garden, with very little alteration; but as they do not differ in any other reſpect from the common, I have only mentioned them as varieties.

This is an annual plant, which, if permitted to ſcatter its ſeeds, the plants will come up in plenty without care; the ſeeds may alſo be ſown either in ſpring or autumn, but the latter ſeaſon is preferable, on a ſpot of open ground where the plants are deſigned to remain; when the plants have obtained a little ſtrength, the ground ſhould be hoed to deſtroy the weeds, and the plants muſt be cut up where they are too near each other, leaving them eight or ten inches aſunder. After this they will require no farther care, unleſs the weeds ſhould come up again; then the ground ſhould be a ſecond time hoed over to deſtroy them, which, if well peformed, and in dry weather, will clear the ground from weeds, ſo it will require no more cleaning till the Borage is decayed. The plants which are raiſed in the autumn, will flower in May, but thoſe which are raiſed in the ſpring, will not flower till June; ſo that where a continuation of the flowers are required, there ſhould be a ſecond ſowing in the ſpring, about a month after the firſt; but this ſhould be on a ſhady border, and if the ſeaſon ſhould prove dry, the ground muſt be watered frequently, to bring up the plants; this latter ſowing will continue flowering till the end of ſummer.

The ſecond ſort was brought from Conſtantinople, where it grows naturally. This is a perennial plant, having thick fleſhy roots, which ſpread under the ſurface of the ground, and is thereby propagated with great facility. This ſends out many oblong heart-ſhaped leaves from the root, without any order, having long hairy foot-ſtalks; from the root ariſes the flower-ſtem, which is more than two feet high when fully grown, having at the joints a ſingle ſmall leaf without a foot-ſtalk. The upper part of the ſtalk branches out into ſeveral ſmall foot-ſtalks, which are terminated by looſe panicles of flowers; theſe are of a pale blue colour, and the petal is reflexed backward, ſo that the connected ſtamina and ſtyle are left naked. After the flowers are fallen, the four germen become ſo many rough ſeeds, ſmaller than thoſe of the common Borage. It flowers in March, and the ſeeds ripen in May. When the flower-ſtalk firſt appears, the flowers ſeem collected into a cloſe ſpike, ſome of which often ſpread open before the ſtalk is ſix inches high; but as the ſtalks advance, they divide into many looſe ſpikes.

It is eaſily propagated by the root, which may be parted in the autumn: theſe ſhould have a dry ſoil and a warm ſituation, for as the flower-ſtalks appear early in the ſpring, ſo when they are much expoſed, they are often killed by the froſt, and thereby prevented flowering; if theſe plants are planted in dry rubbiſh, they will not grow too luxuriant, ſo will not be in danger of ſuffering by froſt. Some of the ſeeds of this have ſcattered into the joints of an old wall in the Chelſea garden, where the plants have grown without care for ſome years, and are never injured by cold or heat.

The third and fourth ſorts grow naturally in Africa; theſe are both annual plants, which rarely riſe a foot high, having rough ſtalks; thoſe of the third ſort are ſet on by pairs oppoſite, with ſhort foot-ſtalks, but the leaves of the fourth cloſely embrace the ſtalks at their baſe; the flowers come out on ſhort foot-ſtalks from the wings of the leaves, and alſo at the top of the ſtalks. Thoſe of the third ſort are white, and thoſe of the fourth a pale fleſh colour; but neither of them make any great appearance, ſo are ſeldom cultivated but in botanic gardens for variety.

The ſeeds of theſe plants ſhould be ſown upon a hot-bed in March, and when the plants are ſtrong enough to be removed, they ſhould be each planted in a ſmall pot filled with light earth, and plunged into a new hot-bed to bring them forward, otherwiſe they will not perfect their ſeeds in this country; but in hot weather they muſt have a great ſhare of air, otherwiſe they will draw up weak, and fail before the ſeeds are ripe.

BOSEA, Yervamora, or Shrubby Golden-rod.

The Characters are,

It hath an empalement compoſed of five roundiſh, concave, equal leaves; it hath no corolla, but five awl-ſhaped ſtamina longer than the empalement, terminated by ſingle ſummits; and an oblong, oval, pointed germen, with two ſtigma ſitting cloſe upon it. The empalement afterward becomes a globular berry with one cell, incloſing one roundiſh ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

We have but one Species of this plant, viz.

Bosea. (*Yervamora.*) Lin. Hort. Cliff. 84. Arbor baccifera Canarienſis, ſyringiæ cærulæ foliis, purpurantibus venis, fructu monopyreno Yervamora Hiſpanorum. Pluk. Phyt. *Commonly called Golden-rod-tree.*

This plant is a native of the iſlands of the Canaries, and it hath alſo been ſince found in ſome of the Britiſh iſlands in America; but was firſt brought into England from the Canaries, and has been long an inhabitant of the Engliſh gardens; but I have not as yet ſeen any of theſe plants in flower, though I have had many old plants under my care more than forty years: it makes a pretty ſtrong woody ſhrub, growing with a ſtem as large as a middling perſon's leg; the branches come out very irregular, and make conſiderable ſhoots in ſummer, which ſhould be ſhortened every ſpring, to preſerve the heads of the plants in any tolerable order: theſe branches retain their leaves till toward the ſpring, when they fall away, and new leaves are produced ſoon after: it may be propagated by cuttings planted in the ſpring, and the plants muſt be houſed in winter, being too tender to live in the open air through the year, in this country.

BOSQUETS are little groves; ſo called from Boſchetto, Italian, which is a diminutive of Boſco, a wood or grove.

Theſe are ſmall compartments in gardens, which are formed of trees, ſhrubs, or tall large growing plants, planted in quarters; and are either diſpoſed regularly in rows, or in a more wild or accidental manner, according to the fancy of the owner: theſe quarters are commonly ſurrounded with Evergreen hedges, and the entrance formed into regular porticos with Yews, which are by far the beſt and moſt tonſile trees for this purpoſe. In the inſide of theſe quarters may be made ſome walks, either ſtrait or winding; which, if the quarters are large, ſhould be five or ſix feet broad, and may be laid with turf, and kept well mowed and rolled, which will render the walking much eaſier and pleaſanter than if the walks are only the common earth; which in ſmaller quarters cannot be otherwiſe, for if the trees are cloſe, and the walks narrow, ſo as to be ſhaded and over-hung by the trees, the graſs will not grow.

Theſe quarters may be alſo ſurrounded with hedges of Lime, Elm, Hornbeam, or Beech; which ſhould be kept well ſheared, and not ſuffered to riſe too high; that the heads of the trees may be fully ſeen over them, and the ſtems only hid from the ſight, when in the walks on the outſide of the quarters.

In the planting of theſe boſquets, you ſhould obſerve to mix the trees, which produce their leaves of different ſhapes, and various ſhades of green, and hoary or mealy leaves, ſo as to afford an agreeable proſpect: beſides, there is a great variety of different fruits, which theſe trees produce in autumn; which, altho' of little or no uſe, that we know of, yet have a very good effect, in affording an agreeable variety for ſome time after the leaves are gone; as the Euonymus, or Spindle-tree, the Opulus, or Marſh Elder, the Cockſpur Hawthorn, with many other ſorts, too numerous to mention in this place; whoſe berries afford food for the birds, ſo that they will be thereby invited to ſtay and harbour in theſe little groves, which by their different notes, will render theſe places very agreeable in the ſpring. But I would adviſe never to mix Evergreens with deciduous trees; for, beſides the ill effect it hath to the ſight (eſpecially in winter,) they ſeldom thrive well together; ſo that thoſe quarters where you intend to have Evergreens, ſhould be wholly planted therewith; and in the other parts mix as many varieties of different trees, which caſt their leaves, as you can conveniently; and alſo plant ſome of the largeſt growing flowers (eſpecially near the outſide of the quarters,) which will add greatly to the variety, if they have but air enough to grow; but if any of the Evergreen trees are mixed with the deciduous, it ſhould be only to border the wood.

Theſe boſquets are proper only for ſpacious gardens, being expenſive in their firſt making, as alſo in keeping.

BOTRYS. See Chenopodium.

BOX-TREE. See Buxus.

BRABEJUM, African Almond, vulgò.

The Characters are,

The flower hath no empalement; it is compoſed of four narrow obtuſe petals which are erect, forming a tube, but are turned backward at top; it hath four ſlender ſtamina which are inſerted in the bottom of the petals, and are of the ſame length, having ſmall ſummits. In the center is a ſmall hairy germen, ſupporting a ſlender ſtyle, crowned by a ſingle ſtigma; the germen afterward becomes an oval, hairy, dry berry, incloſing an oval nut.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

We have but one Species of this plant, viz.

Brabejum. (*Stellatifolium.*) Hort. Cliff. Amygdalus Æthipica, fructu holoſerico. Breyn. Cent. *African, or Ethiopian Almond.*

This tree is a native of the country about the Cape of Good Hope.

In Europe it ſeldom grows above eight or nine feet high, but in its native ſoil it is a tree of middling growth; but as it muſt be kept in pots, or tubs, being too tender to live through the winter in the open air, ſo we cannot expect to ſee it grow to a great ſize.

It riſes with an upright ſtem, which is ſoft, and full of pith within, covered with a brown bark. From the ſtem are ſent out horizontal branches at every joint, the lower being the longeſt, and every tier diminiſhing to the top, ſo as to form a ſort of pyramid. The branches are garniſhed with leaves at each joint, which are from four to five inches long, and half an inch broad in the middle, of a deep green on their upper ſide, but of a pale ruſſet colour on their under, indented on their edges, ſtanding on very ſhort foot-ſtalks. The flowers are produced toward the end of the ſhoots, coming out from between the leaves quite round the branches, which are of a pale colour, inclining to white; theſe appear early in the ſpring, and fall away without any fruit ſucceeding them in this country.

This plant is, with difficulty, propagated by layers; being often two years before they make roots ſtrong enough to be taken from the old plants; when the branches are laid down, it will be a good method to ſlit them at a joint (as is practiſed in laying Carnations) which will promote their taking root.

Theſe muſt have but little water given them, eſpecially in winter, for as the young ſhoots are chiefly pith within, ſo they are very ſubject to rot with much moiſture. The beſt time to make the layers is in April, juſt as the plants are beginning to ſhoot; the layers muſt always be made of the former year's ſhoots. As this plant is very difficult to propagate, ſo it is very ſcarce in Europe, there being very few in the Dutch gardens at preſent.

The plants muſt have a good green-houſe in winter, but in ſummer ſhould be ſet abroad in a ſheltered ſituation, where they will thrive, and annually produce flowers in the ſpring, ſo will make a pretty variety among other exotic plants in the green-houſe.

BRANCA URSINA. See Acanthus.

BRASSICA, the Cabbage.

The Characters are,

The empalement is compoſed of four upright, ſpear-ſhaped, ſmall leaves, which are convex at their baſe, and fall off. The flower is croſs-ſhaped, having four oval plain petals, which ſpread open, and are entire. It hath four oval nectarious glands, one being ſituated on each ſide of the ſhort ſtamina and pointal, and one on each ſide the empalement. It hath ſix ſtamina, which are awl-ſhaped and erect, two of which are oppoſite, and the length of the empalement, the other four are longer; theſe have erect pointed ſummits. It hath a taper germen the length of the ſtamina, having a ſhort ſtyle thicker than the germen, and crowned by an entire ſtigma. The germen afterward becomes a long taper pod, depreſſed on each ſide, and is terminated by the apex of the intermediate partition, which divides it into two cells, filled with round ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa, the flowers having four long and two ſhort ſtamina, and are ſucceeded by long pods.

I ſhall firſt enumerate the ſpecies, which are diſtinct, and afterward mention the varieties, which are cultivated for the table; for although moſt of theſe may be continued diſtinct by proper care, without alteration; yet as they are liable to vary when planted near each other for ſeeds, ſo we muſt not admit of their being different ſpecies. To this genus Dr. Linnæus has joined the Turnep, Navew, and Rocket, which by their generical characters, may in a ſyſtem of botany, come under the ſame title; but in a treatiſe of gardening, it may occaſion confuſion; therefore I ſhall treat of them under their former titles, by which they are generally known.

The Species are,

1. Brassica (*Oleracea*) radice cauleſcente tereti carnoſâ. Hort. Cliff. 338. *Cabbage with a taper fleſhy ſtalk.* Braſſica capitata alba. C. B. P. 111. *The common white Cabbage.*
2. Brassica (*Napobraſſica*) radice cauleſcente orbiculari carnoſo, foliis ſeſſilibus. *Cabbage with a round fleſhy ſtalk, and leaves growing cloſe to the ſtalks.* Braſſica radice napiformi. Tourn. Inſt. R. H. 219. *Turnep-rooted Cabbage.*
3. Brassica (*Botrytis*) radice cauleſcente tereti carnoſâ, floralibus multicaulis. *Cabbage with a taper fleſhy ſtalk at the root, and many branching flower-ſtalks.* This is the Braſſica Cauliflora. Caſp. Bauh. Pin. 111. *The Cauliflower.*
4. Brassica (*Sylveſtris*) radice cauleque tenui ramoſo perenni foliis alternis marginibus inciſis. *Cabbage with a branching perennial ſtalk and root, and leaves growing alternate, which are cut on their edges.* Braſſica maritima arborea ſive procerior ramoſa. Mor. Hiſt. 2. p. 208. *Taller ſhrubby Sea Cabbage.*
5. Brassica (*Violacea*) foliis lanceolato-ovatis glabris indiviſis dentatis. Hort. Upſ. 191. *Cabbage with entire, oval, ſpear-ſhaped, ſmooth leaves, which are indented.*
6. Brassica (*Purpurea*) foliis oblongo-cordatis amplexicaulibus, integerrimis. *Cabbage with oblong heart-ſhaped leaves embracing the ſtalks, which are entire.* Braſſica campeſtris perfoliata flore purpureo. C. B. P. 112.
7. Brassica (*Orientalis*) foliis cordatis amplexicaulibus glabris. Lin. Sp. 931. *Colewort with heart-ſhaped ſmooth leaves which embrace the ſtalk.* Braſſica Orientalis perfoliata flore albo ſiliquâ quadrangulâ. Tourn. Cor. 16.
8. Brassica (*Gongylodes*) radice cauleſcente tereti, foliis inferioribus petiolatis ſuperioribus ſemiamplexicaulibus. *Cabbage with a taper ſtalk, the under leaves with foot-ſtalks, and the upper half embracing the ſtalk.* Napus Sylveſtris. C. B. P. 95. *The wild Navew, or Cole Seed.*

The Varieties of the firſt ſort are,

1. Brassica (*Sabauda*) ſabauda hyberna. Lob. Icon. *The Savoy Cabbage, commonly called Savoy.*
2. Brassica (*Rubra*) capitata rubra. C. B. P. 111. *The Red Cabbage.*
3. Brassica (*Pyramidalis*) capitata alba pyramidalis. *The Sugar-loaf Cabbage.*
4. Brassica (*Præcox*) capitata alba præcox. *The early Cabbage.*
5. Brassica (*Peregrina*) peregrina moſchum olens. H. R. Par. *Foreign Muſk Cabbage.*
6. Brassica (*Muſcovitica*) capitata alba minor Muſcovitica. H. A. *Small Ruſſia Cabbage.*
7. Brassica (*Capitata*) capitata alba compreſſa. Boerh. Ind. alt. 11. *The large ſided Cabbage.*
8. Brassica (*Viridis*) capitata viridis ſabauda. Boerh. Ind. 11. *The green Savoy.*
9. Brassica (*Laciniata*) fimbriata. C. B. P. 111. *The Borecole.*
10. Brassica (*Seleniſia*) fimbriata vireſcens. Boerh. Ind. 2. 12. *Green Borecole.*
11. Brassica (*Fimbriata*) fimbriata Siberica. Boerh. Ind. 2. 12. *Siberian Borecole, called by ſome Scotch Kale.*

The ſecond ſort is undoubtedly a diſtinct ſpecies, for I have always found the ſeeds produce the ſame, with this difference only, that in good ground the ſtalks will be much larger than in poor land.

The Varieties of the third ſort are,

1. Brassica Italica purpurea Broccoli dicta. Juſſ. *Purple Broccoli.*
2. Brassica Italica alba Broccoli dicta. Juſſ. *White Broccoli.*

The ſecond ſort, I believe, never varies, for I have cultivated it many years, and have not found it to alter. This grows naturally on the ſea-ſhore, near Dover. It hath a perennial branching ſtalk, in which it differs from all the other ſpecies. I have continued theſe three or four years, and have eaten the young ſhoots after they had been much frozen, when they were very ſweet and good; but at other times they are very ſtrong and ſtringy. In very ſevere winters, when the other ſorts are deſtroyed, this is a neceſſary plant, for the moſt ſevere froſts do not injure it. The leaves of this are inclining to a purple colour, and are placed alternately on the branches. The flower-ſtalks grow from the end of the branches, and ſpread out horizontally; but thoſe which ariſe from the center of the plants, grow erect, and ſeldom put out branches.

The third ſort, which is the Cauliflower, has been ſuppoſed a variety of the common Cabbage; but from more than fifty years experience in cultivating theſe plants, I could never find the leaſt appearance of either ſpecies approaching each other; and they are ſo different in their leaves, as to be eaſily diſtinguiſhed by perſons of ſkill, when the plants are young. But there is one eſſential difference between them in their flower-ſtems; for the common Cabbage puts out one upright ſtem from the center of the Cabbage, which afterward divides into ſeveral branches, whereas the Cauliflower ſends out many flower-ſtems from the part which is eaten; which is only a compact collection of the heads of theſe ſtalks, which afterward divides into ſo many ſtems, branching out into many ſpreading ſhoots, ſo as to form a large ſpreading head when in flower, but never riſes pyramidically like the Cabbage.

The two ſorts of Broccoli I take to be only varieties of the Cauliflower, for although theſe may with care be kept diſtinct, yet I doubt, if they were to ſtand near each other for ſeeds, if they would not intermix; and I am the rather inclined to believe this, from the various changes which I have obſerved in all theſe ſorts; for I have frequently had Cauliflowers of a green colour, with flower-buds regularly formed at the ends of the ſhoots, as thoſe of Broccoli, though the colour was different; and the white Broccoli approaches ſo near to the Cauliflower, as to be with difficulty diſtinguiſhed from it; yet when theſe are cultivated with care, and never ſuffered to ſtand near each other, when left to produce ſeeds, they may be kept very diſtinct in the ſame garden; for the variations of theſe plants is not occaſioned from the ſoil, but the mixing of the farina of the flowers with each other, where they are planted near together; therefore thoſe perſons who are curious to preſerve the ſeveral varieties diſtinct, ſhould never ſuffer the different kinds to ſtand near each other for ſeed.

The Cauliflower was firſt brought to England from the iſland of Cpyrus, where I have been informed they are in very great perfection at preſent: but it is ſuppoſed, they were originally brought thither from ſome other country: moſt of the old writers mention it to have been brought from that iſland, to the different parts of Europe, ſo that from thence all the gardens in Europe have been ſupplied; and although this plant was cultivated in a few Engliſh gardens long ſince, yet it was not brought to any degree of perfection, till about 1680, at leaſt not to be ſold in the markets; and ſince the year 1700, they have been ſo much improved in England, as that ſuch of them as before were greatly admired, would at preſent be little regarded.

This plant has been much more improved in England, than in any other parts of Europe. In France they rarely have Cauliflowers till near Michaelmas, and Holland is generally ſupplied with them from England. In many parts of Germany there was none of them cultivated till within a few years paſt; and moſt parts of Europe are ſupplied with ſeeds from hence.

The eighth ſort, which is generally known by the title of Rape or Cole Seed, is much cultivated in the iſle of Ely, and ſome other parts of England for its ſeed, from which the Rape Oil is drawn; and it hath alſo been cultivated of late years in other places, for feeding of cattle, to great advantage. This hath been lately joined to the Napus Sativa, or Garden Navew, ſuppoſing them to be the ſame ſpecies; but I have cultivated both ſorts more than twenty years, and could never obſerve either of them to vary; indeed the whole appearance of the plants, is ſufficient to determine them as diſtinct ſpecies; but as the Garden Navew approaches nearer the Turnep than the Cabbage, ſo I ſhall treat of that under the title of Rapa.

The Cole Seed, when cultivated for feeding of cattle, ſhould be ſown about the middle of June. The ground for this ſhould be prepared in the ſame manner as for Turneps. The quantity of ſeeds for an acre of land, is from ſix to eight pounds, and as the price of the ſeeds is not great, ſo it is better to allow eight pounds; for if the plants are too cloſe in any part, they may be eaſily thinned when the ground is hoed. When the plants have put out ſix leaves, they will be fit to hoe, which muſt be performed in the ſame manner as is practiſed for Turneps, with this difference only, of leaving theſe much nearer together; for as they have fibrous roots and ſlender ſtalks, ſo they do not require near ſo much room. Theſe plants ſhould have a ſecond hoeing, about five or ſix weeks after the firſt, which, if well performed in dry weather, will entirely deſtroy the weeds, ſo they will require no farther culture. By the middle of November theſe will be grown large enough for feeding, when, if there is a ſcarcity of fodder, this may be either cut or fed down; but where there is not an immediate want of food, it had better be kept as a reſerve for hard weather, or ſpring feed, when there may be a ſcarcity of other green food. If the heads are cut off, and the ſtalks left in the ground, they will ſhoot again early in the ſpring, and produce a good ſecond crop in April, which may be either fed off, or permitted to run to ſeeds, as is the practice where this is cultivated for the ſeeds: but if the firſt is fed down, there ſhould be care taken that the cattle do not deſtroy their ſtems, or pull them out of the ground. As this plant is ſo hardy as not to be deſtroyed by froſt, ſo it is of great ſervice in hard winters for feeding of ewes; for when the ground is ſo hard frozen, as that Turneps cannot be taken up, theſe plants may be cut off for a conſtant ſupply. In ſeveral places where I have ſown this ſeed, I have found that one acre of land will produce as much food, as almoſt two acres of Turneps; and this will afford late food after the Turneps are run to ſeed; and if it is afterward permitted to ſtand for ſeed, one acre will produce as much as, at a moderate computation, will ſell for five pounds, clear of charges.

Partridges, pheaſants, turkeys, and moſt other fowl, are very fond of this plant; ſo that wherever it is cultivated, if there are any birds in the neighbourhood, they will conſtantly lie among theſe plants.

The ſeeds of this plant are ſown in gardens for winter and ſpring ſallads, this being one of the ſmall ſallad-herbs.

The common white, red, flat, and long-ſided Cabbages are chiefly cultivated for winter uſe: the ſeeds of theſe ſorts muſt be ſown the end of March, or beginning of April, in beds of good freſh earth; and in May, when the young plants will have about eight leaves, they ſhould be pricked out into ſhady borders, about three inches ſquare, that they may acquire ſtrength, and to prevent their growing long ſhanked.

About the beginning of June you muſt tranſplant them out, where they are to remain for good (which in the kitchen-gardens near London, is commonly between Cauliflowers, Artichokes, &c. at about two feet and a half diſtance in the rows;) but if they are planted for a full crop in a clear ſpot of ground, the diſtance from row to row ſhould be three feet and a half, and in the rows two feet and a half aſunder: if the ſeaſon ſhould prove dry when they are tranſplanted out, you muſt water them every other evening, until they have taken freſh root; and afterwards, as the plants advance in height, you ſhould draw the earth about their ſtems with a hoe, which will keep the earth moiſt about their roots, and greatly ſtrengthen the plants: you muſt alſo obſerve to keep them clear from weeds, which are apt to draw the plants up tall (if ſuffered to grow amongſt them,) and often ſpoil them.

Theſe Cabbages will ſome of them be fit for uſe ſoon after Michaelmas, and will continue until the end of February, if they are not deſtroyed by bad weather; to prevent which, the gardeners near London pull up their Cabbages in November, and trench their ground up in ridges, laying their Cabbages againſt their ridges as cloſe as poſſible on one ſide, burying their ſtems in the ground: in this manner they let them remain till after Chriſtmas, when they cut them for the market; and although the outer part of the Cabbage be decayed (as is often the caſe in very wet or hard winters,) yet, if the Cabbages were large and hard when laid, the inſide will remain ſound.

The Ruſſian Cabbage was formerly in much greater eſteem than at preſent, it being now only to be found in particular gentlemens gardens, who cultivate it for their own uſe, and is rarely ever brought to the market. This muſt be ſown late in the ſpring of the year, and managed as thoſe before directed; with this difference only, that theſe muſt be ſooner planted out for good, and muſt have an open clear ſpot of ground, and require much leſs diſtance every way; for it is but a very ſmall hard Cabbage. Theſe will be fit for uſe in July or Auguſt, but will not continue long before they will break, and run up to ſeed. The beſt method to have theſe Cabbages good, is to procure freſh ſeeds from abroad every year, for it is apt to degenerate in England in a few years.

The early and Sugar-loaf Cabbages are commonly ſown for ſummer uſe, and are what the gardeners about London commonly call Michaelmas Cabbages. The ſeaſon for ſowing of theſe is about the end of July, or beginning of Auguſt, in an open ſpot of ground; and when the plants have got eight leaves, you muſt prick them into beds at about three inches diſtance every way, that the plants may grow ſtrong and ſhort ſhanked; and in the middle of October you ſhould plant them out for good; the diſtance that theſe require is, three feet row from row, and two feet and a half aſunder in the rows. The gardeners near London commonly plant theſe Cabbages upon the ſame ſpot of ground, where their winter Spinach is ſown; ſo that when the Spinach is cleared off in the ſpring, the ground will have a crop of Cabbages upon it; you muſt therefore clear off the Spinach juſt round each plant early in the ſpring, that with a hoe you may draw the earth up to the ſtem; and when all your Spinach is cleared off, which is commonly in the beginning of April, you muſt hoe down all the weeds, and draw up the earth again about your Cabbage plants.

In May, if your plants were of the early kind, they will turn in their leaves for cabbaging; at which time, the gardeners near London, in order to obtain them a little ſooner, tie in their leaves cloſe with a ſlender Oſier-twig to blanch their middle; by which means, they have them at leaſt a fortnight ſooner than they could have if they were left untied.

The early Cabbage being the firſt, we ſhould chooſe (if for a gentleman's uſe) to plant the fewer of them, and a greater quantity of the Sugar-loaf kind, which comes after them; for the early kind will not ſupply the kitchen long, generally cabbaging apace when they begin, and as ſoon grow hard, and burſt open; but the Sugar-loaf kind is longer before it comes, and is as ſlow in its cabbaging; and, being of an hollow kind, will continue good for a long time. I have known a large quarter of ground, which was planted with this ſort of Cabbage for market uſe, which hath afforded a ſupply for near three months together. This, though of ſingular ſervice to a gentleman's garden, is not ſo much for the advantage of the market gardener, who loves to have his ground cleared ſooner, that he may have another crop upon it, of Celery, Endive, &c. which is more to his purpoſe; for they, paying large rents for their land, are obliged to have as many crops in a year as poſſible.

Although I before have adviſed the planting out of Cabbages for good in October, yet the Sugar-loaf kind may be planted out in February, and will ſucceed as well as if planted earlier, with this difference only, that they will be later before they cabbage. You ſhould alſo reſerve ſome plants of the early kind in ſome well-ſheltered ſpot of ground, to ſupply your plantation, in caſe of a defect; for in mild winters many of the plants are apt to run to ſeed, eſpecially when their ſeeds are ſown too early, and in ſevere winters they are often deſtroyed.

The Savoy Cabbages are propagated for winter uſe, as being generally eſteemed the better when pinched by the froſt: theſe muſt be ſown about the middle of April, and treated after the manner as was directed for the common white Cabbage; with this difference, that theſe may be planted at a cloſer diſtance than thoſe; two feet and a half ſquare will be ſufficient. Theſe are always much better when planted in an open ſituation, which is clear from trees and hedges; for in cloſe places they are very ſubject to be eaten almoſt up by caterpillars, and other vermin, eſpecially if the autumn prove dry.

The Borecole may be alſo treated in the ſame manner, but need not be planted above one foot, aſunder in the rows, and the rows two feet diſtance: theſe are never eaten till the froſt hath rendered them tender, for otherwiſe they are tough and bitter.

The ſeeds of the Broccoli, (of which there are ſeveral kinds, viz. the Roman, or purple, and the Neapolitan, or white, and the black Broccoli, with ſome others; but the Roman is chiefly preferred to them all) ſhould be ſown about the latter end of May, or beginning of June, in a moiſt ſoil; and when the plants are grown to have eight leaves, tranſplant them into beds (as was directed for the common Cabbage;) and toward the middle of July they will be fit to plant out for good, which ſhould be into ſome well ſheltered ſpot of ground, but not under the drip of trees: the diſtance theſe require is about a foot and a half in the rows, and two feet row from row. The ſoil, in which they ſhould be planted, ought to be rather light than heavy, ſuch as are the kitchen gardens near London: if your plants ſucceed well (as there will be little reaſon to doubt, unleſs the winter prove extreme hard,) they will begin to ſhew their ſmall heads, which are ſomewhat like a Cauliflower, but of a purple colour, about the end of December, and will continue eatable till the middle of April.

The brown or black Broccoli is by many perſons greatly eſteemed, though it doth not deſerve a place in the kitchen-garden, where the Roman Broccoli can be obtained, which is much ſweeter, and will continue longer in ſeaſon: indeed, the brown ſort is much hardier, ſo that it will thrive in the coldeſt ſituations, where the Roman Broccoli is ſometimes deſtroyed in very hard winters. The brown ſort ſhould be ſown in the middle of May, and managed as hath been directed for the common Cabbage, and ſhould be planted at the ſame diſtance (which is about two feet and a half aſunder.) This will grow very tall, ſo ſhould have the earth drawn up to their ſtems as they advance in height. This doth not form heads ſo perfect as the Roman Broccoli; the ſtems and hearts of the plants are the parts which are eaten.

The Roman Broccoli (if well managed) will have large heads, which appear in the center of the plants, like cluſters of buds. Theſe heads ſhould be cut before they run up to ſeed, with about four or five inches of the ſtem; the ſkin of theſe ſtems ſhould be ſtripped off, before they are boiled: theſe will be very tender and little inferior to Aſparagus. After the firſt heads are cut off, there will be a great number of ſide ſhoots produced from the ſtems, which will have ſmall heads to them, but are full as well flavoured as the large. Theſe ſhoots will continue good until the middle of April, when the Aſparagus will come in plenty to ſupply the table.

The Naples Broccoli hath white heads, very like thoſe of the Cauliflower, and eats ſo like it, as not to be diſtinguiſhed from it. This is much tenderer than the Roman Broccoli, ſo is not ſo much cultivated in England; for as the gardens near London generally produce great plenty of late Cauliflowers, which, if the ſeaſon prove favourable, will continue till Chriſtmas, the Naples Broccoli, coming at the ſame time, is not ſo valuable.

Beſides this firſt crop of Broccoli (which is uſually ſown the end of May,) it will be proper to ſow another crop the beginning of July, which will come in to ſupply the table the latter end of March, and the beginning of April, and being very young, will be extremely tender and ſweet.

In order to ſave good ſeeds of this kind of Broccoli in England, you ſhould reſerve a few of the largeſt heads of the firſt crop, which ſhould be let remain to run up to feed, and all the under ſhoots ſhould be conſtantly ſtripped off, leaving only the main ſtem to flower and ſeed. If this be duly obſerved, and no other ſort of Cabbage permitted to ſeed near them, the ſeeds will be as good as thoſe procured from abroad, and the ſort may be preſerved in perfection many years.

The manner of preparing the Naples Broccoli for the table is this: when your heads are grown to their full bigneſs (as may be eaſily known by their dividing, and beginning to run up,) then you ſhould cut them off, with about four inches of the tender ſtem to them; then ſtrip off the outer ſkin of the ſtem, and after having waſhed them, boil them in a clean linen cloth (as is practiſed for Cauliflowers,) and ſerve them up with butter, &c. and, if they are of a right kind, they will be tenderer than any Cauliflowers, though very like them in taſte.

The Turnep-rooted Cabbage was formerly more cultivated in England than at preſent, for ſince other ſorts have been introduced which are much better flavoured, this ſort has been neglected. There are ſome perſons who eſteem this kind for ſoups; but it is generally too ſtrong for moſt Engliſh palates, and is ſeldom good but in hard winters, which will render it tender and leſs ſtrong.

It may be propagated by ſowing the ſeeds in April, on a bed of light freſh earth; and when the plants are come up about an inch high, they ſhould be tranſplanted out in a ſhady border, at about two inches diſtance every way, obſerving to water them until they have taken root; after which time they will require no other culture but to keep them clear from weeds, unleſs the ſeaſon ſhould prove extremely dry; in which caſe it will be proper to water them every four or five days, to prevent their being ſtinted by the mildew, which is ſubject to ſeize theſe plants in very dry weather.

In the beginning of June, the plants ſhould be tranſplanted out where they are to remain, allowing them two feet diſtance every way, obſerving to water them until they have taken root; and as their ſtems advance, the earth ſhould be drawn up to them with a hoe, which will preſerve a moiſture about their roots, and prevent their ſtems from drying and growing woody, ſo that the plants will grow more freely; but it ſhould not be drawn very high, for as it is the globular part of the ſtalk which is eaten, ſo that ſhould not be covered. In winter they will be fit for uſe, when they ſhould be cut off, and the ſtalks pulled out of the ground, and thrown away, as being good for nothing after the ſtems are cut off.

The curled Colewort of Siberian Borecole, is now more generally eſteemed than the former, being extreme hardy, ſo is never injured by cold, but is always ſweeter in ſevere winters than in mild ſeaſons. This may be propagated by ſowing the ſeeds the beginning of July; and when the plants are ſtrong enough for tranſplanting, they ſhould be planted in rows about a foot and a half aſunder, and ten inches diſtance in the rows; this work ſhould be performed at a moiſt time, when the plants will ſoon take root, and require no farther care. Theſe will be fit for uſe after Chriſtmas, and continue good until April, ſo that they are very uſeful in a family.

The Muſk Cabbage has, through negligence, been almoſt loſt in England, though for eating it is one of the beſt kinds we have; but being tenderer than many other ſorts, is not profitable for gardeners who ſupply the markets; but thoſe who cultivate them for their own table, ſhould make choice of this, rather than any of the common Cabbage, for it is always looſer, and the leaves more criſp and tender, and has a moſt agreeable muſky ſcent when cut. This may be propagated in the ſame manner as the common Cabbage, and ſhould be allowed the ſame diſtance. It will be fit for uſe in October, November, and December; but, if the winter proves hard, theſe will be deſtroyed much ſooner than the common ſort.

The common Colewort, or Dorſetſhire Kale, is now almoſt loſt near London, where the markets are uſually ſupplied with Cabbage plants, inſtead of them; and theſe being tenderer, and more delicate in winter, are much more cultivated than the common Colewort, which is better able to reſiſt the cold in ſevere winters than thoſe, but is not near ſo delicate till pinched by froſt. And ſince the winters in England have been generally temperate of late years, the common Cabbage plants have conſtantly been cultivated by the gardeners near London, and ſold in the markets as Coleworts, which, if they are of the Sugar-loaf kind, is one of the ſweeteſt greens from December to April yet known. Indeed, where farmers ſow Coleworts to feed their milch-cattle in the ſpring, when there is a ſcarcity of herbage, the common Colewort is to be preferred, as being ſo very hardy that no froſt will deſtroy it. The beſt method to cultivate this plant in the fields is, to ſow the ſeeds about the beginning of July, chooſing a moiſt ſeaſon, which will bring up the plants in about ten days or a fortnight; the quantity of ſeed for an acre of land is nine pounds: when the plants have got five or ſix leaves, they ſhould be hoed, as is practiſed for Turneps, cutting down all the weeds from amongſt the plants, and alſo thinning the plants where they are too thick; but they ſhould be kept thicker than Turneps, becauſe they are more in danger of being deſtroyed by the fly: this work ſhould be performed in dry weather, that the weeds may be killed; for if it ſhould prove moiſt ſoon after, the weeds will take root again, and render the work of little uſe. About ſix weeks after, the plants ſhould have a ſecond hoeing, which, if carefully performed in dry weather, will entirely deſtroy the weeds, and make the ground clean, ſo that they will require no farther culture. In the ſpring they may either be drawn up and carried out to feed the cattle, or they may be turned in to feed upon them as they ſtand; but the former method is to be preferred, becauſe there will be little waſte; whereas, when the cattle are turned in amongſt the plants, they will tread down and deſtroy more than they eat, eſpecially if they are not fenced off by hurdles.

The perennial Colewort is alſo little cultivated in the gardens near London at preſent. This is very hardy, and may be cultivated in the ſame manner as the former ſort. This will continue two years before it runs up to ſeed, and will afterwards produce many ſide ſhoots, and in poor land will continue three or four years; but in rich ſoils it will not laſt ſo long. This may be uſed as the former ſort, to feed cattle; for it is not ſo good for the table (unleſs in very ſevere froſt) as the plants which are now cultivated for that purpoſe.

The fifth ſort came from China, where it is cultivated as an eſculent plant; of this there are two or three varieties which I have cultivated ſome years, but I find them as variable as our common Cabbage. Theſe are annual plants, which, if ſown in April, will flower in July, and perfect their ſeeds in October. They never cloſe their leaves to form a head, like the common Cabbage, but grow open and looſe, more like the wild Navew, and are very unfit for the table. As theſe are generally in their perfection for uſe the beginning of July, I imagined their ſtrong flavour and toughneſs might be occaſioned by the warmth of the ſeaſon; therefore I ſowed ſome of the ſeeds in July, that I might make trial of them in winter; but in the midſt of froſt, I found them much worſe than our common Colewort, ſo I thought them not worth propagating.

The other two ſorts of Cabbage are varieties fit for a botanic garden, but are plants of no uſe. Theſe may be propagated by ſowing their ſeeds on a bed of light earth, early in the ſpring, in the place where they are deſigned to remain (for they do not bear tranſplanting well.) When the plants are come up pretty ſtrong, they ſhould be thinned, ſo as to leave them four or five inches apart; and they muſt be conſtantly kept clear from weeds. In June they will flower; and their ſeeds will ripen the beginning of Auguſt, which, if permitted to fall, the plants will come up, and maintain themſelves without any farther care but to keep them clear from weeds. They are annual plants, and periſh when they have perfected their ſeeds.

The beſt method to ſave the ſeeds of all the beſt ſorts of Cabbages is, about the end of November you ſhould make choice of ſome of your beſt Cabbages, which you ſhould pull up, and carry to ſome ſhed, or other covered place, where you ſhould hang them up for three or four days by their ſtalks, that the water may drain from between their leaves; then plant them in ſome border, under a hedge or pale, quite down to the middle of the Cabbage, leaving only the upper part of the Cabbage above ground, obſerving to raiſe the earth about it, ſo that it may ſtand a little above the level of the ground; eſpecially if the ground is wet, they will require to be raiſed pretty much above the ſurface.

If the winter ſhould prove very hard, you muſt lay a little ſtraw or Peaſe-haulm lightly upon them, to ſecure them from the froſt, taking it off as often as the weather proves mild, leſt by keeping them too cloſe they ſhould rot. In the ſpring of the year theſe Cabbages will ſhoot out ſtrongly, and divide into a great number of ſmall branches: you muſt therefore ſupport their ſtems, to prevent their being broken off by the wind; and if the weather ſhould be very hot and dry when they are in flower, you ſhould refreſh them with water once a week all over the branches, which will greatly promote their ſeeding, and preſerve them from mildew.

When the pods begin to change brown, you will do well to cut off the extreme part of every ſhoot with the pods, which will ſtrengthen your ſeeds; for it is generally obſerved, that thoſe ſeeds which grow near the top of the ſhoots, are very ſubject to run to ſeed before they cabbage; ſo that by this there will be no loſs, but a great advantage, eſpecially if you have more regard to the quality than to the quantity of the ſeeds, which indeed is not always the caſe, when it is intended for ſale; but thoſe who ſave it for their own uſe, ſhould be very careful to have it good.

When your ſeeds begin to ripen, you muſt be particularly careful, that the birds do not deſtroy it; for they are very fond of theſe ſeeds. In order to prevent their miſchief, ſome uſe old nets, which they throw over their ſeeds, to prevent their getting to it: but this will not always do, for, unleſs the nets are very ſtrong, they will force their way thro' them, as I have often ſeen; but the beſt method I know, is to get a quantity of birdlime, and dawb over a parcel of ſlender twigs, which ſhould be faſtened at each end to ſtronger ſticks, and placed near the upper part of the ſeed, in different places, ſo that the birds may alight upon them, by which means they will be faſtened thereto, where you muſt let them remain a conſiderable time, if they cannot get off themſelves: and although there ſhould be but few birds caught, yet it will ſufficiently terrify the reſt, that they will not come to that place again for a conſiderable time after (as I have experienced.)

When your ſeed is fully ripe, you muſt cut it off; and, after drying, threſh it out, and preſerve it in bags for uſe.

But in planting Cabbages for ſeed, I would adviſe never to plant more than one ſort in a place, or near one another: as for example, never plant red and white Cabbages near each other, nor Savoy with either white or red Cabbages; for I am very certain they will, by the commixture of the effluvia, produce a mixture of kinds; and it is wholly owing to this neglect, that the gardeners rarely ſave any good red Cabbage-ſeed in England, but are obliged to procure freſh ſeeds from abroad, as ſuppoſing the ſoil or climate of England alters them from red to white, and of a mixed kind between both; whereas, if they would plant red Cabbages by themſelves for ſeeds, and not ſuffer any other to be near them, they might continue the kind as good in England, as in any other part of the world; for in the Dutch gardens, from whence the beſt ſeeds of red Cabbages are procured, they cultivate no other ſort.

Cauliflowers have of late years been ſo far improved in England, as to exceed in goodneſs and magnitude what are produced in moſt parts of Europe; and by the ſkill of the gardener, are continued for ſeveral months together; but the moſt common ſeaſon for the great crop, is in May, June, and July. I ſhall therefore begin with directions for obtaining them in this ſeaſon.

Having procured a parcel of good ſeed, of an early kind, you muſt ſow it about the twenty-firſt of Auguſt, upon an old Cucumber or Melon-bed, ſifting a little earth over the ſeeds, about a quarter of an inch thick; and if the weather ſhould prove extreme hot and dry, you ſhould ſhade the bed with mats, to prevent the earth from drying too faſt, which would endanger the ſpoiling your ſeed; and give it gentle waterings, as you may ſee occaſion. In about a week's time your plants will appear above ground, when you muſt take off your coverings by degrees, but do not expoſe them too much to the open ſun at firſt. In about a month's time after ſowing, your plants will be fit to prick out, you ſhould therefore put ſome freſh earth upon your old Cucumber or Melon-beds; or where theſe are not to be had, ſome beds ſhould be made with a little new dung, which ſhould be trodden down cloſe, to prevent the worms from getting thro' it; but it ſhould not be hot dung, which would be hurtful to the plants at this ſeaſon, eſpecially if it proves hot; into this bed you ſhould prick your young plants, at about two inches ſquare, obſerving to ſhade and water them at firſt planting; but do not water them too much after they are growing, nor ſuffer them to receive too much rain, if the ſeaſon ſhould prove wet, which would be apt to make them black ſhanked (as the gardeners term it, which is no leſs than a rottenneſs in their ſtems,) and is the deſtruction of the plants ſo affected.

In this bed they ſhould continue till about the thirtieth of October, when they muſt be removed into the place where they are to remain during the winter ſeaſon, which, for the firſt ſowing, is commonly under bell or hand-glaſſes, to have early Cauliflowers, and theſe ſhould be of an early kind: but in order to have a ſucceſſion during the ſeaſon, you ſhould be provided with another more late kind, which ſhould be ſown four or five days after the other, and managed as was directed for them.

In order to have very early Cauliflowers, you ſhould make choice of a good rich ſpot of ground, that is well defended from the north, eaſt, and weſt winds, with hedges, pales, or walls; but the firſt is to be preferred, if made with reeds, becauſe the winds will fall dead in theſe, and not reverberate as by pales or walls. This ground ſhould be well trenched, burying therein a good quantity of rotten dung; then level your ground; and if it be naturally a wet ſoil, you ſhould raiſe it up in beds about two feet and a half, or three feet broad, and four inches above the level of the ground; but if your ground is moderately dry, you need not raiſe it at all: then plant your plants, allowing about two feet ſix inches diſtance from glaſs to glaſs, in the rows, always putting two good plants under each glaſs, which may be at about four inches from each other; and if you deſign them for a full crop, they may be three feet and a half, row from row: but if you intend to make ridges for Cucumbers or Melons between the rows of Cauliflower plants (as is generally practiſed by the gardeners near London,) you muſt then make your rows eight feet aſunder.

When you have planted your plants, if the ground is very dry, you ſhould give them a little water, and then ſet your glaſſes over them, which may remain cloſe down upon them, until they have taken root, which will be in about a week or ten days time, unleſs there ſhould be a kindly ſhower of rain; in which caſe you may ſet off the glaſſes, that the plants may receive the benefit of it; and in about ten days after planting, you ſhould be provided with a parcel of forked ſticks or bricks, with which you ſhould raiſe your glaſſes about three or four inches on the ſide toward the ſouth, that your plants may have free air. In this manner your glaſſes ſhould remain over the plants night and day, unleſs in froſty weather, when you ſhould ſet them down as cloſe as poſſible: or if the weather ſhould prove very warm, which many times happens in November, and ſometimes in December; in this caſe, you ſhould keep your glaſſes off in the day-time, and put them on only in the night, leſt, by keeping the glaſſes over them too much, you ſhould draw them into flower at that ſeaſon, which is many times the caſe in mild winters, eſpecially if unſkilfully managed.

Toward the latter end of February, if the weather proves mild, you ſhould prepare another good ſpot of ground, to remove ſome of the plants into from under the glaſſes, which ſhould be well dunged and trenched (as before;) then ſet off the glaſſes, and, after making choice of one of the moſt promiſing plants under each glaſs, which ſhould remain for good, take away the other plant, by raiſing it up with a trowel, &c. ſo as to preſerve as much earth to the root as poſſible; but have a great regard to the plant that is to remain, not to diſturb or prejudice its roots: then plant your plants which you have taken out, at the diſtance before directed, viz. if for a full crop, three feet and a half, row from row; but if for ridges of Cucumbers between them, eight feet, and two feet four inches diſtance in the rows: then, with a ſmall hoe, draw the earth up to the ſtems of the plants which were left under the glaſſes, taking great care not to let the earth fall into their hearts; and ſet your glaſſes over them again, raiſing your props an inch or two higher than before, to give them more air, obſerving to take them off whenever there may be ſome gentle ſhowers, which will greatly refreſh the plants.

In a little time after, if you find your plants grow ſo faſt as to fill the glaſſes with their leaves, you ſhould then ſlightly dig about the plants, and raiſe the ground about them in a bed broad enough for the glaſſes to ſtand about four inches high, which will give your plants a great deal of room by raiſing the glaſſes ſo much higher, when they are ſet over them; and by this means they may be kept covered until April, which otherwiſe they could not, without prejudice to the leaves of the plants: and this is a great advantage to them; for many times we have returns of ſevere froſts at the latter end of March, which prove very hurtful to theſe plants, if expoſed thereto, eſpecially after having been nurſed up under glaſſes.

After you have finiſhed your beds, you may ſet your glaſſes over your plants again, obſerving to raiſe your props pretty high, eſpecially if the weather be mild, that they may have free air to ſtrengthen them; and in mild ſoft weather ſet off your glaſſes, as alſo in gentle ſhowers of rain; and now you muſt begin to harden them by degrees to endure the open air: however, it is adviſeable to let your glaſſes remain over them as long as poſſible, if the nights ſhould be froſty, which will greatly forward your plants; but be ſure do not let your glaſſes remain upon them in very hot ſun-ſhine, eſpecially if their leaves preſs againſt the ſides of the glaſſes; for I have often obſerved, in ſuch caſes, that the moiſture which hath riſen from the ground, together with the perſpiration of the plants, which, by the glaſſes remaining over them, hath been detained upon the leaves of the plants, and when the ſun hath ſhone hot upon the ſides of the glaſſes, hath acquired ſuch a powerful heat from the beams thereof, as to ſcald all their larger leaves, to the no ſmall prejudice of the plants: nay, ſometimes I have ſeen large quantities of plants ſo affected therewith, as never to be worth any thing after.

If your plants have ſucceeded well, toward the end of April ſome of them will begin to fruit; you muſt therefore look over them carefully every other day, and when you ſee the flower plainly appear, you muſt break down ſome of the inner leaves over it to guard it from the ſun, which would make the flower yellow and unſightly, if expoſed thereto; and when you find your flower at its full bigneſs (which you may know by its outſide, parting, as if it would run,) you muſt then draw it out of the ground, and not cut them off, leaving the ſtalk in the ground, as is by ſome practiſed; and if they are deſigned for preſent uſe, you may cut them out of their leaves; but if deſigned to keep, you ſhould preſerve their leaves about them, and put them into a cool place: the beſt time for pulling of them is in a morning, before the ſun hath exhaled the moiſture; for Cauliflowers, pulled in the heat of the day, loſe that firmneſs which they naturally have, and become tough.

But to return to our ſecond crop (the plants being raiſed and managed as was directed for the early crop, until the end of October;) you muſt then prepare ſome beds, either to be covered with glaſs-frames, or arched over with hoops, to be covered with mats, &c. Theſe beds ſhould have ſome dung laid at the bottom, about ſix inches or a foot thick, according to the ſize of your plants; for if they are ſmall, the bed ſhould be thicker of dung, to bring them forward, and ſo *vice verſa:* this dung ſhould be beat down cloſe with a fork, in order to prevent the worms from finding their way through it; then lay ſome good freſh earth about four or five inches thick thereon, in which you ſhould plant your plants about two inches and a half ſquare, obſerving to ſhade and water them until they have taken freſh root: but be ſure do not keep your coverings cloſe, for the warmth of the dung will occaſion a large damp in the bed, which, if pent in, will greatly injure the plants.

When your plants have taken root, you muſt give them as much free open air as poſſible, by keeping the glaſſes off in the day-time as much as the weather will permit; and in the night, or at ſuch times as the glaſſes require to be kept on, raiſe them up with bricks or other props to let in freſh air, unleſs in froſty weather; at which time the glaſſes ſhould be covered with mats, ſtraw, and Peaſe-haulm, &c. but this is not to be done except in very hard froſts: you muſt alſo obſerve to guard them againſt great rain, which in winter time is very hurtful to them; but in mild weather, if the glaſſes are kept on, they ſhould be propped to admit freſh air; and if the under leaves grow yellow and decay, be ſure to pick them off; for if the weather ſhould prove very bad in winter, ſo that you ſhould be obliged to keep them cloſe covered for two or three days together, as it ſometimes happens, theſe decayed leaves will render the incloſed air very noxious; and the plants perſpiring pretty much at that time, are often deſtroyed in vaſt quantities.

In the beginning of February, if the weather proves mild, you muſt begin to harden your plants by degrees, that they may be prepared for tranſplantation; and the ground where you intend to plant your Cauliflowers out for good (which ſhould be quite open from trees, &c. and rather moiſt than dry,) having been well dunged and dug, ſhould be ſown with Radiſhes a week or fortnight before you intend to plant out your Cauliflowers: the reaſon why I mention the ſowing of Radiſhes particularly, is this, viz. that if there are not ſome Radiſhes amongſt them, and the month of May ſhould prove hot and dry, as it ſometimes happens, the fly will ſeize your Cauliflowers, and eat their leaves full of holes, to their prejudice, and ſometimes their deſtruction; whereas, if there are Radiſhes upon the ſpot, the flies will take to them, and never meddle with the Cauliflowers ſo long as they laſt. Indeed, the gardeners near London mix Spinach with their Radiſh-ſeed, and ſo have a double crop, which is an advantage where ground is dear, or where perſons are ſtraitened for room; otherwiſe it is very well to have only one crop amongſt the Cauliflowers, that the ground may be cleared in time.

Your ground being ready, and the ſeaſon good, about the middle or end of February, you may begin to plant out your Cauliflowers: the diſtance which is generally allowed by the gardeners near London (who plant other crops between their Cauliflowers to ſucceed them, as Cucumbers for pickling, and winter Cabbages) is every other row four feet and a half apart, and the intermediate rows two feet and a half, and two feet two inches diſtance in the rows; ſo that in the latter end of May, or beginning of June (when the Radiſhes and Spinach are cleared off,) they put in ſeeds of Cucumbers for pickling, in the middle of the wide rows, at three feet and a half apart; and in the narrow rows, plant Cabbages for winter uſe, at two feet two inches diſtance, ſo that theſe ſtand each of them exactly in the middle of the ſquare between four Cauliflower-plants; and theſe, after the Cauliflowers are gone off, will have full room to grow, and the crop be hereby continued in a ſucceſſion thro' the whole ſeaſon.

About three weeks or a month after your Cauliflowers are planted out, the Radiſhes between them will be fit to hoe; at which time, when you are hoeing out the Radiſhes where they are too thick, you ſhould cut off all ſuch as grow immediately about the Cauliflowers, and would prove hurtful to them, by drawing them up tall and weak; and alſo at that time draw the earth up to the ſtems of the plants, being careful not to let any get into their hearts (as was before directed;) and when your Radiſhes are fit to pull, be ſure to clear round the Cauliflowers firſt, and keep drawing the earth up to their ſtems as they advance in height, which will keep their ſtems from being hardened by the weather, and be of ſingular ſervice to your plants.

There are many people who are very fond of watering Cauliflower-plants in ſummer, but the gardeners near London have almoſt wholly laid aſide this practice, as finding a deal of trouble and charge to little purpoſe; for if the ground be ſo very dry as not to produce tolerable good Cauliflowers without water, it ſeldom happens, that watering them renders them much better; and when once they have been watered, if it is not conſtantly continued, it had been much better for them if they never had any; as alſo if it be given them in the middle of the day, it rather helps to ſcald them: ſo that, upon the whole, if care be taken to keep the earth drawn up to their ſtems, and clear them from every thing that grows near them, that they may have free open air, you will find that they will ſucceed better without than with water, where any of theſe cautions are not ſtrictly obſerved.

When your Cauliflowers begin to fruit, you muſt often look over them, to turn down their leaves, as was before directed, to preſerve their whiteneſs; and when they are full grown, obſerve the former directions in pulling them, &c. but wherever you meet with an extraordinary good Cauliflower, whoſe curd is hard and white, and perfectly free from any frothineſs about the edges, you ſhould ſuffer it to remain for ſeed, keeping the leaves cloſe down upon it until the flower hath ſhot out ſtems, and then remove the leaves from them by degrees, but do not expoſe them too much to the open air at firſt. As the ſtems advance, you muſt take the leaves quite away; and when they begin to branch out, you ſhould fix three pretty ſtrong ſtakes, at equal angles, about it, ſurrounding them with packthread, &c. to ſupport their branches, which would be otherwiſe liable to break with the wind.

When your pods begin firſt to be formed, if the weather proves dry, you ſhould give them a little water all over (with a watering-pot that hath a roſe to it;) which will promote the progreſs of the ſeeds, and preſerve them from mildew, which is often hurtful to the ſeeds; and, when your ſeeds are ripe, you muſt cut it off, and hang it up to dry, and rub it out as was directed for Cabbage-ſeed: and although your flowers do not produce ſo much ſeed as thoſe which were of a ſofter or frothy nature, yet the goodneſs of ſuch ſeeds will ſufficiently recompenſe for the quantity; and any perſon who was to purchaſe his ſeeds, had better give ten ſhillings an ounce for ſuch ſeed than two for the ſeeds commonly ſaved for ſale, as the gardeners about London have experienced, who will never buy any ſeeds of this kind, if they do not know how they were ſaved.

But in order to have a third crop of Cauliflowers, you ſhould make a ſlender hot-bed in February, in which you ſhould ſow the ſeeds, covering them a quarter of an inch thick with light mould, and covering the bed with glaſs-frames: you ſhould now and then gently refreſh the bed with water, obſerving to raiſe the glaſſes with bricks or props in the daytime, to let in freſh air; and when the plants are come up, and have gotten four or five leaves, you ſhould prepare another hot-bed to prick them into, which may be about two inches ſquare; and in the beginning of April harden them by degrees, to fit them for tranſplanting, which ſhould be done the middle of that month, at the diſtance directed for the ſecond crop, and muſt be managed accordingly: theſe (if the ſoil is moiſt where they are planted, or the ſeaſon cool and moiſt) will produce good Cauliflowers about a month after the ſecond crop is gone, whereby their ſeaſon will be greatly prolonged.

There is alſo a fourth crop of Cauliflowers, which is raiſed by ſowing the ſeed about the 23d of May; and being tranſplanted, as hath been before directed, will produce good Cauliflowers in a kindly ſeaſon and good ſoil, after Michaelmas, and continue thro' October and November; and, if the ſeaſon permit, often a great part of December.

The reaſon why I fix particular days for the ſowing of this ſeed, is becauſe two or three days often make a great difference in their plants; and becauſe theſe are the days uſually fixed by the gardeners near London, who have found their crops to ſucceed beſt when ſown at thoſe times, although one day, more or leſs, will make no great odds. I have alſo, in this edition, altered the days to the new ſtyle.

BREYNIA. See Capparis.

BROMELIA. Plum. Nov. Gen. 46. tab. 8. Lin. Gen. Plant. 356.

The Characters are,

It hath a three-cornered permanent empalement cut into three parts, upon which the germen is ſituated. The flower hath three long narrow petals, which are erect, each having a nectarium joined to it above the baſe. It hath ſix ſtamina the length of the petals, which are terminated by oblong ſummits. The germen is ſituated below the receptacle, ſupporting a ſlender ſtyle, crowned by a trifid obtuſe ſtigma. The empalement afterward becomes *an oblong capſule, divided by a partition in the middle, to which the ſeeds are fixed quite round; theſe are ſmooth and almoſt cylindrical.*

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle. Dr. Dillenius has ſuppoſed this to be the ſame with Plumier's Karatas, which miſtake he was led into by Plumier's drawing, where the flower of his Caraguata is joined to the fruit of his Karatas, and *vice verſa*; and from hence Dr. Linnæus has been induced to join theſe and the Ananas together, making them only ſpecies of the ſame genus.

The Species are,

1. Bromelia (*Nudicaulis*) foliis radicalibus dentato-ſpinoſis caulinis integerrimis. Lin. Sp. Plant. 286. *Bromelia with lower leaves indented and prickly, and thoſe of the ſtalks entire.* Bromelia pyramidata, aculeis nigris. Plum. Nov. Gen. 46.

2. Bromelia (*Lingulata*) foliis ſerrato-ſpinoſis obtuſis, ſpicis alternis. Lin. Sp. Plant. 285. *Bromelia with ſawed, prickly, obtuſe leaves, and ſpikes of flowers growing alternate.* Bromelia ramoſa & racemoſa foliis Arundinaceis ſerratis. Plum. Nov. Gen. 46.

The firſt ſort hath leaves very like ſome of the ſorts of Aloes, but not ſo thick and ſucculent, which are ſharply indented on their edges, where they are armed with ſtrong black ſpines; from the center of the plant ariſes the flower-ſtalk, which is near three feet high, the lower part of which is garniſhed with entire leaves, placed alternately at every joint. The upper part of the ſtalk is garniſhed with flowers, ſet in a looſe ſpike or thyrſe; theſe have three narrow herbaceous petals ſitting upon the germen, and ſix ſlender ſtamina, with the ſtyle, which are ſhorter than the petals. Theſe flowers in the country where they naturally grow, are ſucceeded by oval ſeed-veſſels, having a longitudinal partition, in the center of which are faſtened cylindrical ſeeds on every ſide, which are ſmooth.

The ſecond ſort hath ſhorter leaves than the firſt, which ſtand erect, and are narrow at the baſe, increaſing in width gradually to the top, where they are broadeſt; theſe are ſharply ſawed on their edges, and are of a deep green colour. The flower-ſtem ariſes from the center of the plant, which divides upward into ſeveral branches; the upper part of theſe are garniſhed with ſpikes of flowers, which come out alternately from the ſides of the branches, each having a narrow entire leaf juſt below it, which is longer than the ſpike. The flowers are placed very cloſe on the ſpikes, each having three ſhort petals ſituated upon the globular empalement; when theſe decay, the empalement turns to an oval pointed ſeed-veſſel, incloſing ſeeds of the ſame ſhape with the former.

Both theſe plants grow naturally in very warm countries. Father Plumier, who gave this title to the genus, found them growing in the French Iſlands in America; and the late Dr. Houſtoun obſerved them growing in Jamaica, and in ſeveral parts of the Spaniſh Weſt-Indies. The firſt ſort alſo grows on the coaſt of Guinea, from whence I received the ſeeds; and the ſecond ſort was ſent me from St. Chriſtopher's.

Theſe plants are propagated by ſeeds, which muſt be procured from the country where they grow naturally, for they do not produce any in England. Theſe muſt be ſown in ſmall pots filled with light kitchen-garden earth, and plunged into a moderate hot-bed of tanners bark; the earth in theſe pots ſhould be ſprinkled over with water two or three times a week, according to the heat of the weather, but muſt not have too much moiſture. If the ſeeds are good, the plants will appear in about five or ſix weeks, and in a month after will be fit to tranſplant, when they ſhould be carefully ſhaken out of the pots, and each planted in a ſeparate ſmall pot filled with the ſame earth as before; then they muſt be plunged again into a moderate hot-bed, obſerving frequently to ſprinkle them over with water, but be cautious of giving them too much, leſt the roots ſhould be thereby rotted.

During the ſummer ſeaſon the plants ſhould have a moderate ſhare of air, in proportion to the heat of the weather; and, in autumn, they muſt be removed in the bark-ſtove, and treated in the ſame manner as the Ananas, or Pine Apple, with which management they will make good progreſs; but after the firſt winter, they may be placed upon ſtands in the dry ſtove, though they will thrive much better if they are conſtantly kept in the tan-bed, and treated like the Ananas, and will flower in three or four years; whereas thoſe in the dry ſtove will not flower in twice that time.

The other parts of their culture is only to ſhift them into freſh earth when they require it; but they ſhould by no means be put into large pots, for they will not thrive if they are over-potted; nor muſt they have much wet, eſpecially in winter.

Theſe plants make a pretty variety in the hot-houſe, ſo thoſe who have room, may allow a plant or two of each ſort to have a place in their collection of exotic plants.

BROOM, the common. See Spartium.

BROOM, the Spaniſh. See Spartium and Genista.

BROWALLIA. Lin. Gen. Plant. 691. Hort. Cliff. 318.

The Characters are,

The empalement is tubulous, of one leaf, and indented at the top in five unequal parts. The flower is funnel-ſhaped, of one leaf, having a cylindrical tube twice the length of the empalement; the upper part is ſpread open, and divided into five parts, the upper ſegment or lip being a little larger than the others, which are equal. It hath four ſtamina included in the chaps of the petal, the two upper being very ſhort, and the two under broad, longer, and reflexed to the mouth of the tube, which incloſe them; theſe are terminated by ſingle incurved ſummits. In the center is ſituated an oval germen, ſupporting a ſlender ſtyle the length of the tube, crowned by a thick, compreſſed, indented ſtigma. The empalement afterward becomes an oval obtuſe veſſel with one cell, opening at the top in four parts, and filled with ſmall compreſſed ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhort ſtamina, and the ſeeds included in a capſule.

The Species are,

1. Browallia (*Demiſſa*) pedunculis unifloris. Hort. Cliff. 318. *Browallia with one flower on a foot-ſtalk.* The title of Browallia was given to it by Dr. Linnæus, in honour of profeſſor Browall, of Amſterdam.

2. Browallia (*Elata*) pedunculis unifloris multifloriſque. Lin. Sp. 880. *Browallia with one flower on each foot-ſtalk, and ſometimes many.*

The ſeeds of the firſt ſort were ſent me by Mr. Robert Millar, from Panama, in the year 1735; which ſucceeded in the Chelſea garden, where it has continued to flower, and produce ſeeds every year, but the plants are annual, ſo periſh in autumn: the ſeeds of this plant muſt be ſown upon a hot-bed in the ſpring, and the plants brought forward on another, otherwiſe they will not perfect their ſeeds in England. Some of theſe plants may be tranſplanted in June into the borders of the flower-garden, where, if the ſeaſon proves warm, they will flower and perfect ſeeds; but leſt theſe ſhould fail, there ſhould be two or three plants kept in the ſtove for that purpoſe. The plants uſually grow about two feet high, and ſpread out into lateral branches, garniſhed with oval leaves which are entire, ending in a point, having ſhort foot-ſtalks. Toward the end of the branches the flowers are produced ſingly, upon pretty long foot-ſtalks, ariſing from the wings of the leaf. Theſe have a ſhort empalement of one leaf, which is cut into five parts; out of the center of the empalement the flower ariſes, which is crooked and bent downward; the top of the tube is ſpread open, and the brim, or open part of the flower, has ſome reſemblance to a lipped flower, being irregular. It is of a bright blue colour, ſometimes inclining to a purple or red, and often there are flowers of three colours on the ſame plant. When theſe fall away, the germen in the center becomes an oval capſule of one cell, filled with ſmall, brown, angular ſeeds. It flowers in July, Auguſt, and September, and the ſeeds are ripe in five or ſix weeks after.

When this plant was firſt raiſed in the Chelſea garden, I gave it the title of Dalea, in honour to Mr. Dale, an eminent botaniſt, and a great friend of Mr. Ray's. By this title it was delivered to the Royal Society, and printed in the Philoſophical Tranſactions, and alſo in the catalogue of the Chelſea garden: and by the ſame I communicated the ſeeds to Doctor Linnæus, who afterward changed the name to Browallia, and printed it in the catalogue of Mr. Clifford's garden; where there is a figure of it exhibited, ſo that this latter title is become almoſt univerſal among botaniſts.

The ſecond ſort grows naturally in Peru, from whence the younger Juſſieu ſent the ſeeds; this plant riſes about the ſame height as the firſt, but hath ſtronger ſtalks, and ſends out a greater number of branches, ſo is much more buſhy than that; the flowers are produced upon foot-ſtalks, which proceed from the wings of the leaves; ſome of theſe foot-ſtalks ſuſtain one, others three, or more flowers, of a dark blue colour; theſe are ſucceeded by oval capſules, filled with ſmall angular ſeeds.

This plant is annual, and requires the ſame culture as the firſt ſort, with which it will produce plenty of ſeeds.

BRUNELLA, Self-heal. See Prunella.

BRUNSFELSIA. Plum. Nov. Gen. 12. Lin. Gen. Plant. 230. This plant takes its name from Dr. Brunsfelſius, a famous phyſician.

The Characters are,

The empalement is permanent, bell-ſhaped, and of one leaf, which is cut into five blunt ſegments at the top. The flower is of one leaf, and funnel-ſhaped, having a long tube, but ſpreads open at the top, where it is divided into five obtuſe ſegments; it hath five ſtamina the length of the tube, which are inſerted in the petal, and are terminated by oblong ſummits. In the center is placed a ſmall round germen, ſupporting a ſlender ſtyle the length of the tube, which is crowned by a thick ſtigma. The empalement afterward becomes a globular berry with one cell, incloſing a great number of ſmall ſeeds, which adhere to the ſkin of the fruit.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and but one ſtyle.

We know but one Species of this genus, viz.

Brunsfelsia. (*Americana.*) Lin. Sp. Plant. 191. *American Brunsfelſia.* Brunsfelſia flore albo, fructu croceo molli. Plum. Nov. Gen. 12.

This plant riſes with a woody ſtem to the height of eight or ten feet, ſending out many ſide branches, which are covered with a rough bark, garniſhed with oblong leaves which are entire, and on the lower part of the branches come out ſingle; but toward their extremity, they are placed on every ſide, and are unequal in ſize. At the extremity of the branches, the flowers are produced, generally three or four together. Theſe are almoſt as large as thoſe of the greater Bindweed, but have very long, narrow, hairy tubes; the brim is expanded in the form of the Convolvulus, but is deeply divided into five obtuſe ſegments, which are indented on their border. After the flower is paſt, the empalement turns to a round ſoft fruit, incloſing many oval ſeeds, which are ſituated cloſe to the cover or ſkin, to which they adhere.

This plant grows naturally in moſt of the ſugar iſlands in America, in which places they call it Trumpet Flower; but in the Engliſh gardens, it is at preſent very rare. It may be propagated from ſeeds, which ſhould be ſown early in the ſpring in pots filled with light earth, and plunged into a hot-bed of tanners bark, obſerving to water the earth as often as you find it neceſſary. When the plants are come up, they ſhould be tranſplanted each into a ſeparate ſmall pot filled with freſh light earth, and plunged into the hot-bed again, obſerving to water and ſhade the plants until they have taken root; after which they muſt have air admitted to them every day, in proportion to the warmth of the ſeaſon. When the plants have advanced ſo high as not to be contained in the frames, they ſhould be removed into the bark-ſtove, where, during the ſummer months, they ſhould have a large ſhare of free air, but in winter they muſt be kept very cloſe. With this management the plants will be very ſtrong, and produce their flowers every ſeaſon. Theſe plants may alſo be increaſed by planting cuttings in the ſpring, before they begin to make new ſhoots, in pots filled with freſh light earth, and plunged into a hot-bed of tanners bark, obſerving to water and ſhade them until they have taken root; after which, they muſt be managed as hath been directed for other tender exotic plants from the ſame countries.

BRUSCUS. See Ruscus.

BRYONIA [this plant is ſo called from Βρύον, moſs, or hair, becauſe it bears a flower which is ſoft and hairy,] Briony.

The Characters are,

It hath male and female flowers on the ſame plant. The male flowers have an empalement of one leaf, which is bell-ſhaped, and indented in five parts at the top. The flower is bell-ſhaped, adhering to the empalement, and cut into five ſegments. It hath three ſhort ſtamina and five ſummits, two of the ſtamina having double ſummits, and the other one. The female flowers ſit upon the germen, and have a deciduous empalement, but the petal is the ſame with thoſe of the male. The germen which is under the flower, ſupports a trifid ſpreading ſtyle, crowned by a ſpreading indented ſtigma. The germen afterward becomes a ſmooth globular berry, containing oval ſeeds adhering to the ſkin.

This genus of plants is ranged in the tenth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Syngeneſia, from its having male and female flowers on the ſame plant, and the ſtamina joined with the ſtyle.

The Species are,

1. Bryonia (*Alba*) foliis palmatis utrinque calloſo-ſcabris. Hort. Cliff. 453. *Bryony with palmated leaves, which are rough and callous on both ſides.* Bryonia aſpera, ſive alba baccis rubris. C. B. P. 297. *White Briony with red berries.*
2. Bryonia (*Africana*) foliis palmatis quinquepartitis utrinque lævibus, laciniis pinnatifidis. Lin. Sp. 1438. *Briony with palmated leaves cut into five ſegments, which are ſmooth on each ſide.* Bryonia Africana laciniata, tuberoſa radice, floribus herbaceis. Par. Bat. 107.
3. Bryonia (*Cretica*) foliis palmatis ſupra calloſo-punctatis. Hort. Cliff. 453. *Cretan Briony with palmated leaves, whoſe upper ſurface is ſtudded with callous ſpots.* Bryonica Cretica maculata. C. B. P. 297.
4. Bryonia (*Racemoſa*) foliis trilobis ſuprà calloſo-punctatis, fructu racemoſo ovali. *Briony with trilobate leaves, whoſe upper ſides are marked with callous ſpots, and oval fruit growing in bunches.* Bryonia olivæ fructu rubro. Plum. Cat. 3.
5. Bryonia (*Variegata*) foliis palmatis, laciniis lanceolatis, ſuprà punctatis infernè lævibus, fructu ovato ſparſo. *Briony with palmated leaves, whoſe ſegments are ſpear-ſhaped, and their upper ſide ſpotted, but their under ſmooth, and an oval ſcattered fruit.* Bryonia Americana fructu variegato. Dillen.
6. Bryonia (*Bonarienſis*) foliis palmatis quinquepartitis hirſutis, laciniis obtuſis. *Briony with hairy palmated leaves divided into five parts, and obtuſe ſegments.* Bryonia Bonarienſis fici folio. Hort. Elth. 58.

The firſt ſort grows upon dry banks, under hedges, in many parts of England; but may be cultivated in a garden for uſe, by ſowing the berries, in the ſpring of the year, in a dry poor ſoil; where they will in two years time, grow to be large roots, provided they are not too cloſe. The roots of this plant have been formerly, by impoſtors, brought into an human ſhape, and carried about the country, and ſhewn for Mandrakes to the common people, who were eaſily impoſed on by their credulity, and theſe got good livings thereby. The method which theſe people practiſed, was to find a young thriving Briony plant, then they opened the earth all round the plant, being careful not to diſturb the lower fibres; and (being prepared with ſuch a mould, as is uſed by the people who make plaſter figures) they fixed the mould cloſe to the root, faſtening it with wire, to keep it in its proper ſituation; then they filled the earth about the root, leaving it to grow to the ſhape of the mould, which is effected in one ſummer; ſo that if this be done in March, by September it will have the ſhape. The leaves of this plant are alſo often impoſed on the people in the market for Mandrake leaves, although there is no reſemblance between them, nor any agreement in quality.

The ſecond and fourth ſorts are perennial plants, their roots remaining ſeveral years, but their branches decay every winter. Theſe roots muſt be planted in pots filled with freſh light earth, and in winter muſt be placed in the green-houſe, to protect them from froſt and great rains; which would deſtroy them, if they were expoſed thereto. During the winter ſeaſon, they ſhould have very little water given them; but in ſummer, when they are expoſed to the open air, they muſt be frequently refreſhed with water in dry weather. They flower in July, and in warm ſummers will perfect their ſeeds.

The third, fifth, and ſixth ſorts, are annual plants; theſe muſt be raiſed on a hot-bed early in the ſpring, and when the plants are about three inches high, they ſhould be each tranſplanted into a ſmall pot filled with freſh light earth, and plunged into a hot-bed of tanners bark, obſerving to water and ſhade them until they have taken root. When the plants are grown ſo large, as to ramble about on the ſurface of the bed, and begin to entangle with other plants, they ſhould be ſhifted into larger pots, and placed in the bark-ſtove, where their branches may be trained to the wall, or againſt an eſpalier, that they may have ſun and air, which is abſolutely neceſſary for their producing fruit. When theſe plants are full of fruit, they make a pretty variety in the ſtove amongſt other exotic plants.

The ſecond and fourth ſorts are alſo propagated from ſeeds, which ſhould be ſown on a hot-bed; and when the plants are fit to tranſplant, they ſhould be put into pots; and after they have taken root, ſhould be inured to bear the open air by degrees; where they may remain during the ſummer ſeaſon, but in winter they muſt be ſheltered under a hot-bed frame. The fourth ſort is much tenderer than the former.

BRYONIA NIGRA. See Tamnus.

BUBON. Lin. Gen. Plant. 312. Apium. C. B. 154. Ferula. Herm. Par. 163. Macedonian Parſley.

The Characters are,

It hath an umbelliferous flower; the greater, or general umbel, is compoſed of about ten ſmaller, thoſe which are ſituated in the middle being the ſhorteſt; the ſmall umbels have near twenty rays. The general involucrum hath five pointed ſpear-ſhaped leaves, which ſpread open and are permanent; thoſe of the ſmaller umbels, conſiſt of many little leaves of the ſame length with the umbel: the empalement of the flower is permanent, ſmall, and indented in five parts; the flower is compoſed of five ſpear-ſhaped petals, which turn inward; it hath five ſtamina the length of the petals, terminated by ſingle ſummits. The oval germen is ſituated below the flower, ſupporting two briſtly ſtyles which are permanent, and the length of the ſtamina, crowned by obtuſe ſtigma. The germen afterward becomes an oval, channelled, hairy fruit, dividing in two parts, each having an oval ſeed, plain on one ſide, but convex on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The Species are,

1. Bubon (*Macedonicum*) foliolis rhombeo-ovatis crenatis, umbellis numeroſiſſimis. Hort. Cliff. 95. *Bubon with oval, rhomboid, crenated leaves, and many umbels.* Apium Macedonicum. C. B. P. 154. *Macedonian Parſley.*
2. Bubon (*Rigidius*) foliolis linearibus. Hort. Cliff. 95. *Bubon with very narrow leaves.* Ferula durior ſive rigidis & breviſſimis foliis. Boccon. Muſ. 2. 84.
3. Bubon (*Galbanum*) foliolis rhombeis dentatis glabris ſtriatis umbellis paucis. Hort. Cliff. 96. *Bubon with ſmooth rhomboid leaves and few umbels.* Ferula Africana galbanifera folio & facie liguſtici. Par. Bat. 163.
4. Bubon (*Gumiferum*) foliolis glabris inferioribus rhombeis ſerratis, ſuperioribus pinnatifidis tridentatis. Prod. Leyd. 100. *Bubon with ſmooth rhomboid under leaves which are ſawed, and upper leaves winged and indented in three parts.* Ferula Africana galbanifera folio myrrhidis. Hort. Amſt. p. 115.

The firſt ſends out many leaves from the root, the lower growing almoſt horizontally, ſpreading near the ſurface of the ground: the foot-ſtalk of each leaf divides into ſeveral other ſmaller, garniſhed with ſmooth rhomb-ſhaped leaves, which are of a bright, pale, green colour, indented on their edges. In the center of the plant ariſes the flower-ſtem, which is little more than a foot high, dividing into many branches, each being terminated by an umbel of white flowers, which are ſucceeded by oblong hairy ſeeds. It flowers in July, and the ſeeds ripen in autumn, ſoon after which the plant decays.

This plant in warm countries is biennial; the plants which riſe from ſeeds one year, produce flowers and ſeeds the next, and then periſh: but in England, they ſeldon flower till the third or fourth year from ſeed; but whenever the plant flowers, it always dies.

It is propagated by ſeeds, which ſhould be ſown on a bed of light ſandy earth, either early in the autumn, or in April; and if the ſeaſon prove warm and dry, the ground ſhould be ſhaded in the heat of the day, and frequently refreſhed with water, which is a ſure method to bring up the plants; for where this is not practiſed, the ſeeds often fail, or remain long in the ground. When the plants come up, they will require no other care but to be kept clean from weeds, till the beginning of October, when they ſhould be carefully taken up, and planted in a warm border of dry ground; and a few of them ſhould be put into pots, that they may be ſheltered under a frame in winter; for in ſevere froſt, thoſe which are expoſed to the open air, are frequently killed; though, in moderate winters, they will live abroad without covering; but it is a ſecure way to preſerve the ſpecies, to keep two or three plants in pots, in ſhelter, during the winter, leſt thoſe abroad ſhould be deſtroyed. The ſeeds of this plant is one of the ingredients in Venice treacle.

The ſecond ſort grows naturally in Sicily, from whence I received the ſeeds. This is a low perennial plant, having ſhort ſtiff leaves, which are very narrow: the flower-ſtalk riſes near a foot high, which is terminated by an umbel of ſmall white flowers, which are ſucceeded by ſmall, oblong, channelled ſeeds. It flowers in June, and the ſeeds ripen in September. It is propagated by ſeeds, and ſhould have a dry ſoil and a warm ſituation, where the plants will continue ſeveral years. It is a plant of little beauty or uſe, ſo is only preſerved for the ſake of variety.

The third ſort riſes with an upright ſtalk to the height of eight or ten feet, which at bottom is ligneous, having a purpliſh bark, covered with a whitiſh powder, which comes off when handled; the upper part of the ſtalk is garniſhed with leaves at every joint, the foot-ſtalks half embracing them at their baſe; branching out into ſeveral ſmaller, like thoſe of the common Parſley, and are ſet with leaves like thoſe of Lovage, but ſmaller, of a grey colour; the top of the ſtalk is terminated by an umbel of yellow flowers, which are ſucceeded by oblong channelled ſeeds, having a thin membrane or wing on their border. It flowers in Auguſt, but hath not produced ſeeds in England. When any part of the plant is broken, there iſſues out a little thin milk of a cream colour, which hath a ſtrong ſcent of Galbanum.

The fourth ſort riſes with a ligneous ſtalk about two feet high, garniſhed with leaves at each joint, which branch out like the former; but the ſmall leaves or lobes are narrow and indented, like thoſe of Baſtard Hemlock. The ſtalk is terminated by a large umbel of ſmall white flowers, which are ſucceeded by ſeeds like thoſe of the former ſort.

Theſe plants are both natives of Africa. They are propagated by ſeeds, which ſhould be ſown in pots filled with light loamy earth, as ſoon as they arrive; which, if it happens toward autumn, ſhould be plunged into a bed of tanners bark, where the heat is gone, and ſcreened from froſt in winter. In the ſpring the plants will come up, and by the middle of April will be fit to remove, when they ſhould be carefully ſhaken out of the pots, being careful not to tear off their roots, and plant them each into a ſeparate ſmall pot, filled with the ſame earth as before; then plunge the pots into the tan again, and water them to ſettle the earth to the roots of the plants, and ſhade them from the ſun in the day time, until they have taken new root; after this they muſt be inured gradually to bear the open air; into which they ſhould be removed in June, and placed with other exotic plants in a ſheltered ſituation, where they may remain till autumn, when they muſt be removed into the green-houſe, and placed where they may enjoy as much of the ſun and air as poſſible, but defended from froſt.

In winter theſe plants ſhould have but little water given them, for much wet is very injurious to them: in ſummer, when they are expoſed to the open air, they muſt be frequently refreſhed with water in dry weather; but at no time ſhould have too much wet, for that will rot their roots.

Theſe plants make a pretty variety in the green-houſe in winter, and when they are placed abroad in the ſummer with other green-houſe plants, they have a good effect, eſpecially when they are grown to a large ſize. They generally flower the third year from ſeeds, but their flowers are produced ſo late in ſummer, that the ſeeds have ſeldomtime to form before the cold comes on in the autumn; at leaſt for ſome years paſt, as the ſeaſons have been cold and moiſt; but in warm ſummers, the fourth ſort will perfect ſeeds, if they ſtand in a warm ſheltered ſituation.

The Galbanum of the ſhops is ſuppoſed to be procured from the third ſort, for upon breaking the leaves, the juice which flows out from the wound, hath a ſtrong odour of the Galbanum, which is a confirmation of it.

BUCKSHORN, or HARTSHORN. See Plantago.

BUDDING. See Inoculating.

BUDDLEJA. Houſt. MSS. Lin. Gen. Plant. 131.

The Characters are,

It hath a ſmall permanent empalement, which is ſlightly cut at the top into five acute parts. The flower is of one leaf, bell-ſhaped, and quadrifid, the petal being ſtretched out beyond the empalement; it hath four ſhort ſtamina, which are placed at the diviſions of the petal, terminated by ſhort ſummits. The oblong germen is ſituated in the center, ſupporting a ſhort ſtyle, crowned by an obtuſe ſtigma; the germen afterward becomes an oblong capſule, having two cells filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and but one ſtyle.

The Species are,

1. Buddleja (*Americana*) foliis ovatis ſerratis oppoſitis floribus ſpicatis racemoſis, caule fruticoſo. *Buddleja with oval ſawed leaves, growing oppoſite, flowers growing in branching ſpikes, and a ſhrubby ſtalk.* Buddleja fruteſcens foliis conjugatis & ſerratis floribus ſpicatis luteis. Houſt. MSS.
2. Buddleja (*Occidentalis*) foliis lanceolatis acuminatis integerrimis oppoſitis, ſpicis interruptis. *Buddleja with pointed ſpear-ſhaped leaves which are entire, placed oppoſite, and broken ſpikes of flowers.* Buddleja fruteſcens foliis oblongis mucronatis, floribus ſpicatis albis. Houſt. MSS.

The firſt ſort grows naturally in Jamaica, and moſt of the other iſlands in America, where it riſes to the height of ten or twelve feet, with a thick woody ſtem, covered with a grey bark; this ſends out many branches toward the top, which come out oppoſite; as are alſo the leaves ſo placed, which are oval, and covered with a brown hairy down. At the end of the branches the flowers are produced in long cloſe ſpikes, branching out in cluſters, which are yellow, conſiſting of one leaf, cut into four ſegments; theſe are ſucceeded by oblong capſules, filled with ſmall ſeeds. This was ſent me by Dr. Houſtoun, from Jamaica, in 1730, under the title Verbaſci folio minor arbor, floribus ſpicatis luteis tetrapetalis ſeminibus ſingulis oblongis in ſingulis vaſculis ſiccis. Sloan. Cat. Jam. 139. But as this was a vague title, the doctor afterward conſtituted a new genus, and gave it the title of Buddleja, in memory of Mr. Buddle, an eminent Engliſh botaniſt.

The ſecond ſort the ſame gentleman ſent me from Carthagena, where it grows naturally. This is the Ophioxylon Americanum, foliis oblongis mucronatis, leviter ſerratis bardanæ inſtar, ſubtus lanuginoſis. Pluk. Alm. 270. tab. 210. fig. s. and was by Plukenet ſuppoſed to be the ſame with the former, which was denied by Sir Hans Sloane in his Hiſtory of Jamaica.

This ſort riſes much taller than the firſt, and divides into a great number of ſlender branches, which are covered with a ruſſet hairy bark, garniſhed with long ſpear-ſhaped leaves, ending in ſharp points: theſe grow oppoſite at every joint; at the end of the branches are produced branching ſpikes of white flowers, growing in whorls round the ſtalks, with ſmall ſpaces between each. It hath long, narrow, ſpear-ſhaped leaves growing between the ſpikes, whereas thoſe of the other ſort are naked. The leaves of this are much thinner than thoſe of the firſt ſort, and have ſcarce any down on their under ſide; the ſpikes of flowers grow more erect, ſo form a large looſe ſpike at the end of every branch.

The plants grow naturally in gullies or other low ſheltered ſpots, in the Weſt-Indies, their branches being too tender to reſiſt the force of ſtrong winds, ſo are rarely ſeen in open ſituations.

They are propagated by ſeeds, which ſhould be obtained from the countries where they naturally grow, for they do not perfect them in England. Theſe ſhould be brought over in their capſules or pods, for thoſe which are taken out before they are ſent ſeldom grow. They ſhould be ſown in ſmall pots, filled with rich light earth, and very lightly covered with the ſame; for as theſe ſeeds are very ſmall, ſo if they are buried deep in the ground, they periſh. The pots ſhould be plunged into a moderate hot-bed, and muſt be every third or fourth day gently watered, being very careful not to waſh the ſeeds out of the ground, by too haſty watering them. If the ſeeds are freſh and good, the plants will come up in about ſix weeks, provided they are ſown in the ſpring; and if they grow kindly, will be large enough to tranſplant in about two months after. Then they ſhould be carefully ſeparated, and each planted into a ſmall pot, filled with light rich earth, and plunged into the hot-bed again, obſerving to ſhade them from the ſun until they have taken new root, as alſo to refreſh them with water when they require it. After the plants have taken freſh root in the pots, there ſhould be freſh air admitted to them every day, in proportion to the warmth of the ſeaſon; they muſt alſo be frequently, but moderately, refreſhed with water. If the plants thrive well, they will have filled theſe ſmall pots with their roots by the middle of Auguſt, at which time it will be proper to ſhift them into pots one ſize larger, that they may have time to take good root again, before the cold weather comes on. When theſe are new potted, the tan ſhould be turned over to renew the heat; and if it is wanted, ſome freſh tan muſt be added to the bed, to encourage the roots of the plants. In this bed they may remain till autumn, when they muſt be removed into the ſtove, and plunged into the tan-bed; where they muſt conſtantly remain, for they are too tender to thrive in this country, if they are not ſo treated. During the winter they muſt have but little water, and ſhould be kept warm; but in ſummer they ſhould have freſh air admitted to them conſtantly when the weather is warm, and frequently ſprinkled all over with water. With this management, the plants will flower the fourth year from ſeeds, and continue ſo to do every year after, and will make a good appearance in the ſtove.

BUGLOSSUM. See ANCHUSA, and LYCOPSIS.

BUGULA. Tourn. Inſt. R. H. 208. tab. 98. Ajuga. Lin. Gen. Plant. 624. Bugle.

The CHARACTERS are,

It hath a ſhort permanent empalement of one leaf, which is ſlightly cut into five parts; the flower is of one leaf, of the lip kind, having an incurved cylindrical tube; the upper lip is very ſmall, erect, and bifid; the under lip or beard is large, open, and divided into three obtuſe ſegments, the middle being large, and the two ſides ſmall; it hath four erect ſtamina, two of which are longer than the upper lip, and two ſhorter, terminated by double ſummits. In the center is ſituated the four germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by two ſlender ſtigma. The germen afterward become four naked ſeeds incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, the flower having two long, and two ſhort ſtamina, and is ſucceeded by naked ſeeds.

The SPECIES are,

1. BUGULA (*Reptans*) foliis caulinis ſemiamplexicaulibus, ſtolonibus reptatricibus. *Bugle whoſe leaves half embrace the ſtalks, and ſhoots which put out roots.* Bugula. Dod. Pempt. 135. *Common Bugle.*
2. BUGULA (*Decumbens*) foliis oblongo-ovatis, caulibus decumbentibus, verticillis diſtantibus. *Bugle with oblong oval leaves, declining ſtalks, and the whorls of flowers wide aſunder.* Bugula folio maximo flore pallide cæruleo. Boerh. Ind. alt. 1. 184.
3. BUGULA (*Pyramidalis*) foliis obtuſe-dentatis, caule ſimplici. *Bugle with blunt indented leaves, and a ſingle ſtalk.* Ajuga tetragono pyramidalis. Lin. Sp. Plant. 561.
4. BUGULA (*Genevenſis*) foliis oblongis tomentoſis, calycibus hirſutis. *Bugle with oblong woolly leaves, and hairy flower-cups.* Bugula carneo flore. Cluſ. Hiſt. 2. p. 43.
5. BUGULA (*Orientalis*) villoſa, foliis ovato-dentatis ſeſſilibus, floribus reſupinatis. *Hairy Bugle with oval indented leaves, placed cloſe to the ſtalks, and inverted flowers.* Bugula orientalis villoſa flore inverſo candido cum oris purpureis. Tourn. Cor. 14.

The firſt ſort grows naturally in woods, and ſhady moiſt places, in moſt parts of England, where it ſpreads and increaſes greatly by the ſide ſhoots, which put out roots at their joints. There are two varieties of this, one with a white, and the other a pale purple flower, which I obſerved growing in ſeveral parts of Weſtmoreland; but theſe do not differ in any other reſpect than in the colour of their flowers from the common, therefore I have only mentioned them as varieties.

The common Bugle is greatly eſteemed as a vulnerary herb, and is uſed both internally and externally; it enters as an ingredient into the vulnerary decoctions of the ſurgeons, and is commended externally, applied to ulcers. This is conſtantly mixed with the vulnerary herbs, imported from Switzerland. It is titled Conſolida Media, or *Middle Conſound.* As this grows naturally wild in great plenty, ſo it is ſeldom admitted into gardens.

The ſecond ſort grows naturally on the Alps; the leaves of this are much longer than thoſe of the common Bugle, the ſtalks are weaker, and decline on every ſide, and the whorls of flowers are much ſmaller, and are ranged at a greater diſtance. This is admitted into ſome gardens for the ſake of variety, and propagates in plenty by its trailing ſtalks. This requires a moiſt ſhady ſituation.

The third ſort grows naturally in France, Germany, and other countries, but is not a native in England. This grows about four or five inches high, with a ſingle ſtalk, which is garniſhed with leaves at each joint, placed oppoſite; theſe are oval, and indented bluntly on their edges. The flowers grow in whorls round the ſtalks, and toward the top form a cloſe thick ſpike, and are of a fine blue colour.

The fourth ſort grows naturally in many parts of Europe. This approaches near to the common Bugle, but the leaves of this are woolly, and the flower-cups are very hairy, in which the chief difference conſiſts. There are two varieties of this, one with a white, and the other a red flower.

The fifth ſort was brought from the Levant by Dr. Tournefort, and is preſerved by thoſe who are curious in collecting rare plants. There are two or three varieties of it, which only differ in the colour of their flowers.

This ſort requires a little protection in winter, therefore the plants ſhould be planted in pots filled with a loamy ſoil, and placed in a ſhady ſituation in ſummer; but in the winter they muſt be removed under a common frame, where they may enjoy as much free air as poſſible in mild weather; but in hard froſt ſhould be covered, otherwiſe they will not live thro' the winter in this country, unleſs it proves very favourable.

This may be propagated by ſeeds, which ſhould be ſown ſoon after it is ripe, in a pot filled with loamy earth, and placed in a ſhady ſituation till autumn, when it ſhould be removed under a frame, where it may be ſcreened from hard froſt. In the ſpring the plants will come up, which ſhould be tranſplanted into ſeparate pots as ſoon as they are ſtrong enough to remove, and, in ſummer, placed in the ſhade, and treated as the old plants. It flowers in May, and the ſeeds ripen the latter end of July. It may alſo be increaſed by offſets, but this is a ſlow method, becauſe the plants put out but few of them, eſpecially while they are young, ſo the other method is chiefly practiſed.

All the other ſorts are hardy enough, and are eaſily multiplied by their ſide ſhoots; theſe delight in a moiſt ſhady ſituation, where they are apt to ſpread too much, eſpecially the two firſt ſorts.

BULB [*Bulbus, Lat.* of Βολβὸς, *Gr.*] Bulbous roots are of two ſorts, viz. tunicated (or coated) and ſquamous (or ſcaly.) A tunicated root conſiſts of many coats, involving each other; as in the Onion, Tulip, &c. whoſe roots, if cut through the middle, plainly ſhew the ſeveral coats. A ſquamous root conſiſts of many ſcales, lying over each other like tiles upon a houſe, or ſcales on fiſh; of this kind are the Lily, Martagon, &c.

BULBINE. See ANTHERICUM.

BULBOCASTANUM. See BUNIUM.

BULBOCODIUM. Tourn. Cor. 50. Lin. Gen. Plant. 368.

The CHARACTERS are,

The flower hath no empalement, it is funnel-ſhaped, and compoſed of ſix petals, which are concave, having long, narrow necks, connected at the mouth, but are ſpear-ſhaped above. It hath ſix awl-ſhaped ſtamina ſhorter than the petals, and are inſerted in their middle, having incumbent ſummits. It hath an oval, blunt, three-cornered germen, ſupporting a ſlender ſtyle, crowned by three oblong erect ſtigma. The germen afterward becomes a triangular pointed capſule, having three cells, which are filled with angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle.

The Species are,

1. Bulbocodium (*Alpinum*) foliis ſubulato-linearibus. Prod. Leyd. 41. *Bulbocodium with narrow awl-ſhaped leaves.* Bulbocodium Alpinum juncifolium flore unico intus albo extus ſquallide rubente. Raii Syn. Ed. 3. p. 374.
2. Bulbocodium (*Vernum*) foliis lanceolatis, Prod. Leyd. 41. *Bulbocodium with ſpear-ſhaped leaves.* Colchicum vernum Hiſpanicum. C. B. P. 69.

The firſt ſort grows naturally upon the Alps, and alſo upon Snowdon hills, in Wales. This hath a ſmall bulbous root, which is covered with a rough hairy ſkin; from which ariſes a few long narrow leaves, ſomewhat like thoſe of the Saffron, but narrower; in the middle of theſe the flower comes out, which ſtands on the top of the foot-ſtalk, growing erect, and is ſhaped like thoſe of the Crocus, but ſmaller; the foot-ſtalk riſes about three inches high, and hath four or five ſhort narrow leaves placed alternately upon it below the flower. This flowers in March, and the ſeeds are ripe in May, when it grows in a garden, but where it grows naturally it is much later.

The ſecond ſort grows naturally in Spain, but hath been long cultivated in gardens. It hath a bulbous root, ſhaped like thoſe of the Snowdrop, covered with a brown ſkin, ſending out three or four ſpear-ſhaped concave leaves, between which comes out the flower, ſtanding on a very ſhort foot-ſtalk, compoſed of ſix petals, three ſtanding on the outſide, and three within between the other; theſe, when they firſt appear, are of a pale colour, but afterward change to a bright purple; when theſe decay, they are ſucceeded by triangular ſeed-veſſels, which are full of ſmall roundiſh ſeeds. It produces the flowers about the ſame time with the firſt.

Theſe plants are propagated by offsets, in the ſame manner as other bulbous rooted flowers. The time to remove them, is ſoon after their leaves decay, but the roots may be kept out of the ground two months without prejudice at that ſeaſon. They ſhould not be removed oftener than every third year, for their roots do not multiply very faſt, ſo by ſuffering them to remain, they will flower much ſtronger, and make a greater increaſe than if they are often taken up.

The firſt ſort requires an eaſtern aſpect, for if it hath too much ſun, it will not thrive; but the ſecond ſhould have a warmer ſituation, ſo may be planted in a ſouth border, and ſhould have a freſh loamy ſoil, but not dunged. They may alſo be propagated by ſeeds, which ſhould be ſown in pots filled with freſh loamy earth in September, and the latter end of October, the pots ſhould be placed under a frame, to protect them from ſevere froſt; in the ſpring the plants will appear, when they may be removed out of the frame, and placed where they may have the morning ſun, but ſcreened from the ſouth. In very dry weather, they ſhould be refreſhed now and then with a little water, while their leaves continue green; but, when theſe decay, the pots ſhould be removed to a ſhady ſituation, where they may remain till autumn, obſerving to keep them clean from weeds. In October there ſhould be a little freſh earth laid on the ſurface of the other, and the pots placed in ſhelter again till the following ſpring, when they muſt be treated in the ſame manner as the former year, till their leaves decay; then the roots ſhould be carefully taken up, and tranſplanted into the borders of the flower-garden, treating them as the old roots; the ſpring following they will produce their flowers.

BUNIAS. Lin. Gen. Plant. 737.

The Characters are,

The empalement is compoſed of four oblong ſpreading leaves, which fall away. The flower hath four petals, placed in form of a croſs, which are oval, and double the length of the empalement, joined at their baſe, and erect. It hath ſix ſtamina the length of the cup, two of which are oppoſite, and ſhorter than the other four, terminated by erect ſummits, which are bifid at their baſe. In the center is ſituated an oblong germen, having no ſtyle, but crowned by an obtuſe ſtigma. The germen afterward becomes an irregular, ſhort, oval pod, with four angles, one or other of which is prominent and pointed, incloſing one or two roundiſh ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa, the flowers having four long and two ſhort ſtamina, and are ſucceeded by pods.

The Species are,

1. Bunias (*Orientalis*) ſiliculis ovatis gibbis verrucoſis. Lin. Sp. Plant. 670. *Bunias with oval convex pods, having protuberances.* Crambe Orientalis dentis leonis folio erucaginis facie. Tourn. Cor. 14.
2. Bunias (*Erucago*) ſiliculis tetragonis angulis bicriſtatis. Lin. Sp. Plant. *Bunias with ſhort four-cornered pods, whoſe angles are doubly creſted.* Erucago Monſpeliaca ſiliqua quadrangula echinata. C. B. P. 99.
3. Bunias (*Cakile*) ſiliculis ovatis lævibus ancipitibus. Lin. Sp. Plant. 670. *Bunias with ſmooth oval pods, ſtanding on each ſide the ſtalk.* Eruca maritima Italica, ſiliqua haſtæ cuſpidi ſimili. C. B. P. 99.

The firſt ſort grows naturally in the Levant, from whence Dr. Tournefort ſent the ſeeds to the Royal Garden at Paris. This hath a perennial root, and an annual ſtalk. It ſends out many oblong leaves, which ſpread on every ſide near the ground, and are deeply jagged on their edges, like thoſe of the Dandelion; from between theſe ariſe the ſtalks, which grow upwards of two feet high, ſending out branches garniſhed at each joint by one oblong ſharp-pointed leaf, eared at the baſe, where they ſit cloſe to the ſtalk. The branches are terminated by long looſe ſpikes of yellow flowers, compoſed of four leaves, ſhaped like thoſe of the Cabbage; theſe are ſucceeded by ſhort, oval, rough pods, ending in a point, incloſing one round ſeed. It flowers in June, and the ſeeds are ripe in September.

The ſecond ſort grows naturally in the ſouth of France and Italy; this is an annual plant, ſending out many branches, which ſpread, and incline toward the ground; garniſhed with glaucous leaves, which are deeply divided into many ſegments, almoſt like thoſe of Swines Creſs. The flowers are produced ſingly from the wings of the leaves, toward the extremity of the branches; theſe are very ſmall, of a pale yellowiſh colour, compoſed of four petals, placed in form of a croſs, which are ſucceeded by ſhort pods, which are creſted on each ſide, containing one or two roundiſh ſeeds.

The third ſort grows naturally about Montpelier; this is alſo an annual plant, ſending out many oblong leaves near the root, which are hairy, deeply cut on each ſide, and ſpread on the ground; between theſe ariſe two or three ſtalks, which grow a foot and a half high, ſending out ſeveral ſide branches, garniſhed with oblong rough leaves, indented on their edges; the upper part of the branches are deſtitute of leaves, but have flowers placed alternately on each ſide, ſtanding on ſhort foot-ſtalks, which are purple, and compoſed of four petals; theſe are ſucceeded by oval-pointed pods, containing one or two roundiſh ſeeds; there is a variety of this with narrow leaves.

Theſe plants are all propagated by ſeed: the firſt ſort may be ſown where the plants are deſigned to remain, in the beginning of April, and when the plants come up, they ſhould be thinned, leaving them two feet aſunder, after which they will require no other care but to keep them clean from weeds. The ſecond year they will produce flowers and ſeeds, and the roots will abide many years after.

The other two ſorts muſt be ſown where they are to remain, but the beſt time is in autumn, becauſe thoſe which are ſown in the ſpring often fail, or do not come up time enough to perfect their ſeeds. Theſe require no other culture but to keep them clean from weeds, and thin the plants to one foot diſtance.

BUNIUM. Lin. Gen. Plant. 298. Bulbocaſtanum. Tourn. Inſt. 312. tab. 161. Pig Nut, or Earth Nut.

The CHARACTERS are,

The great or general umbel is compoſed of near twenty rays or ſmall umbels, which are ſhort, and cloſe together. The involucrum of the great umbel is compoſed of many ſhort narrow leaves, thoſe of the ſmaller are the ſame, but are as long as the umbels. The proper empalement of the flower is ſcarce diſcernible. The rays of the great umbel are uniform. The flowers have five heart-ſhaped petals which are equal, and turn inward; they have five ſtamina which are ſhorter than the petals, terminated by ſingle ſummits; the oblong germen is ſituated below the receptacle, ſupporting two reflexed ſtyles, crowned by a blunt ſtigma. The germen afterward becomes an oval fruit, dividing in two parts, containing two oval ſeeds, plain on one ſide, and convex on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs of plants, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The SPECIES are,

1. BUNIUM (*Bulbocaſtanum*) bulbo globoſo. Sauv. Monſp. 256. *Earth Nut with a globular root.* Bulbocaſtanum majus folio Apii. C. B. P. 162.
2. BUNIUM (*Creticum*) radice turbinato. *Earth Nut with a turbinated root.* Bulbocaſtanum Creticum radice napi-formi. Tourn. Cor.
3. BUNIUM (*Saxatile*) foliis tripartitis filiformibus linearibus. *Earth Nut with very narrow tripartite leaves.* Bulbocaſtanum minus ſaxatile Peucedani folio. Tourn. Inſt. 312.

The firſt ſort grows naturally in moiſt paſtures, and in woods, in many parts of England. Of this there is a variety, ſuppoſed to be larger than that which grows commonly here, but I could never obſerve any eſſential difference between them; for in ſome places it is found much larger than in others, but when they have been tranſplanted into a garden, they have proved to be the ſame. This hath a tuberous ſolid root which lies deep in the ground, and puts out fibres from the bottom and ſides. The leaves are finely cut, and lie near the ground. The ſtalk riſes a foot and a half high, which is round, channelled, and ſolid, the lower part being naked; but above, where it branches out, there is one leaf placed below every branch, which are cut into finer ſegments than thoſe below. The flowers are white, and ſhaped like thoſe of other umbelliferous plants; the ſeeds are ſmall, oblong, and when ripe are channelled. It flowers in May, and the ſeeds ripen in July, ſoon after which, the whole herb decays to the ground.

The roots of this ſort are frequently dug up, and by the poorer ſort of people are eaten raw, having much reſemblance in taſte to the Cheſnut, from whence it had the title of Bulbocaſtanum. Theſe roots, when boiled, are very pleaſant and delicious, and are ſuppoſed to afford great nouriſhment. The ſwine are very fond of theſe roots, and will root them up, when they are admitted where they grow, and will ſoon become fat with feeding on them.

The ſecond ſort was diſcovered by Dr. Tournefort in the iſland of Crete, but it grows naturally in many other parts of the Levant. I received dried ſamples and ſeeds of this from Zant, where it grows plentifully.

The third ſort I received from the Alps. This is a very low plant, ſeldom riſing above ſix inches high. Theſe plants delight to grow among graſs, ſo cannot be made to thrive well long in a garden.

BUPHTHALMUM. Lin. Gen. Plant. 876. Aſteriſcus. Tourn. Inſt. R. H. tab. 285. Ox-eye.

The CHARACTERS are,

The empalement is different in the ſeveral ſpecies. It hath a compound radiated flower, compoſed of hermaphrodite and female florets. The hermaphrodite florets compoſe the diſk; theſe are funnel-ſhaped, and cut into five parts at the brim, which ſpread open, and have five ſlender ſtamina, which are ſhort, terminated by cylindrical ſummits. In the center is ſituated an oval compreſſed germen, ſupporting a ſlender ſtyle, crowned by a thick ſtigma. The germen afterward becomes an oblong ſeed, whoſe border is cut into many parts; the female flowers which compoſe the rays (or border) are ſtretched out on one ſide like a tongue, which ſpreads open, and is indented at the top in three parts; theſe have no ſtamina, but a double-headed germen, ſupporting a ſlender ſtyle, crowned by two oblong ſtigma. The germen becomes a ſingle compreſſed ſeed, cut on each ſide.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua, the flowers having hermaphrodite and female florets, included in one common empalement, which are both fruitful.

The SPECIES are,

1. BUPHTHALMUM (*Helianthoides*) calycibus foliolis, foliis oppoſitis ovatis ſerratis triplinerviis caule herbaceo. Hort. Upſal. 264. *Ox-eye with a leafy empalement, oval ſawed leaves placed oppoſite, having three veins, and an herbaceous ſtalk.* Chryſanthemum Scrophulariæ folio Americanum. Pluk. Alm. 99. tab. 22. fig. 1.
2. BUPHTHALMUM (*Grandiflorum*) foliis alternis lanceolatis ſubdenticulatis glabris, calycibus nudis caule herbaceo. Hort. Cliff. 415. *Ox-eye with ſmooth ſpear-ſhaped leaves (indented below,) naked empalements, and an herbaceous ſtalk.* Aſteroides Alpina ſalicis folio glabro. Tourn. Cor. 51. tab. 487.
3. BUPHTHALMUM (*Salicifolium*) foliis alternis lanceolatis ſubſerratis villoſis calycibus nudis caule herbaceo. Hort. Cliff. 414. *Ox-eye with ſpear-ſhaped leaves placed alternate, ſawed below and hairy, naked empalements, and an herbaceous ſtalk.* Aſter luteus major, foliis ſucciſæ. C. B. P. 266.
4. BUPHTHALMUM (*Spinoſum*) calycibus acutè folioſis, ramis alternis, foliis lanceolatis amplexicaulibus integerrimis caule herbaceo. Hort. Cliff. 414. *Ox-eye with acute leafy empalements, branches placed alternate, and entire leaves embracing the ſtalks, which are herbaceous.* Aſteriſcus annuus, foliis ad florem rigidis. Tourn. Inſt. 497.
5. BUPHTHALMUM (*Seſſile*) floribus axillaribus calycibus folioſis, ſpinis terminalibus, foliis oblongis obtuſis ſeſſilibus. *Ox-eye with flowers coming from the forks of the branches, leafy empalements ending with ſpines, and oblong blunt leaves growing cloſe to the branches.* Aſteriſcus annuus maritimus patulus. Tourn. Inſt. 498.
6. BUPHTHALMUM (*Maritimum*) calycibus obtuſè folioſis pedunculatis, ramis foliis alternis, ſpatulatis caule herbaceo. Hort. Cliff. 414. *Ox-eye with blunt leafy empalements, having foot-ſtalks, alternate leaves, and an herbaceous ſtalk.* Aſteriſcus maritimus perennis patulus. Tourn. Inſt. 498.
7. BUPHTHALMUM (*Aquaticum*) calycibus obtuſè folioſis ſeſſilibus axillaribus, foliis alternis oblongis obtuſis caule herbaceo. Hort. Cliff. 414. *Ox-eye with blunt leafy empalements ſitting cloſe to the forks of the ſtalk, oblong blunt leaves, and an herbaceous ſtalk.* Aſteriſcus annuus Luſitanicus odoratus. Boerh. Ind. alt. 105.
8. BUPHTHALMUM (*Fruteſcens*) foliis oppoſitis lanceolatis petiolatis bidentatis caule fruticoſo. Hort. Cliff. 415. *Ox-eye with ſpear-ſhaped leaves growing oppoſite, having foot-ſtalks with two teeth, and a ſhrubby ſtalk.* Aſteriſcus fruteſcens leucoii foliis ſereceis & incanis. Hort. Elth. 44. tab. 38.
9. BUPHTHALMUM (*Arboreſcens*) foliis oppoſitis lanceolatis craſſis, glabris utrinque viridibus floribus pedunculatis. *Ox-eye with thick, ſmooth, ſpear-ſhaped leaves growing oppoſite, green on both ſides, flowers having foot-ſtalks, and a tree-like ſtalk.* Aſteriſcus fruteſcens leucoii foliis viridibus & ſplendentibus. Hort. Elth. 43. tab. 38.
10. BUPHTHALMUM (*Incanum*) foliis oppoſitis lineari-lanceolatis craſſis incanis, floribus ſeſſilibus caule fruticoſo. *Ox-eye with thick, hoary, narrow, ſpear-ſhaped leaves placed oppoſite, flowers growing cloſe to the branches, and a ſhrubby ſtalk.* Aſteriſcus fruteſcens leucoii foliis anguſtiſſimis ſereceis & incanis. Ind. Hort. Chelſ. 27.

The firſt ſort grows naturally in North America. This hath a perennial root and an annual ſtalk: from the root there ariſes many ſtalks, in number proportional to the ſize of the roots; theſe grow upward of ſix feet high, garniſhed at each joint with two oblong heart-ſhaped leaves placed oppoſite, which have three longitudinal veins, the baſe on one ſide being ſhorter than the other. The flowers come out at the extremity of the branches, having a leafy empalement; they are radiated, of a bright yellow colour, reſembling a ſmall Sun-flower, from whence the inhabitants of America have given it that appellation. It flowers in Auguſt, and when the autumns prove favourable, the ſeeds will ripen in England; but as it propagates eaſily by parting the roots, there are few perſons who are ſolicitous about the ſeed. The beſt time to tranſplant and part the roots, is toward the end of October, when the ſtalks begin to decay. Theſe ſhould be removed every other year, to prevent their ſpreading too far; they are very hardy, ſo will thrive in any ſituation: but as the roots are apt to extend, they are not proper for the borders of ſmall flower-gardens; but in large borders, on the ſides of rural walks, or in ſpaces between ſhrubs, they will be ornamental during their ſeaſon of flowering.

The ſecond ſort grows naturally on the Alps, as alſo in Auſtria, Italy, and the ſouth of France. This hath a perennial root, and an annual ſtalk; it grows near two feet high, with ſlender branching ſtalks, garniſhed with oblong ſmooth leaves ending in a point; the flowers grow at the extremity of the branches, which are of a bright yellow colour, radiated round their borders like thoſe of the Starwort. It flowers in June and July, and the ſeeds ripen in autumn. There are two or three varieties of this, differing in the breadth of their leaves and ſize of their flowers, but from the ſame ſeeds all theſe have been produced.

This ſort is generally propagated by parting the roots, which may be performed at the ſame time, and in the ſame manner as is directed for the firſt ſort. As this doth not ſpread ſo much as the former, a few roots may be allowed room in the borders of the flower-garden, eſpecially thoſe which have little ſun, where theſe will continue a long time in flower.

The third ſort is ſomewhat like the ſecond, but the leaves are broader and obtuſe; the ſtalks and leaves are alſo hairy, in which conſiſts their difference. This flowers at the ſame time with the former, and is propagated in the ſame manner.

The fourth ſort riſes a foot and a half high: the ſtalks divide into many branches upward; the ſide branches riſe much above the middle ſtalk, garniſhed with ſpear-ſhaped hairy leaves, placed alternately; the flowers are produced at the forks of the branches on ſhort foot-ſtalks; the empalement conſiſts of ſeven long, ſtiff, ſpear-ſhaped leaves, ending in a ſharp point; theſe ſpread out beyond the rays of the flower in form of a ſtar. The flower ſits cloſe upon the empalement, the border or rays being compoſed of many female florets, which have one ſide ſtretched out like a tongue, and indented at the end in three parts; the middle or diſk of the flower is compoſed of hermaphrodite flowers, which are tubulous, funnel-ſhaped, and ſlightly indented in five parts at the brim; they are of a bright yellow colour, and are ſucceeded by oblong compreſſed ſeeds. The plants flower in June and July, and their ſeeds ripen in September, ſoon after which the plants decay.

The ſeeds of this ſhould be ſown the beginning of April, on open borders, where they are to remain, and will require no other care, but to keep them clear of weeds, and thin them to the diſtance of a foot and a half, that their branches may have room to ſpread. If the ſeeds are ſown in the autumn, or are permitted to fall when ripe, the plants will come up ſoon after, and theſe will more certainly ripen ſeeds than the ſpring plants.

The fifth and ſeventh ſorts are alſo annual plants, which grow naturally in the ſame countries with the laſt. Theſe ſeldom grow more than one foot high in gardens, and where they are wild not ſo high, but ſend out many ſpreading alternate branches near the root: their leaves, which are oblong, blunt, and hairy, are placed alternate, growing cloſe to the branches without any foot-ſtalks; the leaves of the empalement of the fifth ſort end in a very ſharp ſpine, and are much broader at their baſe than either of the other. The flowers of all theſe have much the appearance of thoſe of the laſt, but ſome are ſmaller, and thoſe of the ſeventh ſort have an agreeable odour. They flower at the ſame ſeaſon, and are propagated in the ſame manner.

The ſixth ſort is a low perennial plant with a ſhrubby ſtalk, which rarely riſes a foot high, ſending out many ſpreading branches from the ſtem, garniſhed with hairy leaves, which are narrow at their baſe, but broad and roundiſh at their extremity; the flowers are produced at the end of the branches, they are yellow, and ſhaped like thoſe of the former ſorts, but the leaves of the empalement are ſoft and obtuſe. Theſe are ſeldom ſucceeded by ſeeds in England, but the plant is eaſily propagated by ſlips during the ſummer ſeaſon; if the cuttings are planted in a bed of freſh loamy earth, and covered with a hand-glaſs, obſerving to ſhade them from the ſun in the heat of the day, and frequently refreſhed with water, they will take root in about ſix weeks, when they ſhould be carefully taken up, and each planted in a ſeparate ſmall pot filled with freſh undunged earth, and placed in a ſhady ſituation till they have taken freſh root; after which they may be removed to a ſheltered ſituation, where they may remain till the end of October, when they muſt be removed to a frame for the winter ſeaſon, being too tender to live abroad in winter in this country; but as they only require protection from hard froſts, they will thrive better when they have a great ſhare of air in mild weather, than if confined in a green-houſe; therefore the beſt method is to place them in a common frame, where they may be fully expoſed in mild weather, but ſcreened from the froſt. This ſort grows naturally in Sicily. It flowers great part of the year, which renders it the more valuable.

The eighth ſort riſes with ſeveral woody ſtems from the root, which grow to the height of eight or ten feet, garniſhed with leaves very unequal in ſize, ſome of which are narrow and long, others are broad and obtuſe; theſe are intermixed, ſometimes coming out at the ſame joint, and often at the intermediate one; they are ſoft, hoary, and placed oppoſite. The foot-ſtalks of the larger leaves have, on their upper ſide, near their baſe, two ſharp teeth ſtanding upward, and a little higher there are generally two or three more, growing on the edge of the leaves. The flowers are produced at the ends of the branches ſingle; theſe are of a pale yellow colour, and have ſcaly empalements. It grows naturally in America. I received another ſort of this from the Havannah, which was found growing naturally there by Dr. Houſtoun, who ſent it by the following title, Chryſanthemum fruticoſum maritimum, foliis glaucis oblongis, flore luteo. Sloan. Hiſt. Jam. 1. p. 125. The leaves of this are ſhorter and thicker than thoſe of the tenth ſort, and have no teeth on their foot-ſtalks, but in other reſpects are very like it; the plants are not ſo hardy. The eighth has been long preſerved in the Engliſh gardens, and was originally brought from Virginia, as I was informed by the Biſhop of London's gardener, who raiſed it in 1696 at Fulham.

The ninth ſort grows naturally in the Bahama Iſlands, from whence I have ſeveral times received the ſeeds. This ſeldom grows much more than three feet high, ſending out many ſtalks from the root, which are ſucculent, except near the root, where they are ligneous, garniſhed with thick, ſucculent, ſpear-ſhaped leaves placed oppoſite; the flowers are produced at the end of the branches upon foot-ſtalks which are two inches long. Theſe flowers are larger than thoſe of the eighth ſort, of a bright yellow colour. They appear in July, Auguſt, and September, but often continue till the end of October.

The tenth ſort grows in the Bahama iſlands, from whence I received the ſeeds. This ſends out many ſlender ſtalks from the root, which riſe near three feet high, garniſhed with long, narrow, thick, ſucculent leaves, which are very hoary, growing oppoſite, embracing the ſtalk at their baſe; the flowers are yellow, and are produced at the end of the ſhoots, having very ſhort foot-ſtalks. Theſe appear at the ſame time with thoſe of the ninth ſort.

As theſe three ſorts do not perfect their ſeeds in this country, they are propagated by cuttings. They ſhould be planted in July, when the plants have been for ſome time expoſed to the open air, whereby their ſhoots will be hardened and better prepared to take root, than when they firſt come abroad. The cuttings ſhould be planted in ſmall pots filled with light loamy earth, and plunged into a very gentle warmth, obſerving to ſhade them from the ſun in the heat of the day, and gently refreſh them with water, but it muſt be given to them ſparingly, for much wet will rot them. In about ſix weeks theſe will have taken root, when they muſt be gradually inured to bear the open air; and ſoon after they ſhould be each planted in a ſeparate ſmall pot filled with light loamy earth, and placed in the ſhade until they have taken freſh root; after which they may be removed to a ſheltered ſituation, where they may remain till the middle of October, when they muſt be removed in the green-houſe. The eighth ſort being hardier than either of the other, may be placed in a common green-houſe; but the other two will thrive better in a warm glaſs-caſe, where they will receive more ſun, and have a drier air. During the winter, they ſhould have but little moiſture, and in very mild weather they ſhould have freſh air admitted to them. In the ſummer they muſt be placed abroad in a ſheltered ſituation, and treated in the ſame manner as other exotic plants.

BUPLEUROIDES. See PHYLLIS.

BUPLEURUM [ſo called, from Βοῦς, *Bos*, and πλευρὸν, *coſta*, *latus*, becauſe it is commonly believed, that if cows eat of it, it will burſt their bellies.] Lin. Gen. Plant. 291. Hare's-ear.

The CHARACTERS are,

It is a plant with an umbellated flower; the rays of the principal umbel are thin, conſiſting of ten ſmaller umbels, which are erect and ſpread. The involucrum of the great umbel is compoſed of many oval pointed leaves, thoſe of the ſmall have five. The flower hath five ſmall heart-ſhaped petals, which are inflexed; it hath five ſlender ſtamina, which are terminated by roundiſh ſummits. The germen is ſituated below the flower, ſupporting two ſmall reflexed ſtyles, crowned by a ſmall ſtigma. The germen afterward becomes a roundiſh compreſſed fruit which is channelled, dividing in two parts, containing two oblong channelled ſeeds, convex on one ſide, and plain on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, entitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The SPECIES are,

1. BUPLEURUM (*Rotundifolium*) involucris univerſalibus nullis, foliis perfoliatis. Hort. Upſal. 64. *Hare's-ear, whoſe greater umbel hath no involucrum, and the ſtalks growing through the leaves.* Perfoliata vulgatiſſima ſive arvenſis. C. B. P. 277.
2. BUPLEURUM (*Anguloſum*) involucellis pentaphyllis orbiculatis, univerſali triphyllo ovato, foliis amplexicaulibus cordato-lanceolatis. Lin. Sp. Plant. 236. *Hare's-ear with the ſmall involucrum compoſed of five orbicular leaves, the larger of three oval ones, and heart ſpear-ſhaped leaves embracing the ſtalk.* Perfoliata Alpina anguſtifolia major folio anguloſo. C. B. P.
3. BUPLEURUM (*Odontitis*) involucellis pentaphyllis acutis, univerſali triphyllo, floſculo centrali altiore, ramis divaricatis. Lin. Sp. Plant. 237. *Hare's-ear with ſmaller involucrii, compoſed of five pointed leaves which are acute, thoſe of the larger three-leaved, the flower in the center taller, and the branches ſpreading from each other.* Perfoliata minor anguſtifolia, Bupleuri folio. C. B. P. 277.
4. BUPLEURUM (*Rigidum*) cauſe dichotomo ſubnudo, involucris minimis acutis. Lin. Sp. Plant. 238. *Hare's-ear with ſtalks growing from the diviſion of the branches, which have no leaves below, and a very ſmall pointed involucrum.* Bupleurum folio rigido. C. B. P. 278.
5. BUPLEURUM (*Tenuiſſimum*) umbellis ſimplicibus alternis pentaphyllis ſubtrifloris. Lin. Sp. Plant. 238. *Hare's-ear with ſingle umbels growing alternate, and five leaves under each three flowers.* Bupleurum anguſtiſſimo folio. C. B. P. 278.
6. BUPLEURUM (*Fruticoſum*) fruteſcens, foliis obovatis integerrimis. Lin. Sp. Plant. 238. *Shrubby Hare's-ear with oblong oval leaves which are entire.* Bupleurum arboreſcens ſalicis folio. Tourn. Inſt. 310. Seſeli Æthiopicum frutex. Dod. Pempt. 312. *Shrubby Hartwort of Æthiopia.*
7. BUPLEURUM (*Difforme*) fruteſcens, foliis vernalibus decompoſitis planis inciſis, æſtivalibus filiformibus angulatis trifidis. Lin. Sp. Plant. 238. *Shrubby Hare's-ear, whoſe ſpring leaves are decompounded, plain, and cut, and the ſummer leaves are narrow, angular, and trifid.* Bupleurum fruteſcens foliis ex uno puncto plurimis junceis tetragonis. Burman. Afr. 195. tab. 71. fol. 1.

The firſt ſort grows naturally upon chalky land among wheat, in ſeveral parts of England, ſo is ſeldom admitted into gardens. The leaves and ſeeds of this plant are uſed in medicine; the herb is eſteemed good for diſſolving ſcrophulous tumours, and is by ſome uſed for internal ailments, ruptures, and bruiſes from a fall. It is called Thoroughwax in Engliſh.

The ſecond, third, fourth, and fifth ſorts are annual. The fifth ſort grows naturally in ſeveral parts of England, the others are natives of the Alps and Pyrenees; theſe are ſeldom cultivated but in botanic gardens for the ſake of variety. Thoſe who are deſirous to have any of theſe ſpecies in their gardens, ſhould ſow their ſeeds in autumn, where the plants are deſigned to remain, for they do not bear tranſplanting well; and keep the plants clean from weeds, which is all the culture they require. They flower in June and July, and their ſeeds ripen in September.

The ſixth ſort hath a woody ſtem, which ſends out many branches, ſo as to form a large head or buſh, covered with a purpliſh bark, and garniſhed with oblong, oval, ſtiff leaves, which are very ſmooth, of a ſea-green colour; the ends of the branches are terminated by umbels of yellow flowers ſomewhat like thoſe of Fennel. Theſe come out in Auguſt, but are ſeldom ſucceeded by perfect ſeeds in England. It grows naturally in the ſouth of France and Italy, near the borders of the ſea.

It is commonly known among gardeners by the title of Shrubby Æthiopian Hartwort, and is now propagated in the nurſery-gardens for ſale. This grows five or ſix feet high, forming a large regular buſh, the leaves continuing green through the year render it more valuable. It is hardy, ſo will thrive in the open air, and may be intermixed with other evergreen ſhrubs of the ſame growth, in the front of taller trees, where their ſtems are deſigned to be excluded from ſight. It is propagated by cuttings, which ſhould be planted in pots filled with freſh loamy earth, and in winter ſheltered under a hot-bed frame; in the ſpring the cuttings will put out roots, but they will not be fit to tranſplant till the autumn following; ſo the pots ſhould be placed in a ſhady ſituation in ſummer, and in dry weather they muſt be refreſhed with water. The young plants may be planted in a nurſery-bed at two feet diſtance for a year or two to get ſtrength, and then tranſplanted where they are to remain.

The ſeventh ſort grows naturally at the Cape of Good Hope, from whence it was introduced to the gardens in Holland. This riſes with a ſhrubby ſtalk to the height of five or ſix feet, ſending out ſome ſide branches, which in the ſpring have their lower parts garniſhed with leaves compoſed of many ſmall plain lobes, which are finely cut like thoſe of Coriander, of a ſea-green colour, theſe leaves ſoon fall off, and the upper part of the branches are cloſely covered with long ruſh-like leaves having four angles, which come out in cluſters from each joint. The flowers grow in ſpreading umbels at the extremity of the branches, which are ſmall and of an herbaceous colour, and are ſucceeded by oblong channelled ſeeds.

This ſort is commonly propagated by cuttings, which readily take root, if they are planted in April in pots filled with light earth, and plunged into a moderate hot-bed, and when they have taken root, they ſhould be inured to the open air by degrees, and after they have obtained ſtrength, may be planted each into a ſeparate pot filled with light loamy earth, placing them in the ſhade, till they have taken freſh root, when they may be placed with other exotic plants in a ſheltered ſituation, where they may remain till the autumn, when they muſt be removed into the green-houſe, and placed with ſuch hardy plants as require a large ſhare of air in mild weather, and only require a protection from froſt.

If this plant is propagated by ſeeds, they ſhould be ſown in the autumn, ſoon after they are ripe, in pots filled with light earth, which muſt be ſheltered under a frame in winter, and in the ſpring removed to a very gentle hot-bed, which will ſoon bring up the plants; theſe muſt be inured to bear the open air by degrees, and then treated in the ſame manner as thoſe raiſed from cuttings. This plant flowers in July, and the ſeeds ripen in September.

BURMANNIA. Lin. Gen. 397. This genus was ſo titled by Dr. Linnæus, in honour to his friend Dr. Burman, profeſſor of botany at Amſterdam.

The CHARACTERS are,

It hath a cylindrical coloured empalement of one leaf, having three longitudinal membranaceous angles, the flower hath three ſmall oblong petals, ſituated in the mouth of the empalement, it hath ſix ſmall ſtamina, the ſummits are at the mouth of the empalement, two at each; the germen is cylindrical, half the length of the empalement, ſupporting a ſlender ſtyle the length of the corolla, having three obtuſe concave ſtigma: the empalement becomes a triangular cylindrical covering to the ſeeds, opening in three valves, having three cells filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle.

The SPECIES are,

1. BURMANNIA (*Diſticha*) ſpica gemina. Burm. Zeyl. 50. *Burmannia with a double ſpike of flowers.*
2. BURMANNIA (*Biflora*) flore gemino. Lin. Sp. 411. *Burmannia with two flowers.* Burmannia ſcapo biflorǣ. Flor. Virg. 36.

The firſt ſort grows naturally in Ceylon, in places covered with water moſt part of the year, the root is compoſed of many capillary fibres, from which come out ſix or eight narrow ſpear-ſhaped leaves, near two inches long, which are entire. The flower-ſtalk riſes a ſpan high, garniſhed with five or ſix narrow ſpear-ſhaped leaves which embrace it at their baſe; the ſtalk is terminated by a double ſpike of flowers ſpreading each way: theſe are garniſhed with ſmall blue flowers, included in a ſwelling ſpatha, or ſheath; theſe have each three ſhort petals, ſix ſtamina, and one ſtyle; and in its native ſoil, the empalement of the flower becomes a triangular cover to the ſeeds.

The ſecond ſort grows naturally in Virginia and Carolina, in watery places, this hath a ſtrong fibrous root, from which ariſe ſeveral oblong oval leaves, four or five inches long, which are ſmooth and entire; between theſe ariſes the foot-ſtalk of the flower, which is ſix or eight inches high, terminated by ſpikes of flowers, two growing in each ſpatha or ſheath; theſe are blue, and in their native ſoil are ſucceeded by ſmall ſeeds incloſed in the triangular empalement.

Theſe plants are very difficult to preſerve in gardens; for as they naturally grow in marſhy places, which are covered with water great part of the year, they will not thrive when planted in dry ground, and being too tender to live abroad in England, renders them very difficult to preſerve; therefore whoever is deſirous to have them, ſhould plant them in pots, which ſhould be plunged in troughs of water, ſo deep as to cover the ſurface of the mould therein about three inches. Thoſe troughs in which the firſt ſort is planted, ſhould be placed in a warm ſtove, where they ſhould conſtantly remain, being careful to ſupply the water as it may diminiſh in the troughs from time to time. The troughs in which the ſecond ſort is put, ſhould be placed in a green-houſe in winter to protect the plants from froſt, but in ſummer they may be expoſed in the open air, with this management, if carefully attended to, the plants may be preſerved, and ſometimes may be brought to produce flowers.

BURNET. See POTERIUM and SANGUISORBA.

BURSA PASTORIS, Shepherds-pouch. This is a common weed in moſt parts of England; which propagates ſo faſt by ſeeds, as not to be eaſily cleared when they are permitted to ſhed; for there are commonly four generations of this plant from ſeeds in a year, ſo faſt does the ſeed ripen, and the plants come up; therefore it cannot be too ſoon or carefully rooted out of a garden.

BUTOMUS, [Βούτομον, of βοῦς, an ox, and τέμνω, to cut, ſo called, becauſe the leaves of it are ſo acute, that the tongue and lips of oxen, which are great lovers of this plant, are wounded by it, ſo that the blood iſſues forth: it is alſo called Juncus Florida, becauſe it has the leaves of a Ruſh, and produces a fine bunch of flowers.] The Flowering-Ruſh, or Water-Gladiole.

The CHARACTERS are,

The flowers grow in a ſingle umbel, having a ſhort three leaved involucrum. The flower hath ſix roundiſh concave petals, which are alternately ſmaller and more pointed, it hath nine awl-ſhaped ſtamina, ſix of which ſurround the other, and are terminated by double lamellated ſummits; it hath ſix oblong pointed germen, ſupporting a ſingle ſtigma; the germen afterward become ſix oblong pointed capſules, having one cell filled with oblong ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ninth claſs, intitled Enneandria Hexagynia, the flower having nine ſtamina, and ſix germen.

We know but one SPECIES of this genus, viz.

BUTOMUS (*Umbellatus*) Fl. Lap. 159. *The Flowering-Ruſh, or Water-Gladiole.* Juncus floridus major. C. B. P. 112. *Greater Flowering-Ruſh.*

There are two varieties of this plant, one with a roſe coloured flower, and the other with a white, but theſe are only accidental variations, therefore not to be enumerated as diſtinct ſpecies.

The Roſe coloured ſort is pretty common in ſtanding waters, in many parts of England; the other is a variety of this, though leſs common with us near London. Theſe plants may be propagated in boggy places, or by planting them in ciſterns, which ſhould be kept filled with water, that ſhould have about a foot thickneſs of earth in the bottom, into which the roots ſhould be planted, or the ſeed ſown as ſoon as they are ripe; theſe, though common plants, yet produce very pretty flowers, and are worth propagating for variety, eſpecially if in any part of the garden there ſhould be conveniency for an artificial bog, or where there are ponds of ſtanding water, as is many times the caſe, and perſons are at a loſs what to plant in ſuch places, that may appear beautiful; whereas, if theſe, and a few more wild plants, which naturally grow in ſuch places, were taken into the garden, they would have a very good effect in diverſifying the ſeveral parts thereof.

There is another ſpecies, or at leaſt a variety, of this plant, which is found growing near London, intermixed with the common ſort, but not half ſo large either in leaf, ſtalk, or flower; but in other reſpects ſo like it, as to render it very difficult to be diſtinguiſhed from it, for which reaſon I have not enumerated it; though many of the plants ſettled in the river Thames, cloſe by the Chelſea garden, where they continued their uſual ſmall ſize many years.

BUXUS, the Box Tree.

The Characters are,

It hath male and female flowers on the ſame plant; the male flowers have a three-leaved, and the female a four-leaved empalement, which are concave. The male flowers have two, and the female three concave petals, which are larger than the empalement. The male flowers have four upright ſtamina, terminated by double erect ſummits with a rudiment of a germen, but no ſtyle or ſtigma: the female flowers have roundiſh, blunt, three-cornered germen, ſupporting three very ſhort ſtyles, crowned by obtuſe prickly ſtigma. The empalement afterward becomes a roundiſh capſule, ſhaped like an inverted pottage pot, opening in three cells, each having two oblong ſeeds, which are caſt forth by the elaſticity of the pod when ripe.

This genus of plants is ranged in the fourth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Tetrandria, there being male and female flowers on the ſame plant, and the male flowers having four ſtamina.

The Species are.

1. Buxus (*Arboreſcens*) arboreſcens, foliis ovatis. *Tree Box with oval leaves.* Buxus arboreſcens. C. B. P. 232.
2. Buxus (*Anguſtifolia*) arboreſcens foliis lanceolatis. *Tree Box with ſpear-ſhaped leaves.* Buxus anguſtifolia. Raii Syn. 445. *Narrow-leaved Box.*
3. Buxus (*Suffruticoſa*) humilis foliis orbiculatis. *Dwarf Box with round leaves.* Buxus humilis. Dod. pempt. 782. *Dwarf or Dutch Box.*

Theſe are three certainly diſtinct ſpecies. The two ſorts of Tree Box have been frequently raiſed from ſeeds, and conſtantly produced plants of the ſame kind from thoſe the ſeeds were taken from; and the Dwarf Box will never riſe to any conſiderable height with any culture, nor have I ever ſeen this ſort flower, where the plants have been encouraged to grow many years in the greateſt luxuriancy. There are two or three varieties of the firſt ſort, which are propagated in the gardens, one with yellow, and the other white ſtriped leaves. The other hath the tops of the leaves only marked with yellow, which is called Tiped Box.

The firſt and ſecond ſorts grow in great plenty upon Box-hill, near Darking in Surry, where were formerly large trees of theſe kinds; but of late they have been pretty much deſtroyed, yet there are great numbers of the trees remaining, which are of a conſiderable bigneſs. The wood of this tree is very uſeful for turners, engravers, and mathematical inſtrument-makers, the wood being ſo hard, cloſe, and ponderous, as to ſink in water, which renders it very valuable for divers utenſils.

All the varieties of the tree or large Box are proper to intermix in clumps of Evergreens, &c. where they add to the variety of ſuch plantations; theſe may be propagated by planting the cuttings in autumn in a ſhady border, obſerving to keep them watered until they have taken root, when they may be tranſplanted into nurſeries, till they are fit for the purpoſes intended. The beſt ſeaſon for removing theſe trees is in October, though indeed, if care be uſed to take them up with a good ball of earth, they may be tranſplanted almoſt at any time, except in ſummer. Theſe trees are a very great ornament to cold and barren ſoils, where few other things will grow; they may alſo be propagated by laying down the branches, or from ſeeds: the laſt being the beſt method to have them grow to be large, the ſeeds muſt be ſown ſoon after they are ripe in a ſhady border, which muſt be duly watered in dry weather.

The Dwarf kind of Box is uſed for bordering flower-beds or borders; for which purpoſe it far exceeds any other plant, it being ſubject to no injuries from cold or heat, and is of long duration, is very eaſily kept handſome, and, by the firmneſs of its rooting, keeps the mould in the borders from waſhing into the gravel-walks, more effectually than any plant whatever. This is increaſed by parting the roots, or planting the ſlips; but as it makes ſo great an increaſe of itſelf, and ſo eaſily parts, it is hardly worth while to plant the ſlips that have no roots. It is now become ſo common, that it may be purchaſed from the nurſeries at a cheap rate.

The manner of planting this in edgings, &c. is ſo well underſtood by every working gardener, that it would be needleſs to mention any thing of that kind here.

BYTTNERIA. See Basteria.

C.

CAAPEBA. See Ciſſampelus.

CABBAGE. See Braſſica.

CABINET, in a garden, is a conveniency which differs from an arbour, in this, that an arbour or ſummer-houſe is of great length, and arched over head in the form of a gallery; but a cabinet is either ſquare, circular, or in cants, making a kind of ſalon, to be ſet at the ends, or in the middle of a long arbour.

CACALIANTHEMUM. See Cacalia.

CACALIA, Foreign Coltsfoot.

The Characters are,

It hath compound flowers which are included in one common, cylindrical, ſcaly empalement: the flowers are tubulous and funnel-ſhaped, cut at the top into five parts which ſtand erect; theſe have each five ſhort ſlender ſtamina, terminated by cylindrical ſummits. The germen is crowned with down, ſupporting a ſlender ſtyle, crowned by two oblong recurved ſtigma; the germen afterward becomes a ſingle oblong ſeed, crowned with long down.

This genus of plants is ranged in the firſt ſection of Linnæus's twenty-firſt claſs, intitled Syngeneſia polygamia æqualis; theſe have all hermaphrodite flowers which are fertile.

The Species are,

1. Cacalia (*Alpina*) foliis reniformibus acutis denticulatis calycibus ſubtrifloris. Gouan. Monſp. 429. *Cacalia with kidney-ſhaped leaves which are ſharply indented, and generally three flowers in each empalement.* Cacalia foliis craſſis hirſutis. C. B. P. 197.
2. Cacalia (*Glabra*) foliis cutaneis acutioribus & glabris. C. B. P. 198. *Cacalia with ſmooth leaves, having acute points.* Cacalia glabro folio. Cluſ. Hiſt. 2. p. 115.
3. Cacalia (*Suaveolens*) caule herbaceo foliis haſtato-ſagittatis denticulatis, petiolis ſupernè dilatatis. Hort. Upſal. 254. *Cacalia with an herbaceous ſtalk, ſpear-ſhaped indented leaves, and the upper ſide of the foot-ſtalk ſpreading.* Cacalia Americana procerior, folio triangulari per baſin auriculato, floribus albis. Edit. prior.

4. Cacalia (*Atriplicifolia*) caule herbaceo, foliis ſubcordatis dentato-ſinuatis, calycibus quinquefloris. Lin. Sp. Plant. 835. *Cacalia with an herbaceous ſtalk, heart-ſhaped ſinuated leaves, and five florets in each empalement.* Nardus Americana procerior, foliis cæſiis. Pluk. Alm. 251.

5. Cacalia (*Ficoides*) caule fruticoſo, foliis compreſſis carnoſis. Lin. Sp. Plant. 834. *Cacalia with a ſhrubby ſtalk, and fleſhy compreſſed leaves.* Senecio Africanus arboreſcens, ficoidis folio & facie. Com. Rar. Plant. 40.

6. Cacalia (*Kleinia*) caule fruticoſo compoſito, foliis lanceolatis planis, petiolorum cicatricibus obſoletis. Lin. Sp. Plant. 834. *Cacalia with a compound ſhrubby ſtalk, plain ſpear-ſhaped leaves, and the foot-ſtalks leaving ſcars.* Cacalianthemum folio nerii glauco. Hort. Elth. 61. tab. 54.

7. Cacalia (*Papillaris*) caule fruticoſo obvollato ſpinis petiolaribus truncatis. Lin. Sp. Plant. 834. *Cacalia with a ſhrubby ſtalk, guarded on every ſide with broken rough foot-ſtalks.* Cacalianthemum caudice papillari. Hort. Elth. 63. tab. 55.

8. Cacalia (*Ante-euphorbium*) caule fruticoſo, foliis ovato-oblongis, petiolis baſi linea triplici deductis. Lin. Sp. Plant. 834. *Cacalia with a ſhrubby ſtalk, oblong oval leaves, and three lines connected to the baſe of the foot-ſtalk.* Kleinia foliis carnoſis planis ovato-oblongis. Hort. Cliff. 395.

9. Cacalia (*Sonchifolia*) caule herbaceo, foliis lyratis amplexicaulibus dentatis. Lin. Sp. 1169. *Cacalia with an herbaceous ſtalk, and lyre-ſhaped indented leaves embracing the ſtalk.*

10. Cacalia (*Lutea*) caule herbaceo, foliis quinquepartitis acutis ſubtus glaucis, floribus terminalibus pedunculis longiſſimis. *Cacalia with an herbaceous ſtalk, leaves divided into five acute parts, glaucous on their under ſide, and flowers with long foot-ſtalks terminating the ſtalks.*

The firſt ſort grows naturally in Auſtria, and the Helvetian mountains, but is frequently preſerved in curious gardens for the ſake of variety. This hath a fleſhy root which ſpreads in the ground, from which ſpring up many leaves, ſtanding on ſingle foot-ſtalks, ſhaped like thoſe of Ground Ivy, but of a thicker texture, of a ſhining green on their upper ſide, but white on their under; between theſe ariſe the foot-ſtalk, which is round, branching toward the top, and grows a foot and a half high; under each diviſion of the ſtalk is placed a ſingle leaf, of the ſame ſhape with thoſe below, but much ſmaller; the branches are terminated by purpliſh flowers, growing in a ſort of umbel. Theſe are ſucceeded by oblong ſeeds, crowned with down.

The ſecond ſort hath the appearance of the firſt, but the leaves are almoſt heart-ſhaped, pointed, and ſharply ſawed on their edges, and on both ſides very green; the ſtalks riſe higher; the leaves upon the ſtalks have much longer foot-ſtalks than thoſe of the firſt. The flowers of this are of a deeper purple colour. This grows naturally on the Alps. They flower toward the end of May, or the beginning of June.

The third ſort grows naturally in North America. This hath a perennial creeping root, which ſends out many ſtalks, garniſhed with triangular ſpear-ſhaped leaves, ſharply ſawed on their edges, of a pale green on their under ſide, but a deep ſhining green above, placed alternately. The ſtalks riſe to the height of ſeven or eight feet, and are terminated by umbels of white flowers, which are ſucceeded by oblong ſeeds crowned with down. It flowers in Auguſt, and the ſeeds ripen in October. This plant multiplies greatly by its ſpreading roots, and alſo by the ſeeds, which are ſpread to a great diſtance by the wind, the down which adheres to them being greatly aſſiſting to their conveyance. The roots of this plant, which have been caſt out of the Chelſea garden, have been carried by the tides to a great diſtance, where they have lodged on the banks of the river, and faſtened themſelves to the ground, and have increaſed ſo much, as that in a few years, it may appear as a native of this country. The ſtalks decay in autumn, and new ones ariſe in the ſpring.

The fourth ſort is a native of America, but has been many years in ſome curious gardens. This hath a perennial root, and an annual ſtalk. The root is compoſed of many fleſhy ſpreading tubers, ſending out ſeveral ſtrong ſtalks in the ſpring, which riſe four or five feet high, garniſhed with roundiſh heart-ſhaped leaves, greatly indented on their edges, of a ſea-green on their under ſide, but darker above, placed alternately the length of the ſtalks, which are terminated by umbels of yellowiſh herbaceous flowers, appearing in July and Auguſt, and are ſucceeded by ſeeds like thoſe of the former ſort, which ripen in October.

The firſt and ſecond ſorts are propagated by parting their roots, for they ſeldom produce good ſeeds in England. The beſt time to tranſplant and part their roots is in autumn. They require a loamy ſoil and a ſhady ſituation.

The third and fourth ſorts propagate in great plenty, both by their ſpreading roots, and alſo their ſeeds. The roots ſhould be tranſplanted in autumn, and require a moiſt ſoil and an open ſituation. If the ſeeds are permitted to ſcatter, the plants will come up in the ſpring without any care.

The fifth ſort grows naturally at the Cape of Good Hope. This riſes with ſtrong round ſtalks to the height of ſeven or eight feet, which are woody at bottom, but ſoft and ſucculent upward, ſending out many irregular branches, garniſhed more than half their length with thick, taper, ſucculent leaves, a little compreſſed on two ſides, ending in points, covered with a whitiſh glaucous farina, which comes off when handled. Theſe, when broken, emit a ſtrong odour of turpentine, and are full of a viſcous juice; at the extremity of the branches the flowers are produced in ſmall umbels; they are white, tubulous, and cut into five parts at the top. The ſtigma which crowns the ſtyle is of a dark purple colour, and ſtands erect above the tube. The ſtamina are much ſhorter, and ſurround the oblong germen, which is ſituated in the center of the tube, and is crowned by long, white, hairy down. The germen afterward becomes an oblong ſeed, with the ſame down adhering to it; but theſe do not ripen in England. Some of the noblemen in France have the leaves of this plant pickled; in doing of which, they have a contrivance to preſerve the white farina with which they are covered, and thereby render them very beautiful.

This ſort is eaſily propagated by cuttings during the ſummer months: theſe ſhould be cut from the plants and laid to dry a fortnight, that the wound may be healed over before they are planted. Moſt people plunge the pots, in which theſe are planted, into a moderate hot-bed, to forward their putting out roots; but if they are planted in June or July, they will root as well in the open air. I have frequently had the branches broken off by accident, and fallen on the ground, which have put out roots without any care. Theſe branches may be kept ſix months out of the ground, and will take root if planted. This ſhould have a light ſandy earth, and in winter be placed in an airy glaſs-caſe, where they may enjoy the ſun and air in mild weather, but muſt be protected from froſt. During the winter ſeaſon, the plants muſt have but little water; and in ſummer, when they are placed in the open air, it ſhould not be given them too often, nor in great quantity, but treated like the Ficoides, and other ſucculent plants from the ſame country. It flowers uſually in autumn, but is not conſtant to any ſeaſon.

The ſixth ſort grows naturally in the Canary Iſlands, but has been long an inhabitant in the Engliſh gardens. This riſes with a thick fleſhy ſtem, divided at certain diſtances, as it were, in ſo many joints; each of theſe diviſions ſwell much larger in the middle than they do at each end; the ſtalks divide into many irregular branches of the ſame form, which, toward their extremities, are garniſhed with long, narrow, ſpear-ſhaped leaves, of a glaucous colour, ſtanding all round the ſtalks without order. As theſe fall off, they leave a ſcar at the place, which always remains on the branches. The flowers are produced in large cluſters, at the extremity of the branches, which are tubulous, and of a faint Carnation colour. They appear in Auguſt and September, but continue great part of October, and are not ſucceeded by ſeeds in this country. There have been ſtones and foſſils dug up at a great depth in ſome parts of England, which have very perfect impreſſions of this plant upon them; from whence Dr. Woodward has ſuppoſed, the plants were lodged there at the univerſal deluge; and finding the impreſſions of many other plants and animals, which are natives of thoſe iſlands, he concludes that the waters flowed hither from the ſouth-weſt.

This plant has been called Cabbage-tree by the gardeners, I ſuppoſe from the reſemblance which the ſtalks of it have to that of the Cabbage: others have titled it Carnation-tree, from the ſhape of the leaves, and colour of the flowers.

It is propagated by cuttings, in the ſame manner as the former ſort, and the plants require the ſame culture; but muſt have a dry warm glaſs-caſe in winter, and very little water, being very ſubject to rot with wet. In ſummer they muſt be placed in the open air, in a warm ſheltered ſituation, and in very dry weather refreſhed moderately with water. With this management the plants will flower annually, and grow to the height of eight or ten feet.

The ſeventh ſort reſembles the ſixth in its form and manner of growth, but the leaves are narrower and more ſucculent. Theſe do not fall off entire like the other, but break off at the beginning of the foot-ſtalk, which are very ſtrong and thick; and always continue, ſo that the main ſtalk of the plant, and the lower part of the branches, which are deſtitute of leaves, are ſet round on every ſide with theſe truncated foot-ſtalks. This ſort hath not as yet produced any flowers in England. It is propagated in the ſame manner as the two former ſorts, from cuttings, and the plants muſt be treated as hath been directed for the fifth ſort, but require to be kept drier, both in winter and ſummer; therefore, in very wet ſeaſons, the plants ſhould be ſheltered from hard rains, which often cauſe them to rot, when they are expoſed thereto; but they require the open air in ſummer. This ſort grows naturally at the Cape of Good Hope.

The eighth ſort has been long preſerved in the Engliſh gardens, and was generally titled Ante-euphorbium, ſuppoſing it to have a contrary quality to the Euphorbium. This riſes with many ſucculent ſtalks from the root, as large as a man's finger, which branches out upward, into many irregular ſtalks of the ſame form, but ſmaller, garniſhed with flat, oblong, ſucculent leaves, placed alternately round the branches; under each foot-ſtalk there are three lines or ribs, which run longitudinally through the branches joined together. This ſort very rarely flowers in Europe, but is propagated by cuttings in the ſame manner as the fifth, and is equally hardy. It muſt have very little wet, eſpecially in winter, and requires a dry, ſandy, poor ſoil.

The ninth ſort grows naturally in Ceylon, China, and alſo in the Spaniſh Weſt-Indies, from whence I received the ſeeds. This ſort ſeldom continues longer than to ripen its ſeeds. The ſtalk riſes near two feet high, branching a little toward the top; the leaves are cut on their ſides, and ſinuated ſomewhat like thoſe of Muſtard, ſitting cloſe to the ſtalks, which are terminated by flowers formed almoſt in an umbel; theſe are in ſome plants yellow, and in others purple; they are ſmall, and are ſucceeded by oblong oval ſeeds, having a feathery down. It flowers in July, and the ſeeds ripen in September, ſoon after which the plant decays.

This is propagated by ſeeds, which, if ſown in the autumn ſoon after they are ripe in a pot, and plunged into the tan-bed in the ſtove, will more certainly ſucceed than thoſe ſown in the ſpring; but where there is not ſuch conveniency, the ſeeds ſhould be ſown on a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be planted on another hot-bed to bring them forward, ſhading them till they have taken new root, after which air ſhould be daily admitted to them in proportion to the warmth of the ſeaſon. When the plants have acquired ſtrength, they ſhould be planted in pots, and either plunged into a moderate hot-bed under a deep frame, or placed in a glaſs-caſe, where they will flower and perfect their ſeeds.

The tenth ſort grows naturally at St. Helena, from whence I received the plants: the roots of this ſort ſpread and increaſe under the ſurface, ſo is eaſily propagated by parting the roots; the leaves ariſe immediately from the root, having very ſhort foot-ſtalks; theſe are cut into five or ſix long acute ſegments almoſt to the midrib, the ſegments are alſo acutely cut on their ſides in two or three places: the under ſide of the leaves are glaucous, their upper ſide of a dark green. The flower-ſtalk ariſes between the leaves immediately from the roots; this is naked, about eight inches high, terminated by ſix or eight yellow compound flowers ſtanding on long foot-ſtalks, almoſt umbellatim; the flowers are ſucceeded by oblong ſeeds, which rarely ripen in England.

As this plant increaſes ſo faſt by its root, there is little want of the ſeeds; therefore the roots may be parted either the beginning of September, or the latter end of March, and ſhould be planted in pots filled with light earth, and plunged into the tan-bed in the ſtove, where it ſhould be conſtantly kept, being too tender to thrive elſewhere in this climate.

CACAO. Tourn. Inſt. R. H. 660. Theobroma. Lin. Gen. 806. The Chocolate-nut.

The CHARACTERS are,

The empalement is compoſed of five ſpear-ſhaped leaves, which ſpread open. The flower hath five petals, which are irregularly indented, and ſpread open; it hath five erect ſtamina, which are as long as the petals, terminated by pointed ſummits. In the center is placed the oval germen, ſupporting a ſingle ſtyle, the length of the ſtamina, crowned by an erect ſtigma. The germen afterward becomes an oblong pod, ending in a point; which is woody, warted, and divided into five cells, which are filled with oval, compreſſed, fleſhy ſeeds.

This genus of plants was conſtituted by father Plumier, who communicated the characters, which he had drawn in America, to Dr. Tournefort, who has inſerted it in the Appendix to his Inſtitutions. Dr. Linnæus has joined this to the Guazuma of Plumier, under the title of Theobroma; but as the fruit of theſe plants are very different from each other, I ſhall keep them under different genera.

We have but one SPECIES of this plant, which is,

CACAO. Cluſ. Exot. *The Chocolate-nut-tree.*

This tree is a native of America, and is found in great plenty in ſeveral places between the tropics, but particularly at Caracca and Carthagena, on the river Amazons, in the iſthmus of Darien, at Honduras, Guatimala, and Nicaragua. At all theſe places, it grows naturally without culture; but it is cultivated in many of the iſlands which are poſſeſſed by the French and Spaniards, and was formerly planted in ſome of the iſlands which are in the poſſeſſion of the Engliſh; but it has been neglected for many years paſt, ſo that at preſent it is ſo ſcarce in thoſe places, that the Engliſh are ſupplied with it by the French and Spaniards, who make the inhabitants pay them a good price for it; and as there is a great quantity of it conſumed in England, conſequently it muſt make an alteration in the balance of trade greatly to the prejudice of the Engliſh; which might be eaſily remedied, if the planters in our colonies were but the leaſt induſtrious; ſince, as it formerly grew on thoſe iſlands, ſo as to produce not only a ſufficient quantity for their own conſumption, but to ſupply Europe with great quantities, there can be no objection to the planting it in thoſe iſlands again, eſpecially in thoſe ſituations where the ſugar canes do not thrive to advantage.

I ſhall therefore ſubjoin the beſt account of this plant, and the culture which it requires in thoſe countries, with the profits which have ariſen from it to thoſe who have planted ſome of theſe trees of late years, by way of experiment, in order to excite others to follow their example; and ſhall afterward give directions for cultivating it in England, by way of curioſity.

In making a plantation of Chocolate-trees, you muſt firſt be very careful in the choice of the ſituation, and the ſoil, otherwiſe there will be ſmall hopes of ſucceſs. As to the ſituation, it ſhould be in a place where the trees may be protected from ſtrong winds, to which if they are expoſed, they will ſoon be deſtroyed: ſo that in ſuch places where torrents of water have waſhed away the earth ſo as to leave broad and deep furrows (which the inhabitants of thoſe iſlands call gullies,) theſe trees will thrive exceedingly: and as theſe are very frequently to be found in thoſe iſlands, and many of them are of large extent, and not much cultivated, it may be a great improvement to ſome eſtates, which, at preſent, are of ſmall value. The ſoil in theſe gullies is generally rich and moiſt, which is what theſe trees require; ſo that they will make great progreſs in theſe places, as hath been experienced by thoſe perſons, who have lately made trials of the plants in theſe ſituations; but where there are not a ſufficient number of theſe gullies, choice ſhould be made of a ſituation which is well ſheltered by large trees; or, if there are not trees already grown, there ſhould be three or four rows planted round the ſpot which is deſigned for the Chocolate-trees, of ſuch ſorts which are of quickeſt growth; and within theſe rows there ſhould be ſome Plantain-trees, planted at proper diſtances, which being very quick of growth, and the leaves very large, will afford a kindly ſhelter to the young Chocolate-trees placed between them.

The Chocolate-trees which are cultivated, ſeldom grow to more than fourteen or fifteen feet in height, nor do they ſpread their branches very wide; ſo that if the Plantain-trees are placed in rows, about twenty four feet aſunder, there will be room enough for two rows of Chocolate-trees between each row of Plantains; and if they are placed at ten feet diſtance in the rows, it will be ſufficient room for them. Thoſe trees which are found wild in uncultivated places, are generally of much larger growth, which may be occaſioned by the other trees, amongſt which theſe are found growing; for, being protected from the winds by thoſe, they are not ſo much in danger therefrom, as thoſe which are cultivated: and the other trees cloſely ſurrounding them, will naturally draw them up to a greater height: however, that is not a deſirable quality in theſe trees; for the lower they are, the better the fruit may be gathered without hurting the trees, and the leſs they are expoſed to the injuries of the weather; ſo that the inhabitants never deſire to have their trees above twelve or fourteen feet high.

The ſoil upon which theſe trees thrive to moſt advantage, is a moiſt, rich, deep earth; for they generally ſend forth one tap root, which runs very deep into the ground, ſo that wherever they meet with a rocky bottom near the ſurface, they ſeldom thrive, nor are they of long continuance; but in a rich, deep, moiſt ſoil, they will produce fruit in pretty good plenty the third year from ſeed, and will continue fruitful for ſeveral years after.

Before the plantation is begun, the ground ſhould be well prepared by digging it deep, and clearing it from the roots of the trees, and noxious plants, which, if ſuffered to remain in the ground, will ſhoot up again after the firſt rain, and greatly obſtruct the growth of the plants; ſo that it will be almoſt impoſſible to clear the ground from thoſe roots, after the Chocolate plants are come up, without greatly injuring them.

When the ground is thus prepared, the rows ſhould be marked out by a line, where the nuts are to be planted, ſo as that they may be placed in a quincunx order, at equal diſtance every way, or at leaſt that the Plantain-trees between them may form a quincunx, with the two rows of Chocolate-trees, which are placed between each row of them.

In making a plantation of Chocolate-nut-trees, the nuts muſt be planted where the trees are to remain; for if the plants are tranſplanted, they ſeldom live; and thoſe which ſurvive it, will never make thriving trees; for, as I before obſerved, theſe trees have a tender tap root, which, if broke, or any way injured, the tree commonly decays.

The nuts ſhould always be planted in a rainy ſeaſon, or at leaſt when it is cloudy weather, and ſome hopes of rain falling ſoon after. As the fruit ripens at two different ſeaſons, viz. at Midſummer and at Chriſtmas, the plantation may be made at either of thoſe; but the chief care muſt be to chooſe ſuch nuts as are perfectly ripe and ſound, otherwiſe the whole trouble and expence will be loſt. The manner of planting the nuts is, to make three holes in the ground, within two or three inches of each other, at the place where every tree is to ſtand; and into each of theſe holes ſhould be one ſound nut planted about two inches deep, covering them gently with earth. The reaſon for putting in three nuts at every place is, becauſe they ſeldom all ſucceed; or, if moſt of them grow, the plants will not be all equally vigorous; ſo that when the plants have had one year's growth, it is very eaſy to draw up all the weak unpromiſing plants, and leave the moſt vigorous; but in doing this, great care ſhould be had to the remaining plants, ſo as not to injure or diſturb their roots in drawing the other out.

It is very proper to obſerve, that the Chocolate-nuts will not retain their growing faculty long after they are taken from the trees, ſo that there is no poſſibility of tranſporting them to any great diſtance for planting; nor ſhould they be kept long out of the ground, in the natural places of their growth. There are ſome authors who have written the hiſtory of this tree, and diſtinguiſh three different ſorts of the nuts, from the colour of their ſkins, one of which is of a whitiſh green colour, one of a deep red, and the third of a red and yellow colour; but theſe are not ſpecifically different, but all ariſe from ſeeds of the ſame tree, as is the caſe of our Filberts, which differ in the colour of their ſkins, but are of the ſame colour within, and have the ſame taſte. There are others, who would diſtinguiſh theſe nuts by their ſize and form, ſome being large and thick, others almoſt as flat as Beans; but theſe differences, I have been credibly informed, ariſe from ſome accident, as thoſe trees which are young and vigorous, and grow upon a deep rich ſoil, will always produce larger and better nouriſhed fruit, than thoſe which ſtand on a ſhallow dry ground, and are unthriving trees: as will alſo the age of a tree make a great alteration in the ſize of the fruit; for old trees are generally obſerved to produce ſmaller and flatter nuts than thoſe which are young, or than the ſame trees did bear while they were vigorous.

When the Chocolate-trees firſt appear above ground, they are very tender, and ſubject to great injuries from the ſtrong winds, the ſcorching ſun, or great droughts, for which reaſon the planters are obliged to guard againſt all theſe enemies, firſt, by making choice of a ſheltered ſituation, or at leaſt by planting trees to form a ſhelter; and, if poſſible, to have the plantation near a river, for the conveniency of watering the plants the firſt ſeaſon, until they have made ſtrong roots, and are capable of drawing their nouriſhment from ſome depth in the earth, where they meet with moiſture. But in order to ſhelter the plants from the ſcorching rays of the ſun, they generally plant two rows of Caſſada between each row of Chocolate-trees, which will grow about ſeven or eight feet high, and ſcreen the young plants from the violence of the ſun the firſt ſeaſon; after which time, they will be in leſs danger of injury therefrom;

and the following ſeaſon, when the Caſſada is taken up for uſe, the ground ſhould be worked between the young plants, being very careful not to injure their roots by this operation. This method of planting the Caſſada between the young Chocolate-trees, is of great advantage to the planter; for when the roots of the Caſſada are taken up for uſe, it will defray the expence of keeping the ground clean from weeds, without which the young plants will come to nothing. The Plantains alſo, which will be fit to cut in about twelve months after planting, will defray the whole expence of preparing the ground, ſo that the produce of the Chocolate-trees will be neat profit; for as the Plantains produce fruit and decay, they will be ſucceeded by ſuckers, which will produce fruit in eight months after; whereby there will be a continual ſupply of food for the negroes, which will more than pay for keeping the ground wrought, and clear from weeds, until the Chocolate-trees begin to produce fruit, which is generally the third year after planting.

The planters uſually ſet the Plantain-trees two or three months before the Chocolate-nuts are ripe, that they may be large enough to afford ſhelter to the young plants when they come up; and the Caſſada is always planted a month or ſix weeks before the Chocolate-nuts, for the ſame reaſon. Some people plant Potatoes, others Cucumbers and Melons, or Water Melons, between the rows of Chocolate plants; which, they ſay, will prevent the weeds from riſing to injure the young plants; for as all theſe trail on the ground, they occupy the whole ſurface, and prevent the weeds from growing: but where this is practiſed, it ſhould be done with great caution, leſt, by being over-covetous, you injure the young Chocolate-nuts ſo much, that they may never recover it; therefore great care ſhould be taken to reduce the ſhoots of theſe plants, whenever they approach the Chocolate-trees; otherwiſe they will ſoon greatly injure, if not totally deſtroy them.

In about ſeven or eight days after the Chocolate-nuts are planted, the young plants will begin to appear above ground; when they ſhould be carefully looked over, to ſee if any of them are attacked by inſects; in which caſe, if the inſects are not timely deſtroyed, they will ſoon devour all the young plants; or if there ſhould be any weeds produced near the plants, they ſhould be carefully cut down with a hoe; in doing which, great care ſhould be taken that neither the tender ſhoot, nor the rind of the bark are injured. About twenty days after the plants have appeared, they will be five or ſix inches high, and have four or ſix leaves, according to the ſtrength of the plants. Theſe leaves are always produced by pairs, oppoſite to each other, as are alſo the branches; ſo that they make very regular handſome heads, if they are not injured by winds. In ten or twelve months they will be two feet and a half high, and have fourteen or ſixteen leaves. By this time the Caſſada, which was planted between the rows of Chocolate plants, will have large roots fit for uſe, therefore ſhould be taken up; and the ground being then wrought over again, will greatly encourage the young plants.

In two years time the plants will have grown to the height of three feet and a half, or ſometimes four feet, many of which will begin to flower; but the careful planters always pull off all theſe bloſſoms; for if they are permitted to remain to produce fruit, they will ſo much weaken the trees, that they ſeldom recover their ſtrength again, ſo as to become vigorous. When theſe plants are two years and a half old, they will produce flowers again, ſome of which are often left to bear fruit; but the moſt curious planters pull off all theſe, and never leave any to produce fruit until the third year; and then but a few, in proportion to the ſtrength of the trees; by which method, their trees always produce larger and better nouriſhed fruit, than thoſe which are ſuffered to bear a larger quantity, and will continue much longer in vigour. The fourth year they ſuffer their trees to bear a moderate crop, but they generally pull off ſome flowers from thoſe trees which are weak, that they may recover ſtrength before they are too old.

From the time when the flowers fall off, to the maturity of the fruit, is about four months. It is eaſy to know when the fruit is ripe by the colour of the pods, which become yellow on the ſide next the ſun. In gathering the fruit, they generally place a negro to each row of trees; who, being furniſhed with a baſket, goes from tree to tree, and cuts off all thoſe which are ripe, leaving the others for a longer time to ripen. When the baſket is full, he carries the fruit, and lays it in a heap at one end of the plantation; where, after they have gathered the whole plantation, they cut the pods lengthways, and take out all the nuts, being careful to diveſt them of the pulp which cloſely adheres to them; and then they carry them to the houſe, where they lay them in large caſks, or other veſſels of wood, raiſed above ground, and cover them with leaves of the Indian Reed and mats, upon which they lay ſome boards, putting ſome ſtones thereon to keep them down cloſe, in order to preſs the nuts. In theſe veſſels the nuts are kept four or five days; during which time, they muſt be ſtirred and turned every morning; otherwiſe they will be in danger of periſhing from the great fermentation they are uſually in. In this time they change from being white to a dark red or brown colour. Without this fermentation, they ſay the nuts will not keep; but will ſprout, if they are in a damp place, or ſhrivel and dry too much, if they are expoſed to heat.

After the nuts have been thus fermented, they ſhould be taken out of the veſſels and ſpread on coarſe cloths, where they may be expoſed to the ſun and wind; but at night, or in rainy weather, they muſt be taken under ſhelter, otherwiſe the damp will ſpoil them. If the weather proves fair, three days time will be long enough to dry them, provided they are carefully turned from time to time, that they may dry equally on every ſide. When they are perfectly dry, they may be put up in boxes or ſacks, and preſerved in a dry place until they are ſhipped off, or otherwiſe diſpoſed of. The freſher theſe nuts are, the more oil is contained in them; ſo that the older they are, the leſs they are eſteemed.

Theſe trees do not produce their fruit on the young branches, or at their extremities, as moſt other trees do; but from the trunk, and the larger branches, come out the buds for flowers and fruit. While the trees are young, they do not produce their fruit in great plenty; for before the trees are eight years old, they reckon it a good crop to have twenty-eight or thirty pods on each tree at one gathering, eſpecially that at Midſummer; which is always a much worſe crop than the Chriſtmas ſeaſon, which is occaſioned by the much greater drought of the ſpring; for the autumns being the rainy ſeaſons, the Chocolate-trees produce a much greater quantity of fruit. When the trees are full grown and vigorous, they will ſometimes produce two hundred, or two hundred and forty pods at one ſeaſon; which will make ten or twelve pounds of Chocolate, when dried; ſo that it is a very profitable commodity, and can be managed with very little charge, when compared with ſugar. I have been credibly informed by a perſon of great worth and integrity, who reſided ſome years in America, that he has ſeen as much Chocolate gathered from one tree in a year, as hath been worth thirty ſhillings ſterling on the ſpot: ſo that the trouble of gathering and preparing for the market, being much leſs than for many other commodities which are manufactured in the Britiſh colonies, it is ſurpriſing it ſhould be neglected; eſpecially as it yields ſo large a ſhare of ſuſtenance to the wealthier inhabitants of thoſe colonies, that they cannot live comfortably without it, and purchaſe it from the French and Spaniards at a conſiderable price; which in time muſt greatly impoveriſh the colonies.

The Chocolate-trees, if planted on a good ſoil, and properly taken care of, will continue vigorous and fruitful twenty-five or thirty years: therefore the charge of cultivating a plantation of theſe trees, muſt be much leſs than that of Sugar; for although the ground between the rows of plants will require to be often hoed and wrought, yet the firſt working of a ground to make a new plantation of Sugar, Indigo, Caſſada, &c. is a larger expence than the after-workings are. Beſides, Sugar-canes require as much labour in their cultivation, as any plant whatever; and ſince the inſects which deſtroy the Sugar-canes, have ſpread ſo much in the Britiſh colonies, nothing is a more uncertain crop than Sugar; for which reaſon, I think it would be greatly worth thoſe planters care, who are poſſeſſed of proper lands for the Chocolate-trees, to make ſome ſmall trials at leaſt, to be convinced of the truth of this fact.

The leaves of theſe trees being large, make a great litter upon the ground when they fall; but this is not injurious, but rather of ſervice to the trees; for the ſurface of the ground being covered with them, they preſerve the moiſture in the ground, and prevent its evaporating; which is of great uſe to the young tender roots, which are juſt under the ſurface; and when the leaves are rotten, they may be buried in digging the ground, and it will ſerve as good manure. Some planters let the pods, in which the Chocolate is incloſed, lie and rot in a heap (after they have taken the nuts out) which they alſo ſpread on the ground inſtead of dung. Either of theſe manures are very good, provided they are well rotted before they are laid on the ground; and great care ſhould be had, that no vermin ſhould be carried on the plantation with the dung.

Beſides the ordinary care of digging, hoeing, and manuring the plantations of Chocolate-trees, there is alſo another thing requiſite in order to their doing well; which is, to prune the decayed branches off, and to take away ſmall ill placed branches, wherever they are produced. But you ſhould be cautious how this work is performed; for there ſhould be no vigorous branches ſhortened, nor any large amputations made on theſe trees; becauſe they abound with a ſoft, glutinous, milky juice, which will flow out for many days whenever they are wounded, which greatly weakens the trees. However, ſuch branches whoſe extreme parts are decayed, ſhould be cut off, to prevent the infection from proceeding farther; and ſuch branches as are much decayed, ſhould be taken off cloſe to the ſtem of the tree; but this ſhould be performed in dry weather, ſoon after the crop of fruit is gathered.

Some people may perhaps imagine, that what I have directed, is a tedious laborious work, and not to be performed by a few ſlaves: but this is a great miſtake, for I have been credibly informed, that five or ſix negroes will cultivate a plantation of ten thouſand of theſe trees, provided they are properly inſtructed; which is a ſmall number, when compared to the quantity neceſſary to cultivate a Sugar plantation of the like extent of ground. And when the profits of both are compared, there will be a great difference: for, ſuppoſing we ſet the price of five ſhillings per annum, for the produce of each tree, when grown, (which I am of opinion is very moderate, conſidering what has been related;) then a plantation of ten thouſand trees will produce twenty-five hundred pounds a year; which, managed by ſix or ſeven negroes, without the expence of furnaces, &c. is a much greater profit than, I think, can be drawn from any other production.

In order to cultivate this plant in Europe, by way of curioſity, it will be neceſſary to have the nuts planted into boxes of earth (in the countries where they grow) ſoon after they are ripe; becauſe, if the nuts are ſent over, they will loſe their growing quality before they arrive. Theſe boxes ſhould be placed in a ſhady ſituation, and muſt be frequently watered, in order to forward the vegetation of the nuts. In about a fortnight after the nuts are planted, the plants will begin to appear above ground; when they ſhould be carefully watered in dry weather, and protected from the violent heat of the ſun, which is very injurious to theſe plants, eſpecially while they are young: they ſhould alſo be kept very clear from weeds; which, if ſuffered to grow in the boxes, will ſoon overbear the plants and deſtroy them. When the plants are grown ſtrong enough to tranſport, they ſhould be ſhipped and placed where they may be ſcreened from ſtrong winds, ſalt water, and the violent heat of the ſun. During their paſſage they muſt be frequently refreſhed with water; but it muſt not be given them in great quantities, leſt it rot the tender fibres of their roots, which will deſtroy the plants; and when they come into a cool latitude, they muſt be carefully protected from the cold, when they will not require ſo frequently to be watered: for in a moderate degree of heat, if they have gentle waterings once a week, it will be ſufficient.

When the plants arrive in England, they ſhould be carefully taken out of the boxes, and each tranſplanted into a ſeparate pot filled with light rich earth, and plunged into a moderate hot-bed of tanners bark, being careful to cover the glaſſes in the heat of the day, to ſcreen the plants from the ſun: they muſt alſo be frequently watered, but it muſt be done with caution, not to rot their roots. In this hot-bed the plants may remain till Michaelmas, when they muſt be removed into the bark-ſtove, and plunged into the tan, in the warmeſt part of the ſtove. During the winter ſeaſon the plants muſt be frequently refreſhed with water, but it muſt be given to them in ſmall quantities, yet in ſummer they will require a more plentiful ſhare. Theſe plants are too tender to live in the open air in this country, even in the hotteſt ſeaſon of the year; therefore muſt conſtantly remain in the bark-ſtove, obſerving in very warm weather to let in a large ſhare of freſh air to them, and in winter to keep them very warm. As the plants increaſe in bulk, they ſhould be ſhifted into larger pots; in doing of which, there muſt be particular care taken not to tear or bruiſe their roots, which often kills the plants; nor muſt they be placed in pots too large, becauſe that is a ſlow, but ſure death to them. The leaves of theſe plants muſt be frequently waſhed to clear them from filth, which they are ſubject to contract by remaining conſtantly in the houſe; and this becomes an harbour for ſmall inſects, which will infeſt the plants, and deſtroy them, if they are not timely waſhed off. If theſe rules are duly obſerved, the plants will thrive very well, and may produce flowers in this climate: but it will be very difficult to obtain fruit from them; for, being of a very tender nature, they are ſubject to many accidents in a cold country.

CACHRYS. Lin. Gen. Plant. 304.

The Characters are,

It hath an umbellated flower, the great or general umbel being compoſed of many ſmaller; the involucrum of both is compoſed of many narrow ſpear-ſhaped leaves; the great umbel is uniform. The flower hath five ſpear-ſhaped, erect, equal petals. It hath five ſingle ſtamina the length of the petals, terminated by ſingle ſummits. The turbinated germen is ſituated under the receptacle, ſupporting two ſtyles, crowned by roundiſh ſtigma. The empalement afterward becomes a large, oval, blunt fruit, dividing in two parts, each having one large fungous ſeed, convex on one ſide, and plain on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The Species are,

1. Cachrys (*Trifidus*) foliis bipinatis, foliolis linearibus trifidis, ſeminibus lævibus. *Cachrys with bipinnated leaves, whoſe lobes are linear, and a ſmooth fruit.* Cachrys ſemine fungoſo lævi, foliis ferulaceis. Mor. Umb. 62.
2. Cachrys (*Sicula*) foliis bipinnatis, foliolis linearibus acutis, ſeminibus ſulcatis hiſpidis. Lin. Sp. 355. *Cachrys*

chrys with double winged leaves, whoſe lobes are linear, acute, and prickly furrowed ſeeds. Cachrys ſemine fungoſo ſulcato aſpero, foliis peucedani latiuſculis. Mor. Hiſt. 3. p. 267.

3. Cachrys (*Libanotis*) foliis bipinnatis, foliolis acutis multifidis, ſeminibus ſulcatis lævibus. Lin. Sp. 355. *Cachrys with double winged leaves, whoſe lobes are acute, multifid, and ſmooth furrowed ſeeds.* Cachrys ſemine fungoſo ſulcato plano minore, foliis peucedani anguſtis. Mor. Hiſt. 3. p. 267.

4. Cachrys (*Linearia*) foliis pinnatis foliolis linearibus multifidis ſeminibus ſulcatis planis. *Cachrys with very narrow, multifid, winged leaves, aud a plain channelled fruit.* Cachrys ſemine fungoſo ſulcato plano majore foliis peucedani anguſtis. Mor. Umb. 62.

5. Cachrys (*Hungarica*) foliorum impari lobato, hirſuto, ſemine fungoſo ſulcato plano. *Cachrys with hairy leaves, terminated with an odd lobe, and a plain, fungous, channelled ſeed.* Cachrys Hungarica Panacis folio. Tourn. Hiſt. 325.

The firſt ſort hath a thick fleſhy root which ſtrikes deep in the ground, from which ſprings out many narrow winged leaves reſembling thoſe of Giant-fennel, which ſpread near the ground; from between theſe ariſe a hollow fungous ſtalk about two feet high, terminated by a large umbel of yellow flowers, which are ſucceeded by oval, ſmooth, fungous fruit, dividing into two parts, each incloſing an oblong ſeed.

The ſecond ſort hath a large, firm, ſweet-ſmelling root, which ſends out ſeveral pinnated leaves like thoſe of Hog's-fennel, but ſhorter. The ſtalk is ſmooth jointed, and riſes four or five feet high, which is terminated by large umbels of yellow flowers like thoſe of Dill; theſe are ſucceeded by oblong, fungous, channelled ſeeds, which are prickly.

The third ſort hath a thick fleſhy root like Fennel, which runs deep into the ground, ſending out ſeveral narrow pinnated leaves, ending in many points; between theſe ariſe a ſmooth jointed ſtalk about three feet high, which is terminated by large umbels of flowers like thoſe of the former ſort, which are ſucceeded by ſmaller fungous plain ſeeds which are furrowed.

The fourth ſort hath very thick roots which ſtrike deep in the ground, ſending out very narrow winged leaves like thoſe of Hog's-fennel. The ſtalk riſes five or ſix feet high, and is jointed like thoſe of Fennel, terminated by large umbels of yellow flowers, which are ſucceeded by large, oval, fungous ſeeds, which are deeply furrowed.

The fifth ſort has a thick fungous root, from which ſhoot out many winged leaves, having large hairy lobes placed alternate, terminated by an odd one: the ſtalk is hollow, riſing four feet high, terminated by an umbel of yellow flowers like thoſe of the former ſorts. This grows naturally in Hungary.

The firſt ſort grows naturally in the ſouth of France and Spain; the ſecond and third in Italy; the fourth in Sicily. They flower in June, and their ſeeds ripen in autumn.

Theſe plants are all propagated by ſeeds, which ſhould be ſown ſoon after they are ripe; for if they are kept out of the ground till the following ſpring, they often miſcarry, and when they ſucceed, they never come up until the ſpring after; ſo that by ſowing them in autumn, a whole year is ſaved, and the ſeeds ſeldom miſcarry. Theſe ſeeds ſhould be ſown on a ſhady border, where the plants are to remain; for the plants having long tap roots, will not bear tranſplanting ſo well as many other kinds. The diſtance to be obſerved for the ſowing of their ſeeds ſhould be three feet apart; ſo that if each kind is ſown in a drill, when the plants are come up, they may be thinned, leaving two of the moſt promiſing plants of each kind to remain. Theſe plants will begin to appear early in April, when they muſt be carefully cleared from weeds; and in dry weather, if they are gently watered while young, it will greatly promote their growth; after which time they will require no farther care but to keep them clean from weeds, and every ſpring to dig the ground carefully between them, ſo as not to injure the roots.

Theſe plants decay to the ground every autumn, and come up again in the ſpring: they commonly flower in the beginning of June, and their ſeeds are ripe in September. Their roots ſometimes run down three or four feet deep in the earth, provided the ſoil be light, and are often as large as Parſneps. They will continue many years, and if the ſoil is moiſt and rich, they will annually produce good ſeeds; but when they grow on a dry ſoil, the flowers commonly fall away, and are not ſucceeded by ſeeds.

There is but little to be ſaid of the uſes of this genus of plants; the Hungarians in the neighbourhood of Erlaw, and thoſe who border on Tranſylvania, Servia, &c. eat the root of the fifth ſpecies in a ſcarcity of corn, for want of other bread.

CACTUS. Lin. Gen. Plant. 539. Melocactus. Tourn. Append.

This genus was firſt titled Melocarduus, and alſo Echinomelocactus, or Hedgehog Melon-thiſtle; but theſe names being compounded, Dr. Linnæus has changed the name to Cactus, and has added to this genus, the Cereus and Opuntia.

The Characters are,

The empalement of the flower is of one leaf, tubulous, ſhort, and cut into ſix parts. The flower is compoſed of ſix petals, which ſpread open at the top, and reſts upon the embryo; it hath ſix long ſlender ſtamina, which are terminated by erect ſummits. The oval germen, which is ſituated below the petals, ſupports a cylindrical ſtyle, crowned by a blunt ſtigma; afterward becomes a pyramidal fleſhy fruit with one cell, filled with ſmall angular ſeeds ſurrounded with pulp.

This genus of plants is ranged in the firſt ſection of Linnæus's twelfth claſs, intitled Icoſandria Monogynia. This claſs includes thoſe plants whoſe flowers have from twelve to twenty ſtamina; which, with the corolla, are faſtened to the inner ſide of the empalement.

The Species are,

1. Cactus (*Melocactus*) ſubrotundus quatuordecem angularis. Hort. Cliff. 181. *Roundiſh Cactus with fourteen angles.* Melocactus Indiæ occidentalis. C. B. P. 384. *Commonly called Great Melon-thiſtle.*

2. Cactus (*Intortus*) ſubrotundus quinquedecem angularis, angulis in ſpiram intortis, ſpinis erectis. *Roundiſh Cactus or Melon-thiſtle, with fifteen angles ſpirally twiſted, and erect ſpines.* Melocactus purpureis ſtriis in ſpiram intortis. Plum. Cat.

3. Cactus (*Recurvus*) ſubrotundus quinquedecem angularis, ſpinis latis recurvis creberrimis. *Roundiſh Melon-thiſtle with fifteen angles, having broad recurved ſpines ſet very cloſe.*

4. Cactus (*Mamillaris*) ſubrotundus tectus tuberculis ovatis barbatis. Hort. Cliff. 181. *Roundiſh Cactus cloſely covered with bearded tubercles.* Melocactus Americana minor. Boerh. Ind. alt. 2. 84. *Smaller American Melon-thiſtle.*

6. Cactus (*Proliferus*) proliferus ſubrotundus, tectus tuberculis ovatis barbatis longis albidis. *Roundiſh prolific Cactus, with oval tubercles cloſely joined, having long white beards, commonly called Small Childing Melon-thiſtle.*

Theſe plants are natives of the Weſt-Indies, where there are more ſorts than are here enumerated, if perſons of ſkill were to examine thoſe iſlands. There have been about four of the large kinds brought to England, ſome of which have been crowned with a prickly brown cap, in form of one of thoſe fur caps, which are worn by the Turks; and others, which have been deſtitute of theſe caps, although the plants were full as large as thoſe which had them; therefore ſome perſons have ſuppoſed them to be diſtinct ſpecies, eſpecially ſince theſe have been many years preſerved in the gardens, and no appearance of any caps as yet have been produced; but as theſe have been rarely propagated by ſeeds, it is difficult to determine if they are eſſentially different. Thoſe which have theſe caps, produce their fruit in circles round the upper part of the cap; whereas, the ſmaller ſorts produce their fruit from between the tubercles, round the middle of the plant: and in ſome figures of the larger ſorts of theſe plants, the fruit is repreſented as coming out near the crown of the plant; ſo that if a ſkilful botaniſt was to examine theſe plants in the places of their growth, there would probably be found a much greater variety of them than is at preſent known.

Theſe ſtrange plants commonly grow upon the ſteep ſides of rocks in the warmeſt parts of America, where they ſeem to be thruſt out of the apertures, having little or no earth to ſupport them; their roots ſhooting down into the fiſſures of the rock to a conſiderable depth, ſo that it is troubleſome to get the plants up, eſpecially as they are ſo ſtrongly armed with thorns as to render it very dangerous to handle them; and as theſe plants delight in thoſe rocky places, they ſeldom live long when they are tranſplanted into better ſoil by the inhabitants of thoſe iſlands.

The great ſorts were ſome years ſince brought over to England in much greater plenty than of late; but then the greateſt part of them were deſtroyed, by the unſkilfulneſs of thoſe perſons who had the care of them in the voyage; for, by giving them water, they generally cauſed them to rot before they were taken out of the ſhips; and ſome of thoſe which have appeared to be ſound, have been ſo replete with moiſture, as to rot ſoon after they have been placed in the ſtoves; therefore whoever propoſes to bring theſe plants from abroad, ſhould be very careful to take up their roots as entire as poſſible, and to plant them in tubs filled with ſtones and rubbiſh, mixing very little earth with it, and to plant three or four plants in each tub, in proportion to their ſizes; for if they are placed cloſe together, it will ſave room; and as they do not increaſe their growth during their paſſage, there need not be any room allowed them for that purpoſe. There ſhould be ſeveral pretty large holes bored thro' the bottom of theſe tubs, to let the moiſture paſs off; and if theſe plants are planted in the tubs a month before they are put on board the ſhip, they will in that time have made new roots, which will be the moſt ſecure method to have them ſucceed; but, during their continuance in the country, they ſhould have no water given them, and after they are put on board the ſhip, they muſt not have any moiſture whatever; therefore it will be a good method to cover the plants with tarpaulin, to keep off the ſpray of the ſea in bad weather, and expoſe them at all times to the open air when the ſea is calm. By obſerving theſe directions, the plants may be brought to England in good health, provided they are brought in ſummer.

Some of the large ſort which have been brought to England, have been more than a yard in circumference, and two feet and a half high, including their caps; but I have been informed by ſeveral perſons who have reſided in the Weſt-Indies, that there are plants near twice as large.

The third ſort was brought into England by the late Dr. William Houſtoun, who procured the plants from Mexico; but as they were long in their paſſage, and had received wet, they were decayed before they arrived in England; but from the remains of them which were left, they appeared to be the moſt ſingular of all the ſpecies yet known. This has two orders of thorns; one of which are ſtrait, and ſet on at the joints in cluſters, ſpreading out from the center each way like a ſtar; and in the middle of each cluſter is produced one broad flat thorn near two inches in length, which ſtands erect, and is recurved at the point, and is of a browniſh red colour. Theſe thorns are, by the inhabitants of Mexico, ſet in gold or ſilver, and made uſe of for picking their teeth, and the plant is by them called Viſnaga, i. e. toothpick.

The ſort with ſpiral ribs, as alſo that with white ſpines, I received from Antigua, with the common ſort; but whether theſe are only accidental varieties, ariſing from the ſame ſeeds, or real different ſpecies, I cannot take upon me to determine; ſince, in this country, they are very rarely propagated by ſeeds; nor could I obſerve, in the ſeveral years that I have had theſe plants under my care, there was the leaſt diſpoſition in either of them to produce fruit; when, at the ſame time, the common large ſort produced plenty of fruit out of their caps every year, from the ſeeds of which I have raiſed ſome young plants; but although ſome of theſe have grown to a conſiderable ſize, yet none of them have as yet produced caps, therefore no fruit can be yet expected from them.

The fifth ſort produces quantities of fruit annually; and as the ſeeds grow very readily, it is now very common in thoſe gardens where there are ſtoves to keep them; for if the fruit is permitted to drop upon the earth of the pots, and that is not diſturbed, there will plenty of plants come up without any farther trouble; and theſe ſeedling plants may be taken up as ſoon as they are of a proper ſize to remove, and planted ſix or ſeven of them into a ſmall halfpenny pot, where they may ſtand one year; by which time they will be large enough to be each planted into a ſeparate pot, and afterward they will make great progreſs, eſpecially if they are plunged into a hot-bed of tanners bark in ſummer; for although this ſort is much more hardy than the large kind, and may be preſerved in a moderate ſtove, yet the plants will not make near the progreſs as thoſe which are kept in a greater degree of heat. This ſort will continue many years with proper care, and the plants will grow to be a foot high or more; but when they are ſo tall, the lower part of them is not ſo ſightly, their green being decayed, and the ſpines changed to a dark dirty colour, they appear as if dead, ſo that the upper part of theſe old plants only ſeem to have life; whereas the plants of the middling ſize appear healthy from top to bottom. The flowers of this ſort appear in July and Auguſt, and are ſucceeded by the fruit quite round the plant, which are of a fine ſcarlet colour, and continue freſh upon the plants through the winter, which renders them very beautiful at that ſeaſon. And in the ſpring, when the fruit ſhrivels and becomes dry, the ſeeds will be ripe, and may then be rubbed out, and ſown upon the ſurface of the earth in ſmall pots, which ſhould be plunged into a hot-bed of tanners bark to bring up the plants.

The ſixth ſort is but little larger than the fifth, growing nearly in the ſame form; but this produces a great number of young plants from the ſides, by which it is increaſed. This ſort produces tufts of a ſoft white down upon the knobs, and alſo between them at every joint, which makes the whole plant appear as if it was covered with fine cotton. The flowers of this ſort are produced from between the knobs round the ſides of the plants, which are in ſhape and colour very much like thoſe of the fifth ſort, but larger. Theſe flowers are not ſucceeded by any fruit, at leaſt all thoſe which I have under my care, have not produced any, although they have produced plenty of flowers for ſome years; but from the ſame places where the flowers have appeared, there have been young plants thruſt out the following ſeaſon. Theſe young plants I have taken off, and after laying them to dry for two or three days, I have planted them, and they have ſucceeded very well.

All the ſpecies of this genus are plants of a ſingular ſtructure, but eſpecially the larger kinds of them, which appear like a large fleſhy green Melon, with deep ribs, ſet all over with ſtrong ſharp thorns; and when the plants are cut through the middle, their inſide is nothing but a ſoft, green, fleſhy ſubſtance, very full of moiſture. And I have been aſſured by perſons of credit, who have lived in the Weſt-Indies, that in times of great drought, the cattle repair to the barren rocks, which are covered with theſe plants, and after having ripped up the large plants with their horns, ſo as to tear off the outſide ſkin with the thorns, they have greedily devoured all the fleſhy moiſt parts of the plants, which has afforded them both meat and drink; but how any animal ſhould ever attack plants which are ſo well defended by ſtrong thorns, which are as hard and ſtiff as whalebone, or any other bony ſubſtance, is difficult to conceive; nor could any thing but diſtreſs for moiſture ever have tempted them to venture amongſt theſe troubleſome plants to ſearch for relief, ſince they muſt encounter with many difficulties, before they could find a method of diſlodging the thorns.

The fruit of all the ſorts of Melon-thiſtles, are frequently eaten by the inhabitants of the Weſt-Indies; there is ſcarce any difference in the fruits of all the kinds I have yet ſeen, either in ſize, ſhape, colour, or taſte. They are about three quarters of an inch in length, of a taper form, drawing to a point at the bottom toward the plant, but blunt at the top, where the empalement of the flower was ſituated. The taſte is an agreeable acid, which, in a hot country, muſt render the fruit more grateful.

All the ſorts of theſe plants require a very good ſtove to preſerve them through the winter in England, nor ſhould they be expoſed to the open air in ſummer; for although they may continue fair to outward appearance, when they have been ſome time expoſed abroad, yet they will imbibe moiſture, which will cauſe them to rot ſoon after they are removed into the ſtove. And this is frequently the caſe of thoſe plants which are brought from abroad, which have a fair healthy appearance many times at their firſt arrival, but ſoon after decay, and this will happen very ſuddenly. Scarce any appearance of diſorder will be ſeen, till the whole plant is killed; which, in a few hours time, has often been the fate of thoſe plants, when they have been placed in the ſtove.

If theſe plants are plunged into a hot-bed of tanners bark in ſummer, it will greatly forward them in their growth; but when this is practiſed, there ſhould be ſcarce any water given to the plants, for the moiſture which they will imbibe from the fermentation of the tan, will be ſufficient for them, and more would cauſe them to rot. The beſt method to preſerve all the large kinds is, in winter, to place the pots, either upon the tops of the flues, or, at leaſt, very near them, that they may have the warmeſt place of the ſtove; and during that ſeaſon, never to give them any water; but when the ſeaſon comes for leaving out the fire in the ſtove, to remove them into a bed of tanners bark, which will ſoon ſet them in a growing ſtate, and recover their verdure. The ſoil in which theſe ſhould be planted, muſt be of a ſandy nature, and if mixed with ſome dry lime rubbiſh, it will be ſtill better. In the bottom of the pots ſhould be placed ſome ſtones, in order to drain off any moiſture which may be in the earth; for as theſe plants naturally grow upon the hot dry burning rocks which have no earth, and, were it not for theſe plants, would be abſolutely barren, we muſt imitate their natural ſoil as near as poſſible, making ſome allowance for the difference of climates.

The great ſorts may be propagated by ſeeds, which muſt be ſown and managed as hath been directed for the ſmaller ſort; but as the plants which are raiſed from ſeeds in England, will be ſome years in arriving to any conſiderable ſize, it will be much the beſt way to procure ſome plants from the Weſt-Indies; and if the plants arrive here in any of the ſummer months, ſo as that there may be time for them to get new root before the cold comes on in autumn, the plants will more certainly ſucceed. When the plants come over, it will be proper to take them out of the earth as ſoon as poſſible, and lay them in the ſtove upon the ſhelves, to dry for a fortnight or three weeks; and when they are planted, they ſhould be plunged into a good warm bed of tanners bark, to promote their making new roots. In this bed they may remain till the beginning of October, when they muſt be removed into the ſtove, and treated in the manner before directed.

The two ſmall ſorts propagate ſo faſt in England, as to render it unneceſſary to ſend for plants of theſe kinds from abroad; for whoever hath a mind to be plentifully ſtocked with them, may be ſoon ſupplied with the fifth ſort from ſeeds, and the ſixth from the young plants which are thruſt out from the ſide of the old.

CÆSALPINA. Plum. Nov. Gen. 9. Braſiletto.

This plant was ſo named by father Plumier, who diſcovered it in America, in honour of Andreas Cæſalpinus, an eminent botaniſt, and one of the firſt writers on a method of claſſing plants.

The Characters are,

It hath a quinquefid pitcher-ſhaped empalement, the under lobe being large. The flower hath five almoſt equal petals, of the butterfly kind. It hath ten declining ſtamina which are diſtinct, and terminated by roundiſh ſummits, and an oblong germen ſupporting a ſingle ſtyle the length of the ſtamina, crowned by a blunt ſtigma. The empalement afterward becomes an oblong compreſſed pod, with one cell incloſing three or four compreſſed ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, the flower having ten ſeparate ſtamina and one ſtyle.

The Species are,

1. Cæsalpina (*Braſilienſis*) foliis duplicato-pinnatis, foliolis emarginatis, floribus decandris. *Cæſalpina with doubly winged leaves, whoſe ſmall leaves are indented at the end, and flowers with ten ſtamina.* Pſeudo-ſantalum croceum. Sloan. Hiſt. Jam. Vol. II. p. 184. *Saffron-coloured Baſtard Saunders, commonly called Braſiletto.*
2. Cæsalpina (*Ariſta*) foliis duplicato-pinnatis foliolis ovatis integerrimis floribus pentandriis. *Cæſalpina with doubly winged leaves, whoſe ſmall leaves are oval and entire, and flowers with five ſtamina.* Cæſalpina polyphylla aculis horrida. Plum. Nov. Gen. 28.

The firſt ſort is the tree which affords the Braſiletto wood, which is much uſed in dyeing. It grows naturally in the warmeſt parts of America, from whence the wood is imported for the dyers; and the demand for it has been ſo great, that there are no large trees left in any of the Britiſh colonies, the biggeſt ſcarce exceeding eight inches in diameter, and fifteen feet in height. It hath very ſlender branches, which are armed with recurved thorns. The leaves are winged, branching out into many diviſions, each being garniſhed with ſmall oval lobes which are indented at the top, and are placed oppoſite. The foot-ſtalks of the flowers come out from the ſide of the branches, and are terminated by a looſe pyramidal ſpike of white flowers, which are ſhaped ſomewhat like thoſe of the butterfly kind, having ten ſtamina which are much longer than the petals, and terminated by roundiſh yellow ſummits. The germen afterward becomes a long compreſſed pod with one cell, incloſing ſeveral oval flat ſeeds.

The ſecond ſort grows naturally in the ſame countries with the firſt, but is of larger ſize: it ſends out many weak irregular branches, armed with ſhort, ſtrong, upright thorns. The leaves branch out in the ſame manner as the firſt, but the lobes (or ſmall leaves) are oval and entire. The flowers are produced in long ſpikes like thoſe of the former, but are variegated with red; theſe have each but five ſtamina, therefore, according to Linnæus's ſyſtem, ſhould not be ranged in this claſs; but as in all the other characters they agree, I have continued them together.

Dr. Linnæus has joined theſe two ſpecies together, in which he has been followed by Dr. Burman; but if either of them had ſeen the plants, they could not have committed this miſtake. To this genus Linnæus has added two other ſpecies, one of which is a Guilandina, and the other a Bauhinia: to the latter he has added the Synonime of Colutea Veræ Crucis Veſicaria, which is a plant totally different, being a genuine Colutea. I received this from the late Dr. Houſtoun, who found it growing naturally at La Vera Cruz, in New Spain.

Theſe plants are propagated by ſeeds, which ſhould be ſown in ſmall pots filled with light rich earth early in the ſpring, and plunged into a hot-bed of tanners bark, obſerving to water the earth as often as it appears

pears dry, in order to promote the vegetation of the ſeeds; and if the nights ſhould prove cold, the glaſſes of the hot-bed ſhould be covered with mats, to keep the bed in a moderate warmth. In about ſix weeks after, the plants will begin to appear, when they muſt be carefully cleared from weeds, and frequently refreſhed with water; and, in warm weather, the glaſſes of the hot-bed ſhould be raiſed in the middle of the day, to admit freſh air to the plants, which will greatly ſtrengthen them, otherwiſe they are apt to draw up weak. When the plants are about three inches high, they ſhould be carefully taken out of the pots, and each tranſplanted into a ſeparate ſmall pot filled with freſh light earth, and plunged into the hot-bed again, obſerving to water them, and ſcreen them from the heat of the ſun until they have taken new root; after which time, the glaſſes of the hot-bed ſhould be raiſed every day, in proportion to the heat of the weather, to admit freſh air to the plants. In this hot-bed the plants may remain till autumn, when they ſhould be removed into the ſtove, and plunged into the bark-bed, where they may have room to grow. Theſe plants being tender, ſhould always be kept in the bark-ſtove, and have a moderate ſhare of heat in the winter, and being placed among other tender exotic plants of the ſame country, will afford an agreeable variety.

CAINITO. See Chrysophyllum.

CAKILE, Sea Rocket. See Bunias.

CALABA, Indian Maſtich-tree. See Cornus.

CALAMINTHA. See Melissa.

CALCEOLUS, Ladies Slipper. See Cypripedium.

CALCITRAPA. See Centaurea.

CALEA.

The Characters are,

It hath a uniform compound flower, compoſed of many equal hermaphrodite florets, included in a looſe imbricated empalement; the florets are tubulous, divided into five ſegments; they have each five ſtamina with cylindrical ſummits, and an oblong germen, with a ſlender ſtyle the length of the corolla, crowned by two recurved ſtigma. The florets are ſucceeded by an oblong ſeed, crowned with a hairy down, having a chaffy ſubſtance between each ſeed.

This genus of plants is ranged in the firſt order of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis, the flowers being compoſed of hermaphrodite flowers.

The Species are,

1. Calea (*Oppoſitifolia*) corymbus congeſtis, pedunculis longiſſimis, foliis lanceolatis, caule herbaceo. Amœn. Acad. 5. p. 404. *Calea with a cloſe corymbus, very long foot-ſtalks to the flowers, ſpear-ſhaped leaves, and an herbaceous ſtalk.* Santolina Americana foliis oblongis integris, floribus albis. Houſt. MSS.
2. Calea (*Amellus*) floribus ſubpaniculatis, calycibus brevibus, ſeminibus nudis, foliis ovato-lanceolatis petiolatis. Amœn. Acad. 5. p. 404. *Calea with flowers in panicles, ſhort empalements, naked ſeeds, and oval ſpear-ſhaped leaves on foot-ſtalks.* Santolina ſcandens Americana Lauri foliis, floribus racemoſis. Houſt. MSS.

Theſe plants grow naturally in Jamaica. The firſt hath an upright herbaceous ſtalk three feet high, garniſhed with entire ſpear-ſhaped leaves, placed oppoſite at the joints; the ſtalk is terminated by three foot-ſtalks, one in the middle, and one on each ſide, ſupporting a ſmall corymbus of white flowers cloſely joined together.

The ſecond ſort hath ligneous branches, which ſpread over the neighbouring plants, and riſe eight or ten feet high, garniſhed with thick ſpear-ſhaped leaves placed oppoſite; from theſe ſtalks are put out many ſide branches, garniſhed with ſmaller leaves placed oppoſite, and terminated by panicles of yellow flowers, having ſhort empalements: theſe are ſucceeded by naked ſeeds incloſed in the flower-cup.

Theſe plants are both propagated by ſeeds, which ſhould be ſown upon a hot-bed early in the ſpring; when the plants come up, they ſhould be tenderly treated while young, admitting freſh air to them daily in proportion to the warmth of the ſeaſon, giving them water frequently, but ſparingly; when they have obtained ſtrength enough to be removed, thoſe of the firſt ſort ſhould be tranſplanted into another hot-bed, allowing them four inches diſtance. The plants of the ſecond ſort ſhould be put into ſmall pots plunged into the tan-bed, obſerving to ſhade them until they have taken new root; after which they ſhould be treated in the ſame manner as other tender exotic plants, watering them frequently in warm weather, and admitting freſh air to them daily. When the plants of the firſt ſort have grown ſo ſtrong as to meet, they ſhould be carefully planted in pots, and removed either into the ſtove or glaſs-caſe, where they may remain to ripen ſeeds, after which they ſoon die. The plants of the ſecond ſort will live many years if they are preſerved in the bark-ſtove, but they are too tender to thrive in the open air in this country; however, they ſhould have plenty of freſh air admitted to them in ſummer when the weather is warm.

CALENDULA. Lin. Gen. Plant. 885. Marigold.

The Characters are,

It hath a compound radiated flower, conſiſting of hermaphrodite and female florets, included in a common ſingle empalement, the border or rays being compoſed of female florets, which are ſtretched out on one ſide like a tongue; theſe have no ſtamina, but an oblong three-cornered germen, ſupporting a ſlender ſtyle, crowned by two reflexed ſtigma. The hermaphrodite florets, which compoſe the diſk, are tubulous and quinquefid, having five ſhort ſlender ſtamina, terminated by cylindrical ſummits. The germen is ſituated under the petal, ſupporting a ſlender ſtyle, crowned by an obtuſe bifid ſtigma. Theſe florets are barren, but the female florets are each ſucceeded by one oblong incurved ſeed, with angular membranes.

This genus of plants is ranged in the fourth ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia neceſſaria; in which are included all thoſe plants which have hermaphrodite barren flowers in the diſk, and fruitful female flowers in the border.

The Species are,

1. Calendula (*Arvenſis*) ſeminibus cymbiformibus muricatis incurvatis. Flor. Suec. 711. *Marigold with rough boat-ſhaped ſeeds.* Caltha arvenſis. C. B. P. 275.
2. Calendula (*Sancta*) ſeminibus urceolatis obovatis lævibus, calycibus ſubmuricatis. Lin. Sp. 1304. *Marigold with ſmooth pitcher-ſhaped leaves, and a rough empalement.* Caltha media folio longo cinereo, flore pallido. Bobart. *Middle Marigold with a long Aſh-coloured leaf, and a pale flower.*
3. Calendula (*Officinalis*) ſeminibus cymbiformibus muricatis, incurvatis omnibus. Lin. Sp. 1304. *Marigold with boat-ſhaped, prickly, incurved ſeeds.* Caltha vulgaris. C. B. P. 275. *Common Marigold.*
4. Calendula (*Pluvialis*) foliis lanceolatis ſinuato-denticulatis caule folioſo, pedunculis filiformibus. Hort. Upſal. 274. *Marigold with ſpear-ſhaped indented leaves, and ſlender foot-ſtalks.* Caltha Africana flore intus albo extus violaceo. Tourn. Inſt. R. H. 499.
5. Calenduda (*Nudicaulis*) foliis lanceolatis ſinuato-dentatis caule ſubnudo. Lin. Sp. Plant. 922. *Marigold with ſinuated, indented, ſpear-ſhaped leaves, and a naked ſtalk.* Caltha Africana flore intus albo, extus leviter violaceo, ſemine plano cordato. Boerh. Ind. alt. 1. p. 113.
6. Calendula (*Hybrida*) foliis lanceolatis dentatis caule folioſo, pedunculis ſuperne incraſſatis. Hort. Upſal. 274. *Marigold with indented ſpear-ſhaped leaves, and the upper part of the foot-ſtalk ſwelling.* Cardiſpermum Africanum pubeſcens foliis inciſis parvo flore. Vaill. Mem. Acad. Sc. 1724.
7. Calendula (*Graminifolia*) foliis linearibus ſubintegerrimis caule ſubnudo. Lin. Sp. Plant. 922. *Marigold with narrow entire leaves, and a naked ſtalk.* Caltha Africana foliis Croci anguſtis, florum petalis externè purpuraſcentibus, internè albis. Boerh. Ind. alt. 1. p. 113.

8. **Calendula** (*Fruticoſa*) foliis obovatis ſubdentatis, caule fruticoſo. Amœn. Acad. 5. p. 25. *Marigold with obverſe, oval, indented leaves, and a ſhrubby ſtalk.*

9. **Calendula** (*Decumbens*) foliis oppoſitis pinnatifidis aſperis, ſubtus incanis, ramis decumbentis, pedunculis nudis. *Marigold with rough pinnatifid leaves growing oppoſite, which are white on their under ſide, trailing branches, and naked foot-ſtalks.* Caltha Americana foliis laciniatis flore luteo. Houſt. MSS.

10. **Calendula** (*Americana*) caule erecto ramoſo, foliis oblongis oppoſitis hirſutis, floribus lateralibus. *Marigold with an upright branching ſtalk, oblong hairy leaves growing oppoſite, and flowers proceeding from the ſides of the ſtalk.* Caltha Americana erecta, & hirſuta, flore parvo ochroleuco. Houſt. MSS.

The firſt ſort grows naturally in the ſouth of France, Spain, and Italy; it riſes with a ſlender branching ſtalk, which ſpreads near the ground, and is garniſhed with narrow, ſpear-ſhaped, hairy leaves, which half ſurround the ſtalk at their baſe; the flowers are produced at the extremity of the branches upon long naked foot-ſtalks. They are very ſmall, and of a pale yellow colour; the rays are very narrow, as are alſo the leaves of the empalement. The ſeeds are long, narrow, and on their outſide armed with prickles. The root is annual, and periſhes ſoon after the ſeeds are ripe. If the ſeeds of this plant are permitted to ſcatter, there will be a freſh ſupply of young plants: ſo that from May, when the flowers firſt appear, till the froſt puts a ſtop to them, there will be a ſucceſſion of plants in flower. There are ſeveral botaniſts who ſuppoſe the common Marigold, which is cultivated in gardens, to be only a variety of this, ariſing from culture; but I have cultivated this in the garden more than forty years, without finding the leaſt alteration in it, therefore cannot doubt of its being a diſtinct ſpecies.

The ſecond ſort I gathered in the garden at Leyden, where it had been ſeveral years cultivated without altering; the leaves of this ſort are ſmooth, and much larger than thoſe of the former, but not ſo large as thoſe of the common Marigold; the flowers are alſo of a middle ſize between them, and are of a very pale yellow colour. This is alſo an annual plant. If the ſeeds are permitted to ſcatter, there will be a conſtant ſupply of young plants come up.

The third ſort is the common Marigold, which is cultivated for uſe in the gardens; this is ſo well known, as to require no deſcription. Of this there are the following varieties; the common ſingle; the double flowering; the largeſt very double flower; the double Lemon-coloured flower; the greater and ſmaller childing Marigold.

Theſe varieties are ſuppoſed to have been originally obtained from the ſeeds of the common Marigold, but moſt of theſe differences continue, if the ſeeds are properly ſaved; nor have I ever obſerved the common ſort approaching to either of theſe, where they have been long cultivated in the greateſt plenty; but as the two childing Marigolds, and the largeſt double, are ſubject to degenerate, where care is not taken in ſaving their ſeeds, I conclude they are not diſtinct ſpecies. The beſt way to preſerve theſe varieties, is to pull up all thoſe plants, whoſe flowers are leſs double, as ſoon as they appear, that they may not impregnate the others with their farina, and ſave the ſeeds from the largeſt and moſt double flowers; and the childing ſort ſhould be ſown by itſelf in a ſeparate part of the garden, and the ſeeds ſaved from the large center flowers only, not from the ſmall ones which come from the empalement of the other, for the ſeeds of theſe are apt to change.

The ſeeds of theſe may be ſown in March or April, where the plants are to remain, and will require no other culture but to keep them clean from weeds, and to thin the plants where they are too cloſe, leaving them ten inches aſunder, that their branches may have room to ſpread. Theſe plants will begin to flower in June, and continue in flower until the froſt kills them. The ſeeds ripen in Auguſt and September, which, if permitted to ſcatter, will furniſh a ſupply of young plants in the ſpring; but as theſe will be a mixture of bad and good, the beſt method is to ſave the beſt ſeeds, and ſow each of the varieties diſtinct, which is the ſure way to have them in perfection. The flowers of the common Marigold are uſed in the kitchen.

The fourth ſort grows naturally at the Cape of Good Hope. This plant is annual, and periſhes ſoon after the ſeeds are perfected.

The lower leaves are oblong, ſpear-ſhaped, and deeply indented on their edges; they are fleſhy, and of a pale green colour. The ſtalks are produced on every ſide the root, which decline toward the ground, and are from ſix to eight inches long, garniſhed with leaves from the bottom, to within two inches of the top. The leaves on the ſtalks are much narrower, and more indented than thoſe at the root. The upper part of the ſtalk is very ſlender, upon which reſts one flower, ſhaped like thoſe of the common Marigold, having a purple bottom; and the rays (or border) of the flower are of a Violet-colour on their outſide, and of a pure white within; theſe open when the ſun ſhines, but ſhut up in the evening, and remain ſo in cloudy weather. When the flower decays, the pedicle (or foot-ſtalk) becomes weak, and the head hangs down, during the formation and growth of the ſeeds; but when they are fully ripe, the foot-ſtalk raiſes itſelf again, and the heads of the ſeeds ſtand upright.

The fifth ſort is a native of the Cape of Good Hope. This is alſo an annual plant, and has much the appearance of the former, but the leaves are more deeply indented on their edges; the ſtalks grow about the ſame length as the former; the flower is a little ſmaller, and the outſide of the rays are of a fainter purple colour. The ſeeds of this are flat and heart-ſhaped, but thoſe of the former are long and narrow.

The ſixth ſort was brought from the ſame country with the two former, and is alſo an annual plant; the leaves of this are much longer than thoſe of either of the former ſorts, and broader at the end; they are regularly indented near the root, but thoſe on the ſtalks have but few and ſhallow indentures. The ſtalks of this ſort are much longer and thicker than thoſe of the former; and at the top, juſt below the flower, ſwell larger than at the bottom; the flower is ſmaller than thoſe of the other ſorts, but is of the ſame colour. Theſe plants flower in June, July, and Auguſt, and their ſeeds ripen about ſix weeks after; ſo that they muſt be gathered at different times as they come to maturity.

The ſeeds of theſe plants ſhould be ſown in the ſpring in the borders of the garden where the plants are deſigned to remain, for they do not bear tranſplanting well; therefore they may be treated in the ſame manner, and ſown at the ſame time, with Candy Tuft, Venus Looking Glaſs, and other hardy annual plants, putting four or five ſeeds in each patch; if they all grow, there ſhould not be more than two plants left in each patch: after this, they require no farther care but to keep them clean from weeds. If the ſeeds of theſe plants are permitted to ſcatter, the plants will come up the following ſpring without care, and theſe will flower earlier than thoſe which are ſown in the ſpring.

The ſeventh ſort is alſo a native of the ſame country. This is a perennial plant, which divides near the root into ſeveral tufted heads, which are cloſely covered with long graſſy leaves coming out on every ſide without order; ſome of theſe have one or two indentures on their edges, but the moſt part are entire. From between the leaves ariſe naked foot-ſtalks about nine inches long, ſuſtaining one flower at the top, which is about the ſize of the common Marigold, having a purple bottom; the rays are alſo purple without, but of a pure white within. Theſe expand when the ſun ſhines, but always cloſe in the evening, and in cloudy weather. The general ſeaſon of their beauty is in April and May, when they have the greateſt number of flowers upon them; but there is commonly a ſucceſſion of flowers late in the autumn, though not in ſo great plenty. This ſort doth not often produce good ſeeds in Europe, but it is eaſily propagated by ſlips taken off from the heads, in the ſame manner as is practiſed for Thrift. They may be planted any time in ſummer, in pots filled with light freſh earth, which may be plunged into a very moderate hot-bed, to forward their putting out roots; or otherwiſe the pots may be ſunk in the ground up to their rims, and covered with a Melon-glaſs, which, in the middle of ſummer, will anſwer full as well, but in the ſpring or autumn, the former method is to be preferred: when theſe are planted, the glaſſes muſt be ſhaded in the heat of the day, and the ſlips muſt be frequently refreſhed with water, but it muſt not be given them too liberally, for much wet will rot them: after they have got ſtrong roots, they ſhould be each planted into ſeparate ſmall pots, filled with freſh light earth, and placed in a ſhady ſituation, till they have taken freſh root, when they may be placed in the open air, in a ſheltered ſituation, where they may remain till autumn, and then ſhould be placed in a dry, airy, glaſs-caſe, for the winter ſeaſon, or under a common hot-bed frame; for theſe plants do not thrive in artificial heat, they only require protection from froſt and wet, and ſhould enjoy the air at all times when the weather is mild. The ſeeds of this ſort are heart-ſhaped, like thoſe of the fifth. I have ſometimes had one or two heads of them ripen in a ſeaſon, but this is very rare; and if the ſeeds are not ſown in autumn, they ſeldom grow.

The eighth ſort has been of late years introduced into the Dutch gardens from the Cape of Good Hope. This was ſent me by Dr. Van Royen, profeſſor of botany at Leyden, ſome years paſt. It hath a ſlender, ſhrubby, perennial ſtalk, which riſes to the height of ſeven or eight feet, but requires ſupport; this ſends out a great number of weak branches, from the bottom to the top, which hang downward, unleſs they are ſupported; they are garniſhed with oval leaves, having ſhort flat foot-ſtalks; moſt of theſe are ſlightly indented toward the top, and many of them are entire; they are of a ſhining green colour on their upper ſide, but paler underneath; the flowers come out at the end of the branches, on ſhort naked foot-ſtalks, and are in ſize and colour like thoſe of the ſixth ſort; theſe are ſometimes ſucceeded by flat heart ſhaped ſeeds. The flowers appear during the ſummer months.

This is eaſily propagated by cuttings, which may be planted any time in ſummer in a ſhady border, or otherwiſe ſhaded with mats in the heat of the day: in five or ſix weeks, theſe will have taken root, when they ſhould be carefully taken up, and each put into a ſeparate pot, filled with light ſandy earth, but not dunged, and placed in the ſhade till they have taken freſh root; then they may be placed with other hardy exotic plants in a ſheltered ſituation where they may remain till the froſt begins, when they muſt be removed into the green-houſe, placing them near the windows that they may enjoy the free air, for this plant only requires protection from froſt. The earth in which theſe are planted, ſhould be light, but very poor, for in rich earth they grow too luxuriant, and ſeldom flower.

The ninth ſort was ſent me from La Vera Cruz, in New Spain, by the late Dr. Houſtoun, where he found it growing naturally in great plenty. This ſends out many herbaceous ſtalks from the root, which are hairy, and trail upon the ground. The leaves are placed by pairs oppoſite; theſe are long, narrow, and indented on their edges in two or three places oppoſite to each other, ſo as to appear like three, five, or ſeven lobes: they are rough, and of a deep green on their upper ſide, but hoary on their under, covered with ſlender hairs. From the diviſions of the branches and the wings of the leaves, come out long naked foot-ſtalks, terminated by ſingle yellow flowers, about the ſize of thoſe of the Field Daiſy; which are ſucceeded by long, flat, rough ſeeds. It grows naturally in poor ſandy ground, and flowers in the ſpring. This plant is annual; the ſeeds muſt be ſown in the ſpring upon a hot-bed, and when the plants are fit to remove, they ſhould be planted in pots filled with light ſandy earth, and plunged into a hot-bed of tanners bark, obſerving to ſhade them until they have taken new root; then they muſt have air admitted to them every day, in proportion to the warmth of the ſeaſon, and treated in the ſame manner as other tender plants from the ſame countries. With this management, the plants will flower in Auguſt, and the ſeeds ripen in October.

The tenth ſort riſes with an upright ſtalk about eight inches high, ſending out ſlender ſtiff branches on every ſide, thoſe near the ground being much longer than the upper; theſe are garniſhed with oblong hairy leaves without foot-ſtalks, placed oppoſite. From the wings of the ſtalk, ariſes the foot-ſtalk of the flower, having two ſmall leaves placed oppoſite, juſt below the flower, which hath a ſingle empalement, like the other ſpecies. The flowers are of a yellowiſh white colour. This ſort was ſent me with the former from La Vera Cruz, by the ſame gentleman. It is an annual plant, and requires the ſame treatment as the former ſort.

CALF's SNOUT. See ANTIRRHINUM.

CALLA. Lin. Gen. Plant. 917. Wake Robin, or Ethiopian Arum.

The CHARACTERS are,

It hath a large open ſpatha of one leaf, which is oval and heart-ſhaped, ending in a point, it is coloured and permanent, and a ſingle upright ſpadix, to which the flowers and fruit adhere. This hath male and female flowers, intermixed toward the upper part of the club (*or ſpadix.*) *The male flowers conſiſt of many very ſhort ſtamina, terminated by ſmall yellowiſh ſummits; the female flowers have a compreſſed ſtyle, reſting upon an obtuſe germen, crowned by a pointed ſtigma. Theſe flowers, at their firſt appearance, have a ſhort green empalement which ſoon falls off, leaving the ſtyle naked. The germen afterward becomes a globular pulpy fruit, compreſſed on two ſides, incloſing two or three obtuſe ſeeds.*

This genus of plants is ranged in the ſeventh ſection of Linnæus's twentieth claſs, intitled Gynandria Polyandria. This claſs includes thoſe plants whoſe male and female flowers are intermixed; and this ſection, thoſe whoſe male parts have many ſtamina.

The SPECIES are,

1. CALLA (*Æthiopica*) foliis ſagitato-cordatis, ſpathâ cucullatâ, ſpadice ſupernè maſculo. Hort. Cliff. 436. *Calla with arrow-headed heart-ſhaped leaves, a hooded ſpatha or ſheath, and male flowers ſituated on the upper part of the ſpadix.* Arum Africanum flore albo odorato. Par. Bat. Prod.
2. CALLA (*Paluſtris*) foliis cordatis, ſpathâ plana, ſpadice undique hermaphrodito. Hort. Cliff. 436. *Calla with heart-ſhaped leaves, a plain ſheath, and every part of the foot-ſtalk hath hermaphrodite flowers.* Dracunculus aquatilis. Dod. Pempt. 330.
3. CALLA (*Orientalis*) foliis ovatis. Gron. Orient. 282. *Calla with oval leaves.* Arum minus Orientale, rotundioribus foliis. Mor. Hiſt. 3. p. 544.

This plant hath thick, fleſhy, tuberous roots, which are covered with a thin brown ſkin, and ſtrike down many ſtrong fleſhy fibres into the ground. The leaves ariſe in cluſters, having foot-ſtalks more than a foot long, which are green and ſucculent. The leaves are ſhaped like the point of an arrow, they are eight or nine inches in length, and of a ſhining green, ending in a ſharp point, which turns backward; between the leaves ariſe the foot-ſtalk of the flower, which is thick, ſmooth, of the ſame colour as the leaves, and riſes above them, and is terminated by a ſingle flower, ſhaped like thoſe of the Arum; the hood or ſpatha being twiſted at the bottom, ſpreads open at the top, and is of a pure white colour. In the center of this is ſituated the ſpadix or club, which is of an herbaceous yellow colour, upon which the ſmall herbaceous flowers are placed, and ſo cloſely joined, as that the male and female parts are very difficult to diſtinguiſh, without the aſſiſtance of glaſſes. When theſe fade, part of thoſe which are ſituated at the top of the club, are ſucceeded by roundiſh fleſhy berries compreſſed on two ſides, each containing two or three ſeeds.

This plant grows naturally at the Cape of Good Hope, but has been long an inhabitant in the Engliſh gardens. It propagates very faſt by offſets, which ſhould be taken off the latter end of Auguſt, at which time the old leaves decay; but this plant is never deſtitute of leaves, for before the old ones decay, there are young leaves produced, which advance in height all the winter; but at this ſeaſon the roots are in their moſt inactive ſtate. Theſe roots have generally a great number of offſets about them, ſo that unleſs there is a want of them, the largeſt only ſhould be choſen; which ſhould be ſeparated from all the ſmaller, and each planted in a ſeparate pot, filled with kitchen-garden earth, and placed with other hardy exotic plants in the open air till autumn, when they muſt be removed into ſhelter for the winter ſeaſon, during which time, they muſt not have too much wet, for that will rot the roots. This plant is ſo hardy as to live in the open air in mild winters, without any cover, if they are planted in warm borders, and have a dry ſoil; but with a little ſhelter in hard froſt, they may be preſerved in the full ground very well. It flowers in May, and the ſeeds ripen in Auguſt; but as the roots increaſe ſo plentifully, few perſons care to ſow the ſeeds, becauſe the young plants will not flower in leſs than three years. The flowers of this plant have but little ſweetneſs, altho' by Herman's title, it ſhould have a very agreeable odour; but unleſs a perſon places it near him, it cannot be perceived. I have frequently received the ſeeds of this from the Cape of Good Hope, but have always found they produced the ſame ſort.

The ſecond ſort grows naturally in moiſt or marſhy grounds in many parts of Europe, ſo is rarely admitted into gardens.

The third ſort grows naturally on the mountains near Aleppo. This hath a thick tuberous root, from which ſpring up ſeveral oval leaves, ſtanding on pretty long foot-ſtalks; the ſpadix of the flower riſes between the leaves, about ſix or eight inches high, ſupporting one white flower at the top.

The roots of this ſort ſhould be planted in pots filled with light earth, and in ſummer they may be placed with other exotic plants in the open air; but in winter they ſhould be placed under a common hot-bed frame, to ſcreen them from froſt, to which if they are expoſed the roots will be deſtroyed; there is little beauty in this plant, ſo it is only preſerved in botanic gardens for variety.

CALLACARPA. See JOHNSONIA.

CALTHA. Lin. Gen. Plant. 623. *Marſh Marigold.*

The CHARACTERS are,

The flower hath no empalement, but is compoſed of five large, oval, concave petals, which ſpread open. It hath a great number of ſlender ſtamina, which are ſhorter than the petals, terminated by obtuſe erect ſummits: in the center there are ſeveral oblong compreſſed germen ſituated, which have no ſtyles, but are crowned by ſingle ſtigma. The germen afterward become ſo many ſhort pointed capſules, containing many roundiſh ſeeds.

This genus of plants is ranged in the ſeventh ſection of Linnæus's thirteenth claſs, intitled Polyandria Polygynia, the flowers of this claſs having many ſtamina, and of this ſection ſeveral germen.

The SPECIES are,

1. CALTHA (*Major*) foliis orbiculatis crenatis, flore majore. *Marſh Marigold with round crenated leaves, and a larger flower.* Populago flore majore. Tourn. Inſt. 273.
2. CALTHA (*Minor*) foliis orbiculato-cordatis crenatis flore minore. *Marſh Marigold with round heart-ſhaped leaves which are crenated, and a ſmaller flower.*

Theſe two ſorts are ſuppoſed to be the ſame, but I have never obſerved either of them to vary, either in their natural places of growth, or when they are removed into a garden. They both grow upon moiſt boggy land, in many parts of England, but the firſt is the moſt common; of this there is a variety with very double flowers, which for its beauty is preſerved in many gardens. This is propagated by parting the roots in autumn, and ſhould be planted in a moiſt ſoil and a ſhady ſituation; and as there are often ſuch places in gardens, where few other plants will thrive, ſo theſe may be allowed to have room, and during their ſeaſon of flowering, will afford an agreeable variety. This ſort with double flowers, doth not appear ſo early in the ſpring as the ſingle, but continues much longer in beauty. It flowers in May, and if the ſeaſon is not very warm, will continue till the middle of June.

CALYCANTHUS. See BASTERIA.

CALYX [with botaniſts, ſignifies the cup of a flower before it opens: this is ſtyled the empalement of the flower; in ſome plants this continues, and becomes afterward a cover to the ſeeds of herbs, and fruit of trees.] *Lat.* The cup incloſing or containing the flower.

CAMARA. See LANTANA.

CAMERARIA. Plum. Nov. Gen. 18. tab. 29. Lin. Gen. Plant. 264.

This plant was ſo named by father Plumier, in honour of Joachim Camerarius, a phyſician and botaniſt of Nuremberg; who publiſhed an edition of Matthiolus, in Latin and High Dutch, with new figures of the plants, and many obſervations.

The CHARACTERS are,

The flower hath a ſhort permanent empalement of one leaf, cut into five acute ſegments at the top: the flower is of one leaf, ſalver-ſhaped, having a long cylindrical tube at bottom, which is enlarged above, and divided at the top into five acute ſegments. It hath five ſhort inflexed ſtamina, which are terminated by obtuſe membranaceous ſummits. In the bottom of the tube are ſituated two roundiſh germen, having one common ſtyle, which is cylindrical, and the length of the ſtamina, crowned by two ſtigma; the under one is orbicular and flat, the other is concave. The germen afterward becomes two long, taper, leafy capſules, filled with oblong cylindrical ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flowers of this claſs having five ſtamina, and thoſe in this ſection but one ſtyle.

The SPECIES are,

1. CAMERARIA (*Latifolia*) foliis ovatis, utrinque acutis tranſverſe ſtratis. Hort. Cliff. 76. Lin. Sp. Plant. 210. *Cameraria with roundiſh leaves ending in points tranſverſly ribbed.* Cameraria lato Myrti folio. Plum. Nov. Gen. 18.
2. CAMERARIA (*Anguſtifolia*) foliis linearibus. Lin. Sp. Plant. 210. *Cameraria with long narrow leaves.* Cameraria anguſto linariæ folio. Plum. Nov. Gen. 18.

The firſt ſort was ſent me from the Havanna by the late Dr. Houſtoun, where he found it growing naturally in great plenty. This riſes with a ſhrubby ſtalk to the height of ten or twelve feet, dividing into ſeveral branches, garniſhed with roundiſh pointed leaves placed oppoſite, having many ſmooth tranſverſe veins running from the midrib to the borders. The flowers are produced at the end of the branches in looſe cluſters, which have long tubes enlarging gradually upward, and at the top are cut into five ſegments, broad at their baſe, but end in ſharp points: the flower is of a yellowiſh white colour. After the flowers are fallen, the germen become two leafy capſules joined at their baſe, and have two ſwelling protuberances on each ſide at the bottom, the middle being extended conſiderably longer; theſe have one cell, filled with cylindrical ſeeds. It flowers in Auguſt, but never produces any ſeeds in England.

The ſecond ſort hath an irregular ſhrubby ſtalk, which riſes about eight feet high, ſending out irregular branches, garniſhed with very narrow thin leaves placed oppoſite; theſe have two ribs running longitudinally through each. The flowers are produced ſcatteringly at the end of the branches, which are ſhaped like thoſe of the former ſort, but ſmaller. Both theſe plants abound with an acrid milky juice like the Spurge. The ſecond ſort grows naturally in Jamaica.

Theſe plants are propagated by ſeeds, which muſt be procured from the places of their growth, for they do not perfect their ſeeds in England. They may alſo be propagated by cuttings planted in a hot-bed during the ſummer months: they muſt have a bark-ſtove, for they are very tender plants; but in warm weather muſt have plenty of air.

CAMOCLADIA, the Maiden Plumb.

The Characters are,

It hath a tripartite coloured empalement of one leaf, ſpreading open; the flower hath three plain, oval, ſpreading petals, and three awl-ſhaped ſtamina ſhorter than the corolla, terminated by roundiſh incumbent ſummits, and an oval germen, but no ſtyle, crowned by an obtuſe ſtigma; the empalement afterward becomes an oblong Plumb, having three punctures at the top, incloſing a nut of the ſame form.

This plant is ranged in the firſt order of Linnæus's third claſs, intitled Triandria Monogynia, the flower having three ſtamina and one ſtyle.

The Species are,

1. Camocladia (*Integrifolia*) foliolis integris. Jacq. Amer. 12. *Camocladia with entire lobes.* Prunus racemoſa, caudice non ramoſa, alato fraxini folio non crenato, fructu rubro ſubdulci. Sloan. Cat. 184. *The Maiden Plumb.*
2. Camocladia (*Dentata*) foliolis ſpinoſo-dentatis. Jacq. Amer. 12. *Camocladia with prickly indented leaves.*

The firſt ſort grows naturally in Jamaica, and alſo in many other of the iſlands in the Weſt Indies; this riſes with an upright ſtem near twenty feet high, garniſhed with long winged leaves, whoſe pinnæ are entire; at the top there are a few branches ſent out about a foot long, which ſuſtain the flowers and fruit.

The ſecond ſort grows naturally at the Havanna, where it riſes about the ſame height with the former; but as the flowers and fruit of this are unknown to the author, he can give no farther account of them.

Theſe plants are propagated by ſeeds, when they can be obtained from the places of their growth, which ſhould be ſown in pots and plunged into a hot-bed; the plants, when fit to remove, ſhould be each planted in a ſmall pot, and plunged into a tan-bed, and in the autumn ſhould be plunged into the bark-bed in the ſtove, and treated as other tender plants.

CAMPANIFORM flowers [of campana, a bell; and forma, *Lat.* ſhape,] ſuch flowers as in ſhape reſemble a bell.

CAMPANULA. Tourn. Inſt. R. H. 108. tab. 38. Lin. Gen. Plant. 201. [ſignifies a little bell, as tho' parva campana, *Lat.* ſo called, becauſe the flowers reſemble a little bell.]

The Characters are,

The empalement is divided into five acute parts, is upright, ſpreading, and reſts upon the germen. The flower is of one leaf, ſhaped like a bell, ſpreading at the baſe where there are holes. In the bottom is ſituated the five cornered nectarium, which is joined to the top of the receptacle. It hath five ſhort ſtamina, which are inſerted in the top of the valves of the nectarium, terminated by long compreſſed ſummits: below the receptacle is ſituated the angular germen, ſupporting a ſtyle which is longer than the ſtamina, crowned by a thick, oblong, tripartite ſtigma. The empalement afterward becomes a roundiſh angular capſule, which in ſome ſpecies have three, and in others five cells, each having a hole toward the top, through which the ſeeds are ſcattered when ripe.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia; the flowers of this claſs have five ſtamina, and in this ſection but one ſtyle.

The Species are,

1. Campanula (*Pyramidalis*) foliis ovatis glabris ſubſerratis, caule erecto paniculato, ramulis brevibus. Lin. Sp. 233. *Bell-flower with oval ſmooth leaves ſawed below, an upright paniculated ſtalk, and ſhort branches.* Campanula pyramidata altiſſima. Tourn. Inſt. 109. *Talleſt pyramidal Bell-flower.*
2. Campanula (*Decurrens*) foliis radicalibus obovatis, caulinis lanceolato-linearibus ſubſerratis ſeſſilibus remotis. Lin. Sp. Plant. 164. *Bell-flower with lower leaves oval, and thoſe on the ſtalks narrow, ſpear-ſhaped, ſawed, and growing cloſe to the ſtalks at remote diſtances.* Campanula perſicæ folio. Cluſ. Hiſt. 171. *Peach-leafed Bell-flower.*
3. Campanula (*Medium*) capſulis quinquelocularibus tectis, calycis ſinubus reflexis. Vir. Cliff. 16. *Bell-flower with a covered capſule, having five cells, and the borders of the cup reflexed.* Campanula hortenſis folio & flore oblongo. C. B. P. 94. *Commonly called Canterbury Bell-flower.*
4. Campanula (*Trachelium*) caule angulato, foliis petiolatis, calycibus ciliatis, pedunculis trifidis. Vir. Cliff. 16. *Bell-flower with an angular ſtalk, leaves having foot-ſtalks, a hairy empalement, and trifid foot-ſtalks to the flowers.* Campanula vulgatior, foliis urticæ vel major & aſperior. C. B. P. 94. *Nettle-leaved Bell-flower.*
5. Campanula (*Latifolia*) foliis ovato-lanceolatis, caule ſimpliciſſimo tereti, floribus ſolitaris pedunculatis fructibus cernuis. Vir. Cliff. 17. *Bell-flower with oval ſpear-ſhaped leaves, a ſingle taper ſtalk, flowers growing ſingly upon foot-ſtalks, and pendent fruit.* Campanula maxima foliis latiſſimis. C. B. P. 94. *Greateſt Bell-flower with broadeſt leaves.*
6. Campanula (*Rapunculus*) foliis undulatis radicalibus lanceolato-ovalibus, paniculâ coarctatâ. Hort. Upſal. 40. *Bell-flower with waved leaves, thoſe growing near the ſtalk oval and ſpear-ſhaped, and a compreſſed panicle.* Campanula radice eſculentâ. H. L. *Commonly called Rampion.*
7. Campanula (*Glomerata*) caule angulato ſimplici, floribus ſeſſilibus capitulo terminali. Vir. Cliff. 16. *Bell-flower with a ſingle angular ſtalk, flowers growing cloſe, and terminating in a head.* Campanula pratenſis flore conglomerato. C. B. P. 94. *Meadow Bell-flower with flowers gathered in bunches.*
8. Campanula (*Speculum*) caule ramoſiſſimo diffuſo foliis oblongis ſubcrenatis, calycibus ſolitariis corollâ longioribus, capſulis priſmaticis. Hort. Upſal. 41. *Bell-flower with a very branching diffuſed ſtalk, oblong crenated leaves, ſolitary flower-cups which are longer than the petal, and priſmatic capſules.* Campanula arvenſis erecta Euphraſiæ luteæ, ſeu Triſſaginis appulæ foliis. H. Cath. *Commonly called upright Venus Looking-glaſs.*
9. Campanula (*Hybrida*) caule baſi ſubramoſo ſtricto, foliis oblongis crenatis, calycibus aggregatis corollâ longioribus, capſulis priſmaticis. Lin. Sp. Plant. 168. *Bell-flower with a ſtalk branching at the bottom, oblong crenated leaves, flower-cups gathered together, which are longer than the petal, and priſmatic capſules.* Campanula arvenſis minima erecta. Mor. Hiſt. 2. 457. *Small Venus Looking-glaſs.*
10. Campanula (*Erinus*) caule dichotomo, foliis ſeſſilibus utrinque dentatis. Hort. Cliff. 65. *Bell-flower with a forked ſtalk, and leaves growing cloſe to the ſtalks, which are indented on both ſides.* Campanula minor annua, foliis inciſis. Mor. Hiſt. 1. 458. *Smaller annual Bell-flower with cut leaves.*
11. Campanula (*Pentagonia*) caule ſubdiviſo ramoſiſſimo, foliis linearibus acuminatis. Hort. Cliff. 66. *Bell-flower with a very branching divided ſtalk, and narrow pointed leaves.* Campanula pentagonia flore ampliſſimo Thracia. Tourn. Inſt. 112. *Five-cornered Bell-flower of Thracia.*
12. Campanula (*Perfoliata*) caule ſimplici, foliis cordatis dentatis amplexicaulibus, floribus ſeſſilibus aggregatis. Hort. Upſal. 40. *Bell-flower with a ſingle ſtalk, heart-ſhaped indented leaves which embrace the ſtalk, and flowers gathered together, growing cloſe to the ſtalk.*

Campanula pentagonia perfoliata. Mor. Hiſt. 2. p. 457. *Five-cornered perfoliate Bell-flower.*

13. Campanula (*Americana*) caule ramoſo, foliis linguiformibus crenulatis margine cartilagineo. Prod. Leyd. 246. *Bell-flower with a branching ſtalk, and tongue-ſhaped crenulated leaves with ſtiff edges.* Campanula minor Americana, foliis rigidis flore cæruleo patulo. H. L. 107. *Smaller American Bell-flower.*

14. Campanula (*Canarienſis*) foliis haſtatis dentatis oppoſitis petiolatis, capſulis quinquelocularibus. Lin. Sp. Plant. 168. *Bell-flower with ſpear-ſhaped indented leaves growing oppoſite, having foot-ſtalks and capſules with five cells.* Campanula Canarienſis, atriplicis folio, tuberoſâ radice. *Canary Bell-flower.*

15. Campanula (*Patula*) foliis ſtrictis, radicalibus lanceolato-ovalibus, panicula patula. Flor. Suec. 186. *Bell-flower whoſe radical leaves are oval, ſpear-ſhaped, and ſpreading flowers in panicles.* Campanula eſculenti facie, ramis & floribus patulis. Hort. Elth. 1. 68.

16. Campanula (*Cervicaria*) hiſpida, floribus ſeſſilibus, capitulo terminali, foliis lanceolato-linearibus undulatis. Lin. Sp. 235. *Rough Bell-flower with ſeſſile flowers terminating the ſtalks, and linear, ſpear-ſhaped, waved leaves.* Campanula foliis echii. C. B. 36.

17. Campanula (*Saxatilis*) foliis obovatis crenatis, floribus alternis nutantibus, capſulis quinquecarinatis. Lin. Sp. 237. *Bell-flower with oval crenated leaves, nodding flowers placed alternate, and boat-ſhaped capſules with five cells.* Campanula Cretica ſaxatilis, bellidis folio, magno flore. Tourn. Inſt. 111.

There are ſeveral other ſpecies of this genus, ſome of which grow naturally in England, and others in the northern parts of Europe, which have but little beauty, therefore are ſeldom cultivated in gardens, ſo I ſhall not enumerate them here. There are alſo ſeveral varieties of ſome of the ſorts here mentioned, which I ſhall take notice of in their proper place; but as they are not diſtinct ſpecies, they are omitted in the above liſt.

The firſt ſort hath thick tuberous roots which are milky; this ſends out three or four ſtrong, ſmooth, upright ſtalks, which riſe near four feet high, and are garniſhed with ſmooth oblong leaves, whoſe edges are a little indented. The lower leaves are much broader than thoſe which adorn the ſtalks. The flowers are produced from the ſide of the ſtalks, and are regularly ſet on for more than half their length, forming a ſort of pyramid; theſe are large, open, and ſhaped like a bell. The moſt common colour of the flowers is a light blue; but there have been ſome with white flowers, which make a variety when intermixed with the blue, but the latter is moſt eſteemed.

This plant is cultivated to adorn halls, and to place before the chimnies in the ſummer, when it is in flower, for which purpoſe there is no plant more proper; for when the roots are ſtrong, they will ſend out four or five ſtalks, which will riſe as many feet high, and are garniſhed with flowers great part of their length. Theſe upright ſtalks ſend out ſome ſhort ſide branches, which are alſo adorned with flowers, ſo that by ſpreading the upright ſtalks to a flat frame compoſed of ſlender laths (as is uſually practiſed) the whole plant is formed into the ſhape of a fan, and will ſpread near the width of a common fire-place. When the flowers begin to open, the pots are removed into the rooms, where, being ſhaded from the ſun, and kept from the rain, the flowers will continue long in beauty; and if the pots are every night removed into a more airy ſituation, but not expoſed to heavy rains, the flowers will be fairer, and continue much longer in beauty.

Thoſe plants which are thus treated, are ſeldom fit for the purpoſe the following ſeaſon, therefore a ſupply of young plants ſhould be annually raiſed. The common method of propagating this plant, is by dividing the roots. The beſt time for doing this is in September, that the offſets may have time to get ſtrong roots before winter.

This method of propagating by the offſets is the quickeſt, therefore generally practiſed, but the plants which are raiſed from ſeeds, are always ſtronger; the ſtalks will riſe higher, and produce a greater number of flowers, therefore I recommend it to the practice of the curious; but in order to obtain good ſeeds, there ſhould be ſome ſtrong plants placed in a warm ſituation, near a pale, or wall, in autumn; and, if the following winter ſhould prove ſevere, they ſhould be covered either with hand-glaſſes or mats, to prevent their being injured by the froſt; and, in the ſummer, when the flowers are fully open, if the ſeaſon ſhould prove very wet, the flowers muſt be ſcreened from great rains, otherwiſe there will be no good ſeeds produced: the not obſerving this, has occaſioned many to believe that the plants do not bear ſeeds in England, which is a great miſtake, for I have raiſed great numbers of the plants from ſeeds of my own ſaving; but I have always found that the plants which have been long propagated by offſets, ſeldom produce ſeeds, which is the ſame with many other plants which are propagated by ſlips, or cuttings, which in a few years become barren.

When the ſeeds are obtained, they muſt be ſown in autumn in pots, or boxes, filled with light undunged earth, and placed in the open air till the froſt or hard rains come on, when they ſhould be placed under a hot-bed frame, where they may be ſheltered from both, but in mild weather the glaſſes ſhould be drawn off every day, that they may enjoy the free air; with this management the plants will come up early in the ſpring, and then they muſt be removed out of the frame, placing them firſt in a warm ſituation; but when the ſeaſon becomes warm, they ſhould be removed where they may have the morning ſun only. During the following ſummer they muſt be kept clean from weeds, and in very dry weather, now and then refreſhed with water, which muſt be given with great caution, for the roots are very ſubject to rot with too much moiſture. In September the leaves of the plants will begin to decay, at which time they ſhould be tranſplanted; therefore there muſt be one or two beds prepared, in proportion to the number of plants. Theſe beds muſt be in a warm ſituation, and the earth light, ſandy, and without any mixture of dung, which laſt is an enemy to this plant. If the ſituation of the place is low, or the natural ſoil moiſt, the beds muſt be raiſed five or ſix inches above the ſurface of the ground, and the natural ſoil removed a foot and a half deep, putting lime rubbiſh eight or nine inches thick in the bottom of the trench, to drain off the moiſture. When the beds are prepared, the plants muſt be taken out of the pots, or caſes, very carefully, ſo as not to break or bruiſe their roots, for they are very tender, and, on being broken, the milky juice will flow out plentifully, which will greatly weaken them. Theſe ſhould be planted at about four inches diſtance each way, with the head or crown of the root half an inch below the ſurface; if there happens a gentle ſhower of rain ſoon after they are planted, it will be of great ſervice to the plants; but as the ſeaſon ſometimes proves very dry at this time of the year, in that caſe, it will be proper to give them a gentle watering three or four days after they are planted, and to cover the beds with mats every day, to prevent the ſun from drying the earth; but theſe muſt be taken off in the evening, that the dew may fall on the ground. Towards the end of October the beds ſhould be covered over with ſome old tanners bark to keep out the froſt, and where there is not conveniency of covering them with frames, they ſhould be arched over with hoops, that in ſevere froſts they may be covered with mats; for theſe plants, when young, are often deſtroyed in winter, where this care is wanting. In the ſpring the coverings muſt be removed, and the following ſummer the plants muſt be kept clean from weeds; and, if the ſeaſon ſhould prove very dry, they muſt now and then be refreſhed with water. The following autumn the ſurface of the ground ſhould be ſtirred between the plants, and ſome freſh earth ſpread over the beds, and in the winter covered as before. In theſe beds the plants may remain two years, during which time they muſt be treated in the manner before directed; by which time the roots will be ſtrong enough to flower: in September they ſhould be carefully taken up, and ſome of the moſt promiſing planted in pots; the others may be planted into warm borders, or in a freſh bed, at a greater diſtance than before, to allow them room to grow. Theſe plants which are potted ſhould be ſheltered in winter from great rains and hard froſts, otherwiſe they will be in danger of rotting, or at leaſt be ſo weakened, as not to flower with any ſtrength the following ſummer; and thoſe which are planted in the full ground, ſhould have ſome old tanners bark laid round them, to prevent the froſt from entering deep to the roots; with this management theſe plants may be brought to the utmoſt perfection, and a conſtant ſucceſſion of good roots raiſed, which will be much preferable to thoſe which are propagated by offsets. I have been informed that there is a double flower of this kind, but as I have not ſeen any, I can give no farther account of it. This ſort is by ſome called Steeple Bell-flower.

The ſecond ſort grows naturally in the northern parts of Europe, but has been long cultivated in the Engliſh gardens; of this there are the following varieties, viz. the ſingle, blue, and white flower, which have been long here; and the double flower of both colours, which has not been more than twenty-eight years in England, but has been propagated in ſuch plenty, as to have almoſt baniſhed thoſe with ſingle flowers from the gardens. All theſe varieties are eaſily propagated by parting their roots in autumn, every head which is then ſlipped off will take root; they are extreme hardy, ſo will thrive in any ſoil or ſituation, therefore are very proper furniture for the common borders of the flower-garden.

This hath a root compoſed of many fibres, and ſends up an angular, or channelled ſtiff ſtalk, about two feet and a half high, garniſhed with oblong, oval, ſtiff leaves near the root, which are placed without order; but thoſe on the ſtalks are longer and narrower, having their edges ſlightly indented, and are of a ſhining green. The flowers are produced towards the upper part of the ſtalk upon ſhort foot-ſtalks. Theſe are ſhaped like thoſe of the former ſort, but are ſmaller, and more expanded. This flowers in June and July, and in cool ſeaſons there will be ſome continue great part of Auguſt.

The third ſort is a biennial plant, which periſhes ſoon after it hath ripened ſeeds. It grows naturally in the woods of Italy and Auſtria, but is cultivated in the Engliſh gardens for the beauty of its flowers. Of this ſort there are the following varieties, the blue, the purple, the white, the ſtriped, and the double flowering, but the laſt two are not very common in England.

This hath oblong, rough, hairy leaves, which are ſerrated on their edges, coming out without order from the root; from the center of theſe a ſtiff, hairy, furrowed ſtalk, ariſes about two feet high, ſending out ſeveral lateral branches, from the bottom upward, garniſhed with long, narrow, hairy leaves, ſawed on their edges, and are placed alternately; from the ſetting on of theſe leaves, come out the foot-ſtalks of the flower, thoſe which are on the lower part of the ſtalk and branches being four or five inches long, diminiſhing gradually in their length upward, and thereby form a ſort of pyramid. The flowers of this kind are very large, ſo make a fine appearance; they come out the beginning of June, and, if the ſeaſon is not very hot, will continue a month in beauty. The ſeeds ripen in September, and the plants decay ſoon after.

It is propagated by ſeeds, which muſt be ſown in the ſpring on an open bed of common earth, and when the plants are fit to remove, they ſhould be tranſplanted into the flower-nurſery, in beds ſix inches aſunder, obſerving to water them frequently till they have taken new root; after which they will require no other culture, but to keep them clean from weeds till the following autumn, when they ſhould be tranſplanted into the borders of the flower-garden. As theſe plants decay the ſecond year, there ſhould be annually young ones raiſed to ſucceed them.

The fourth ſort hath a perennial root, which ſends up ſeveral ſtiff hairy ſtalks, having two ribs or angles. Theſe put out a few ſhort ſide branches, garniſhed with oblong, pointed, hairy leaves, deeply ſawed on their edges. Toward the upper part of the ſtalks the flowers come out alternately, upon ſhort trifid foot-ſtalks, having hairy empalements. The flowers are of the ſhape of the former, but ſhorter, ſpread more at the brim, and are pretty deeply cut into many acute ſegments. This flowers in June, and the ſeeds ripen in autumn.

The varieties of this are, the deep and pale blue; the white with ſingle flowers, and the ſame colours with double flowers. The double ſorts are propagated by parting their roots in autumn, which ſhould be annually performed, otherwiſe the flowers are apt to degenerate to ſingle; to prevent which, the roots ſhould be every autumn tranſplanted and parted. The ſoil ſhould not be too light or rich, in which they are planted, for in either of theſe they will degenerate; but in a ſtrong freſh loam their flowers will be in the greateſt perfection. Theſe plants are extreme hardy, ſo may be planted in any ſituation; thoſe with ſingle flowers do not merit a place in gardens.

The fifth ſort grows naturally in the northern parts of England: this hath a perennial root, compoſed of many fleſhy fibres, which abound with a milky juice, from which ariſe ſeveral ſtrong, round, ſingle ſtalks, which never put out branches, but are garniſhed with oval ſpear-ſhaped leaves, ſlightly indented on their edges, which are placed alternately. Toward the upper part of the ſtalk the flowers come out ſingly upon ſhort foot-ſtalks; theſe ſpread open at the brim, where they are deeply cut into five acute ſegments. After the flowers are paſt, the empalement becomes a five-cornered ſeed-veſſel, which turns downward till the ſeeds are ripe, when it riſes upward again.

The varieties of this are, the blue, purple, and white flowering. This ſort is eaſily propagated by ſeeds, which it furniſhes in great plenty, and, if ſuffered to ſcatter, the plants will come up in as great plenty the following ſpring; when they may be tranſplanted into the nurſery till autumn, at which time they ſhould be tranſplanted where they are deſigned to remain. As this ſort delights in ſhade, the plants may be planted under trees, or in ſhady borders where few better things will thrive, they will afford an agreeable variety when they are in flower. It flowers in June and July, and the ſeeds ripen in autumn.

The ſixth ſort hath roundiſh fleſhy roots which are eatable, and are much cultivated in France for ſallads, and ſome years paſt it was cultivated in the Engliſh gardens for the ſame purpoſe, but is now generally neglected. It grows naturally in ſeveral parts of England, but the roots never grow to half the ſize of thoſe which are cultivated. This is propagated by ſeeds, which ſhould be ſown in a ſhady border the latter end of May, and when the plants are about an inch high, the ground ſhould be hoed, as is practiſed for Onions, to cut up the weeds, and thin the plants to the diſtance of three or four inches; and when the weeds come up again, they muſt be hoed over to deſtroy them: this, if well performed in dry weather, will make the ground clean for a conſiderable time, ſo that being three times repeated, it will keep the plants clean till winter, which is the ſeaſon for eating the roots, when they may be taken up for uſe as they are wanted. Theſe will continue good till April, at which time they will ſend out their ſtalks, when they will become hard and unfit for uſe, as do alſo thoſe roots which have flowered; ſo that the young roots only are ſuch which are fit for the table, therefore when the ſeeds are ſown too early, the plants frequently run up to flower the ſame year, which ſpoils their roots.

This ſort ſends out upright ſtalks about two feet high, which are garniſhed with oblong ſpear-ſhaped leaves, placed alternately. Towards the upper part of the ſtalk the ſmall Bell-flowers are produced, ſtanding upright cloſe to the ſtalk; ſome of theſe flowers are blue, and others white; they come out in June and July, and the ſeeds ripen in autumn.

The ſeventh ſort grows naturally upon chalky paſtures in many parts of England, where the ſtalks do not riſe many times a foot high, and in other places it grows to double that height, which has occaſioned their being taken for two diſtinct plants. This hath a perennial root, which ſends up ſeveral round hairy ſtalks, which often riſe upward of two feet high; the bottom leaves are broad, and ſtand upon long foot-ſtalks, and are ſlightly ſawed on their edges. Thoſe which are upon the ſtalks are long, narrow, have no foot-ſtalks, and are placed alternately at conſiderable diſtances. From the wings of the leaves, towards the upper part of the ſtalk, come out long naked foot-ſtalks, ſupporting two or three bell-ſhaped flowers, cloſely joined together in a head, and the main ſtalk is terminated by a large cluſter of the ſame flowers, which are ſucceeded by roundiſh capſules filled with ſmall ſeeds. This plant is eaſily propagated either by ſeeds, or parting their roots, and will thrive in any ſoil or ſituation. It flowers in July, and the ſeeds ripen in autumn.

The eighth ſort is an annual plant, which riſes with ſlender ſtalks a foot high, branching out, garniſhed with oblong leaves, a little curled on their edges; from the wings of the leaves come out the flowers, ſitting cloſe to the ſtalks, which are of a beautiful purple, inclining to a Violet-colour, divided into five ſegments, which reſemble ſo many leaves, and in the evening contract and fold into a pentagonal figure; from whence it is by ſome titled Viola Pentagonia, or five-cornered Violet. The empalement which encompaſſes the flower, is compoſed of five, long, narrow, green leaves, which ſpread open, and are much longer than the petals of the flower; theſe remain on the top of the priſmatic ſeed-veſſel, which is filled with ſmall angular ſeeds. If this plant is ſown in autumn, it will grow much taller, and flower a month earlier than when the ſeeds are ſown in the ſpring. The autumnal plants will flower in May, and the ſpring plants in June and July. There is a variety of this with white flowers, and another with pale purple.

The ninth ſort is the common Venus Looking-glaſs, which hath been long cultivated in the Engliſh gardens. This ſort ſeldom riſes more than ſix inches high, with a ſtalk branching from the bottom upward, garniſhed with oval leaves, ſitting cloſe to the ſtalks, from the baſe of which the branches are produced, which are terminated by flowers very like thoſe of the former ſort.

The tenth ſort grows naturally in the ſouth of France and Italy. This is alſo a low annual plant, which ſeldom riſes ſix inches high, but divides into many branches, garniſhed with ſhort oval leaves, ſitting cloſe, which are deeply indented on both ſides. The flowers are produced at the ends of the branches, which are ſhaped like thoſe of the other ſort laſt mentioned, but they are ſmall, their colours leſs beautiful, and the leaves of the empalement are broader.

The eleventh ſort grows naturally in Thrace, but hath been long in the Engliſh gardens. This is alſo a low annual plant, which riſes little more than ſix inches high; the ſtalks divide by pairs, and frequently there ariſes a branch from the middle of the diviſions; the lower leaves are oblong and obtuſe, but thoſe which come out toward the end of the branches are much narrower, and pointed. The flowers come out ſingle at the end of the branches, having a long five-leaved empalement, and are larger than thoſe of the three laſt ſorts, of a fine blue colour; the ſeeds are like thoſe of the eighth ſort.

The twelfth ſort is an annual plant, which, in good ground, will riſe a foot and a half high, but in poor land, or if where it grows wild among corn, ſcarcely riſes to the height of ſix inches. The ſtalk is ſingle, rarely putting out any branches, unleſs near the root, from whence there are ſometimes one or two ſhort lateral branches produced. The leaves are roundiſh, and embrace the ſtalk at their baſe; their edges are ſharply ſawed, and from their baſe comes out a cloſe tuft of flowers, ſurrounded by the leaf, as in an empalement. The flowers are five-cornered, ſhaped like thoſe of the Venus Looking-glaſs, but are much ſmaller; theſe are produced the whole length of the ſtalk. The ſeeds are incloſed in ſhort capſules, which are ſhaped like thoſe of the former ſorts. It grows in Italy, and alſo in Virginia. If the ſeeds of this ſort are permitted to ſcatter, the plants will come up without care; or the ſeeds may be ſown in the ſpring, in the ſame manner as thoſe of the laſt ſorts, and treated in the ſame way.

The thirteenth ſort is a native of America, but has been long cultivated in the gardens of the curious, both in England and Holland. This hath many rigid oblong leaves coming out from the root on every ſide, which form a ſort of head like thoſe of Houſeleek, crenated, having a ſtrong rib running on their border longitudinally. From the center of the plant proceeds the ſtalk, which riſes about a foot high, and is thinly garniſhed with very narrow ſtiff leaves, of a ſhining green. From the wings of the leaves come out the foot-ſtalks of the flower, which are from two to four inches long, each being terminated by one ſpreading bell-ſhaped flower, whoſe empalement is ſhort, and cut into five acute ſegments. The ſtyle of this is longer than the petal, and is crowned by a bifid ſtigma. There is a white and a blue flower of this ſort in the gardens, but in Holland they have it with a double flower. This ſort doth not produce ſeeds in England, ſo is only propagated by offſets; theſe may be taken off from the old plants in Auguſt, that they may get good root before the cold weather begins: they muſt be planted in ſmall pots filled with freſh, light, loamy earth, and placed in the ſhade until they have taken root; then they may be placed with other hardy exotic plants, and in autumn they muſt be removed into ſhelter, for in ſevere winters theſe plants are often deſtroyed which are expoſed; though in mild winters they will live in the open air. It flowers in July and Auguſt.

The fourteenth ſort is a native of the Canary Iſlands, from whence it was introduced to the gardens in Europe, where it hath been many years cultivated; and of late years great numbers of the plants have been raiſed from ſeeds which were brought from thence, but the flowers of theſe new-raiſed plants are not ſo well coloured as thoſe of the old ones.

This hath a thick fleſhy root, which is of an irregular form, ſometimes running downward like a Parſnep, at other times dividing into ſeveral knobs near the top, and when any part of the root is broken, there iſſues out a milky juice at the wound. There are many ſtrong fleſhy fibres ſent out, which ſtrike deep into the ground, and from theſe a numerous quantity of ſmall ones. From the head, or crown of the root, ariſe one, two, three, or more ſtalks, in proportion to the ſize of the root; but that in the center is generally larger, and riſes higher than the others. Theſe ſtalks are very tender, round, and of a pale green; their joints are far diſtant from each other, and when the roots are ſtrong, the ſtalks will riſe ten feet high, ſending out ſeveral ſmaller ſide branches. At each joint they are garniſhed with two, three, or four ſpear-ſhaped leaves, with a ſharp pointed beard on each ſide. Theſe are of a ſea-green, and, when they firſt come out, are covered ſlightly with an Aſh-coloured pounce. From the joints of the ſtalk the flowers are produced, which are of the perfect bell-ſhape, and hang downward; they are of a flame colour, marked with ſtripes of a browniſh red; the flower is divided into five parts, at the bottom of each is ſituated a nectarium, covered with a white tranſparent ſkin, much reſembling thoſe of the Crown Imperial, but are ſmaller; upon each of theſe is ſituated a ſtamen, which riſes almoſt the length of the petal, and is terminated by oblong ſummits. In the center of the flower is ſituated the ſtyle, which is longer than the ſtamina, and is crowned by a trifid ſtigma, which is reflexed. The flowers begin to open in the beginning of October, and there is often a ſucceſſion of them till March. The ſtalks decay to the root in June, and new ones ſpring up in Auguſt.

It is propagated by parting their roots, which muſt be done with caution; for if the roots are broken or wounded, the milky juice will flow out plentifully, ſo that if theſe are planted before the wounds are ſkinned over, it occaſions their rotting; therefore whenever any of them are broken, they ſhould be laid in the green-houſe a few days to heal. Theſe roots muſt not be too often parted, eſpecially if they are expected to flower well; for by frequent parting the roots are weakened. The beſt time for tranſplanting and parting their roots, is in July, ſoon after the ſtalks are decayed. The earth in which theſe ſhould be planted, ſhould not be rich, for that will cauſe them to be luxuriant in branches, and but thinly garniſhed with flowers. The ſoil in which they have ſucceeded beſt, is a light ſandy loam, mixed with a fourth part of ſcreened lime-rubbiſh: when the roots are firſt planted, the pots ſhould be placed in the ſhade; and, unleſs the ſeaſon is very dry, ſhould not be watered, for during the time they are inactive, wet is very injurious to them. About the middle of Auguſt the roots will begin to put out fibres, at which time, if the pots are placed under a hot-bed frame, and as the nights grew cool, covered with the glaſſes, but opened every day to enjoy the free air, it will greatly forward them for flowering, and increaſe their ſtrength; when the ſtalks appear, the plants muſt be now and then refreſhed with water, which muſt not be given too often, nor in great quantity. The plants thus managed, by the middle of September, will have grown ſo tall, as not to be kept longer under the frame, ſo they ſhould be removed into a dry airy glaſs-caſe, where they may enjoy the free air in mild weather, but ſcreened from cold. During the winter ſeaſon they muſt be frequently refreſhed with water, and guarded from froſt; and in ſpring, when the ſtalks begin to decay, the pots ſhould be ſet abroad in the ſhade, and not watered.

The fifteenth ſort grows naturally in ſome of the north-weſt counties of England. It is a biennial plant, very like the eatable ſort, but the branches grow more horizontal, and the flowers ſpread wider open.

This is propagated by ſeeds, which ſhould be ſown in the autumn; for thoſe ſeeds which are ſown in the ſpring often fail, or at leaſt lie a year in the ground before they grow. When the plants come up, they ſhould be thinned and kept clean from weeds, which is all the culture they require.

The ſixteenth ſort grows naturally in Germany and Sweden; this hath rough leaves: the ſtalk riſes two feet high, garniſhed with narrow ſpear-ſhaped leaves, and are terminated by an obtuſe ſpike of flowers.

The ſeventeenth ſort grows naturally in Crete, upon rocks, where the roots penetrate the fiſſures, whereby the plants continue much longer than when they are tranſplanted into gardens. The ſtalks of this riſe a foot high, garniſhed with oval crenated leaves; the flowers are large, blue, and placed alternate, nodding toward the ground; theſe open in July, and are ſucceeded by ſeed-veſſels, having five cells filled with ſmall ſeeds.

Theſe plants are propagated by ſeeds, which, if ſown in the autumn, will more certainly ſucceed than when ſown in the ſpring. When the plants are fit to remove, they ſhould be tranſplanted into beds, and treated in the ſame manner as the hardy ſorts beforementioned; but a few plants of the laſt ſort may be planted in pots, to be ſheltered in winter.

CAMPHORA. See Laurus.

CAMPHOROSMA. Camphorata. Tourn. Inſt.

The Characters are,

It hath a pitcher-ſhaped four-pointed empalement, which is permanent, but no corolla. It has four ſlender ſtamina which are equal, terminated by oval ſummits, and an oval compreſſed germen, ſupporting a ſlender ſtyle longer than the empalement, crowned by acute ſtigma. The empalement afterward becomes a capſule crowned with one cell open at the top, incloſing one compreſſed ſeed.

The Species are,

1. Camphorasma (*Monſpeliaca*) foliis hirſutis linearibus. Amœn. Acad. 1. p. 392. *Camphorata with linear hairy leaves.* Camphorata hirſuta. C. B. P. 486.
2. Camphorata (*Glabra*) foliis ſubtriquetris glabris inermibus. Amœn. Acad. p. 393. *Camphorata with ſmooth three-cornered leaves.*

The firſt ſort grows naturally about Montpelier. It is an annual plant, whoſe branches trail on the ground, and extend each way a foot and more in length, garniſhed with linear hairy leaves placed cloſe on the branches; the flowers are produced from the joints of the ſtalks, which are ſo ſmall as to be ſcarce perceptible, having no petals but a pitcher-ſhaped empalement, which afterward becomes a capſule to the ſeed. This is an annual plant, which is propagated by ſeeds, which, if ſown in the autumn, will more probably ſucceed, than if ſown in the ſpring; and if the ſeeds are permitted to fall in the autumn, there will be a ſupply of young plants the following ſpring.

The ſecond ſort grows naturally in the Helvetian mountains. This is a perennial plant, whoſe branches trail on the ground; the leaves are ſmooth, three-cornered, and unarmed. The flowers are not more viſible than thoſe of the firſt ſort, and the empalement becomes a cover to the ſeeds.

Theſe plants are preſerved in ſome gardens, more for the ſake of variety, than for either beauty or uſe; if the ſeeds are ſown in any abject part of the garden, and when the plants come up, they are thinned, and afterward kept clean from weeds, they will ripen their ſeeds, which, if permitted to ſcatter, there will be a ſupply of plants.

CAMPION. See Lychnis.

CANDLE-BERRY-TREE. See Myrica.

CANDY-TUFT. See Iberis.

CANNA. Lin. Gen. Plant. 1. Indian flowering Reed. In French Baliſier.

The Characters are,

The flower hath a three-leaved empalement, which is permanent, erect, and coloured. It hath one petal, which is divided into ſix parts: the three upper ſegments are erect, and broader than the lower, which are longer, two of which are erect, and the other turns back and is twiſted. It hath one ſpear-ſhaped ſtamina riſing as high as the petal, having the appearance of a ſegment, which hath a ſlender ſummit ſitting upon its border. Below the empalement is ſituated a roundiſh rough germen, ſupporting a flat ſtyle, with a ſlender ſtigma faſtened to its border. After the flower is paſt, the germen becomes an oblong, roundiſh, membranaceous capſule, having three longitudinal furrows, crowned by the empalement, which hath three cells filled with round ſmooth ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's firſt claſs, intitled Monandria Monogynia. The flowers of this claſs have but one ſtamen, and in this ſection but one ſtyle.

The Species are,

1. Canna (*Indica*) foliis ovatis utrinque acuminatis nervoſis. Prod. Leyd. 11. *Canna with oval nervous leaves pointed at both ends.* Cannacorus latifolius vulgaris. Tourn. Inſt. 367.
2. Canna (*Latifolia*) foliis oblongo-ovato, acuminatis, ſegmentis florum anguſtioribus. *Canna with oblong, oval, pointed leaves, and the ſegments of the flower narrow.* Cannacorus ampliſſimo folio flore rutilo. Tourn. Inſt. 367.
3. Canna (*Coccinea*) foliis ovatis obtuſis nervoſis, ſpicis florum longioribus. *Canna with oval, obtuſe, nervous leaves, and longer ſpikes of flowers.* Cannacorus flore Coccineo ſplendente. Tourn. Inſt. 367.

4. **Canna** (*Lutea*) foliis ovatis petiolatis nervoſis ſpatha floribus longiore. *Canna with oval, obtuſe, nervous leaves, having foot-ſtalks, and a longer hood to the flower.* Cannacorus flore luteo punctato. Tourn. Inſt. R. H. 367.

5. **Canna** (*Glauca*) foliis lanceolatis petiolatis enervibus. Prod. Leyd. 11. *Canna with ſpear-ſhaped ſmooth leaves having foot-ſtalks.* Cannacorus glaucophyllus, ampliore flore, Iridis paluſtris facie. Hort. Elth. 69.

The firſt ſort grows naturally in both Indies: the inhabitants of the Britiſh iſlands in America, call all the ſpecies without diſtinction Indian Shot, from the roundneſs and hardneſs of the ſeeds.

This plant hath a thick, fleſhy, tuberous root, which divides into many irregular knobs, ſpreading wide near the ſurface of the ground, ſending out many large oval leaves without any order; theſe, at their firſt appearance, are twiſted like a horn, but afterwards expand and are near a foot long, and five inches broad in the middle, leſſening gradually to both ends, and terminating in points. They have many large tranſverſe veins running from the midrib to the ſides, which are prominent on their under ſide; and between each of theſe run two ſmaller, parallel, pointed veins, which are peculiar to this ſpecies. The ſtalks are herbaceous, riſing four feet high, encompaſſed by the broad leafy foot-ſtalks of the leaves; theſe are compreſſed on two ſides; at the upper part of the ſtalk the flowers are produced in looſe ſpikes, each being at firſt covered by a leafy hood, which afterward ſtands below the flower, and turns to a brown colour. Each flower hath one petal, which is cut almoſt to the bottom into ſix ſlender ſegments, the three upper being broadeſt; theſe are of a pale red colour. The flower is encompaſſed by a three-leaved empalement, which ſits upon a ſmall, roundiſh, rough germen, which, after the flower is fallen, ſwells to a large fruit or capſule oblong and rough, having three longitudinal furrows, and is crowned by the three-leaved empalement of the flower which remains. When the fruit is ripe, the capſule opens lengthways into three cells, which are filled with round, hard, black, ſhining ſeeds. The principal ſeaſon of theſe plants flowering, is in June, July, and Auguſt.

As this ſort is a native of the warmeſt parts of America, it requires to be placed in a moderate ſtove in winter, otherwiſe the roots will decay. I have frequently tried to keep theſe roots through the winter in a green-houſe, but could not ſucceed; for although ſome have eſcaped, yet they were ſo much weakened by the cold, as not to recover their ſtrength the following ſummer, ſo as to flower in any tolerable degree of perfection; ſo that I have ſince conſtantly kept them in winter in a moderate ſtove, where they always flower in that ſeaſon, at which time they make a fine appearance; and in the ſummer, place them abroad in a ſheltered ſituation with other tender exotic plants, where they flower again, and produce ripe ſeeds annually.

The ſecond ſort grows naturally in Carolina, and ſome of the other northern provinces of America. The leaves of this ſort are longer than thoſe of the former, and terminate in ſharper points. The ſtalks grow taller, and the ſegments of the flower are much narrower; the colour is a pale red, ſo it makes no great appearance. The ſeeds are like thoſe of the former ſort. If the roots of this ſort are planted in warm borders and a dry ſoil, they will live through the winter in the open air. I have plants of this ſort in the Chelſea garden, which have ſurvived twelve winters in a ſouth-weſt border without cover, and flower well every year, but do not produce ſeeds.

The third ſort hath larger leaves than either of the former; the ſtalks riſe much taller. I have received the ſeeds of this from America, and from the Brazils, by the title of Wild Plantain. The flower-ſtalks of this ſort riſe more than ſix feet high. The leaves are very large, and thoſe near the root have long foot-ſtalks. The flowers are produced in larger ſpikes than thoſe of the former ſort, and are of a much brighter ſcarlet. The ſeed-veſſels are longer, and the ſeeds larger than thoſe; and theſe differences are permanent from ſeeds, ſo that I make no doubt of its being a diſtinct ſpecies.

The fourth ſort is leſs common in America than either of the former. I received the ſeeds of this from India, but have had two varieties ariſe from the ſeeds, one with a plain yellow, and the other a ſpotted flower, which I find are apt to change from one to the other, when propagated by ſeeds. This ſort hath ſhorter and rounder leaves than either of the former ſorts. The ſtalks ſeldom riſe higher than three feet, and the ſpikes of flowers are like thoſe of the firſt ſpecies, excepting the colour of the flowers.

The ſeeds of the fifth ſort I received from Carthagena in New Spain, in the year 1733, which produced very ſtrong plants the firſt year, ſome of which flowered the ſame autumn. The roots of this are much larger than either of the former ſorts, and ſtrike down ſtrong fleſhy fibres deep in the ground. The ſtalks riſe ſeven or eight feet high. The leaves are near two feet long, narrow, ſmooth, and of a ſea-green colour. The flowers are produced in ſhort thick ſpikes at the extremity, which are large, and of a pale yellow colour; the ſegments of the petal are broad, but their ſhape like thoſe of the other ſorts. The ſeed-veſſels are larger, and much longer than thoſe of the other ſorts, but contain fewer ſeeds, which are very large. The young plants which are raiſed from ſeeds of this ſort, do more certainly flower than the old roots, or the offsets taken from them; for the roots ſend out many offsets, which will ſpread to a conſiderable diſtance where they have room, but ſeldom produce flowers; ſo that it is the beſt way to raiſe a ſucceſſion of plants from ſeeds, and to throw out the old ones after they have perfected their ſeeds.

All the ſorts are propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be tranſplanted into ſeparate ſmall pots, filled with rich kitchen-garden earth, and plunged into a moderate hot-bed of tanners bark, obſerving to ſhade them till they have taken root; after which, they ſhould have a large ſhare of free air admitted to them every day in warm weather, and be frequently refreſhed with water. As theſe plants will make great progreſs in their growth, they muſt be ſhifted into larger pots filled with the ſame ſort of earth, and part of them plunged into the hot-bed again; and the others may be placed abroad in June, with other exotic plants, in a warm ſituation. Thoſe which are placed in the hot-bed, will be ſtrong enough to flower well in the ſtove the following winter; but thoſe in the open air, will not flower before the following ſummer. Theſe may remain abroad till the beginning of October, when they muſt be removed into the ſtove, and treated in the ſame manner as the old plants; and in May, if a gentle hot-bed is made, and covered a foot thick with rich earth, and the plants turned out of the pots, planting them with their balls of earth upon the hot-bed, covering each with a bell-glaſs, which may be raiſed on one ſide every day to admit air to the plants; and as theſe advance, they muſt be gradually inured to bear the open air. With this management the plants will grow much taller, and flower ſtronger than thoſe which are kept in pots, and from theſe good ſeeds may be expected in autumn. Theſe plants will continue many years with proper management; but as young plants always flower better than the old roots, it is ſcarce worth while to continue them after they have borne good ſeeds.

The ſecond ſort, which is much hardier than either of the other, ſhould have a different treatment. The young plants of this muſt be earlier inured to the open air, where they may remain till the froſt begins; then they muſt be placed in the green-houſe, and ſhould have but little wet in winter; and the beginning of May, theſe ſhould be turned out of the pots, and planted in a warm ſouth border, in a dry ſoil, where they will thrive and produce flowers annually;

but as there is little beauty in this ſort, a few plants for variety will be as many as moſt perſons will chooſe to keep. There is a variety of this with variegated leaves, which is preſerved in ſome gardens, and is propagated by parting the roots; but this hath little beauty, ſo is ſcarce worth cultivating.

CANELLA. See WINTERANA.

CANNABINA. See DATISCA.

CANNABIS [Κάνναβις, *Gr.*] Lin. Gen. Plant. 988. Hemp.

The CHARACTERS are,

It is male and female in different plants. The male flowers have a five-leaved empalement which is concave, but have no petals; they have five ſhort hairy ſtamina, terminated by oblong ſquare ſummits. The female flowers have permanent empalements of one leaf, which are oblong and pointed. They have no petals, but a ſmall germen, ſupporting two long ſtyles, crowned by acute ſtigma; the ſmall germen afterward becomes a globular depreſſed ſeed, incloſed in the empalement.

This genus of plants is ranged in the fifth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Pentandria, the male and female flowers being in ſeparate plants, and the male having five ſtamina.

We have but one SPECIES of this plant, which is,

CANNABIS. Lin. Sp. Plant. 1027. Hemp. Cannabis ſativa. C. B. P. 320. *Manured Hemp.* Moſt of the old writers have applied the latter title to the female Hemp, and the male they have titled Cannabis erratica, or Wild Hemp; but as both ariſe from the ſame ſeeds, ſo they ſhould not be made different plants.

This plant is propagated in the rich fenny parts of Lincolnſhire, in great quantities, for its bark, which is uſeful for cordage, cloth, &c. and the ſeeds afford an oil, which is uſed in medicine.

Hemp is always ſown on a deep, moiſt, rich ſoil, ſuch as is found in Holland, in Lincolnſhire, and the fens in the iſle of Ely; where it is cultivated to great advantage, as it might in many other parts of England, where there is the like ſoil; but it will not thrive on clay, or ſtiff cold land: it is eſteemed very good to deſtroy weeds, which is no other way effected, but by robbing them of their nouriſhment; for it will greatly impoveriſh the land, ſo that this crop muſt not be repeated on the ſame ground.

The land on which Hemp is deſigned to be ſown, ſhould be well ploughed, and made very fine by harrowing; about the middle of April is a good ſeaſon for ſowing the ſeed: three buſhels is the uſual allowance for an acre, but two is fully ſufficient. In the choice of the ſeed, the heavieſt and brighteſt coloured ſhould be preferred; and particular care ſhould be had to the kernel of the ſeed, ſo that ſome of them ſhould be cracked to ſee if they have the germ or future plant perfect; for in ſome places the male plants are drawn out too ſoon from the female, i. e. before they have impregnated the female plants with the farina: in which caſe, though the ſeeds produced by theſe female plants may ſeem fair to the eye, yet they will not grow, as is well known by the inhabitants of Bickar, Swineſhead, and Dunnington, three pariſhes in the fens of Lincolnſhire, where Hemp is cultivated in great abundance, who have dearly bought their experience.

When the plants are come up, they ſhould be hoed out in the ſame manner as is practiſed for Turneps, leaving the plants a foot or ſixteen inches apart; obſerve alſo to cut down all the weeds, which, if well performed, and in dry weather, will deſtroy them. This crop will require a ſecond hoeing about a month or ſix weeks after the firſt, in order to deſtroy the weeds. If this be well performed, it will require no farther care; for the Hemp will ſoon after cover the ground, and prevent the growth of weeds.

The firſt ſeaſon for pulling the Hemp, is uſually about the middle of Auguſt, when they begin to pull what they call the Fimble Hemp, which is the male plants; but it would be much the better method to defer this a fortnight or three weeks longer, until theſe male plants have fully ſhed their duſt, without which, the ſeeds will prove abortive, produce nothing if ſown the next year, nor will thoſe concerned in the oil-mills give any thing for them, there being only empty huſks, without any kernels to produce the oil. Theſe male plants begin to decay ſoon after they have ſhed their farina.

The ſecond pulling is a little after Michaelmas, when the ſeeds are ripe: this is uſually called Karle Hemp, it is the female plants which were left at the time when the male were pulled. This Karle Hemp is bound in bundles of a yard compaſs, according to ſtatute meaſure, which are laid in the ſun for a few days to dry; and then it is ſtacked up, or houſed to keep it dry, till the ſeed can be threſhed out. An acre of Hemp on a rich ſoil, will produce near three quarters of ſeed, which, together with the unwrought Hemp, is worth from ſix to eight pounds.

Of late years the inhabitants of the Britiſh colonies in North America, have cultivated this uſeful plant, and a bounty was granted by parliament for the Hemp, which was imported from thence; but whether the inhabitants of thoſe colonies grew tired of cultivating it, or the bounty was not regularly paid, I cannot ſay; but whatever has been the cauſe, the quantity imported has by no means anſwered the expectation of the public, which is greatly to be lamented; becauſe, as this commodity is ſo eſſential to the marine, which ſhould be the principal object of this kingdom, the being furniſhed with it from our own plantations, will not only ſave the ready money paid for it, but ſecure to the country an ample ſupply at all times, without being obliged to our neighbours for it.

CANNACORUS. See CANNA.

CAPERS. See CAPPARIS.

CAPILLAMENTS [*Capillamenta, Lat.*] the ſtrings or threads about the roots of plants.

CAPILLARY plants, [of *Capillaris, Lat.* of, or like hair,] are ſuch plants as have no main ſtem, but the leaves ariſe from the root upon pedicles, and produce their ſeeds on the back of their leaves, as the Fern, Maiden Hair, &c.

CAPITULUM; i. e. a little head; the head or top of any flowering plant.

CAPNOIDES. } See FUMARIA.
CAPNORCHIS. }

CAPPARIS. Lin. Gen. Plant. 567. The Caper Buſh.

The CHARACTERS are,

The empalement is compoſed of three oval concave leaves; the flower hath four large roundiſh petals, which are indented at the top, and ſpread open; it hath a great number of ſlender ſtamina, which are as long as the petals, terminated by ſingle ſummits. In the midſt of theſe ariſe a ſingle ſtyle longer than the ſtamina, with an oval germen, crowned by a ſhort obtuſe ſtigma. The germen afterward becomes a fleſhy turbinated capſule, with one cell, filled with kidney-ſhaped ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flower having many ſtamina and but one ſtyle.

The SPECIES are,

1. CAPPARIS (*Spinoſa*) pedunculis ſolitariis unifloris, ſtipulis ſpinoſis foliis annuis, capſulis ovalibus. Lin. Sp. 720. *Caper with one flower on each foot-ſtalk, prickly ſtipula, annual leaves, and oval fruit.* Capparis ſpinoſa, fructu minore, folio rotundo. C. B. P. 480.
2. CAPPARIS (*Baducca*) pedunculis ſubſolitariis, foliis perſiſtentibus ovato-oblongis nudis determinate confertis. Lin. Sp. 720. *Caper with ſingle foot-ſtalks, oblong, oval, naked leaves in cluſters, which are always green.* Capparis arboreſcens Indica Baducca dicta. Raii Hiſt. 1630. *Indian Tree Caper, called Baducca.*
3. CAPPARIS (*Arboreſcens*) foliis lanceolato-ovatis perennantibus caule arboreſcenti. *Caper with oval ſpear-ſhaped leaves which continue through the year, and a tree-like ſtalk.*
4. CAPPARIS (*Cynophallophora*) pedunculis multifloris terminalibus angulatis, foliis perſiſtantibus ovalibus obtuſis.

obtuſis. Lin. Sp. 721. *Caper with angular branches terminated by foot-ſtalks, having many flowers, and evergreen, obtuſe, oval leaves.* Capparis arboreſcens Lauri foliis fructu longiſſimo. Plum. Cat. 7. *Tree Caper with Bay leaves, and the longeſt fruit.*

5. Capparis (*Racemoſis*) foliis ovatis oppoſitis perennantibus floribus racemoſis. *Caper with oval leaves placed oppoſite, which continue through the year, and flowers growing in bunches.*
6. Capparis (*Siliquoſa*) pedunculis unifloris compreſſis, foliis perſiſtentibus lanceolato-oblongis acuminatis ſubtus punctatis. Lin. Sp. 721. *Caper with compreſſed foot-ſtalks having one flower, and oblong, ſpear-ſhaped, evergreen leaves, with punctures on their under ſide.* Breynia arboreſcens, foliis ovatis utrinque acuminatis, ſiliqua toroſa longiſſima. Brown. Hiſt. Jam. 247.
7. Capparis (*Fruticoſa*) foliis lanceolatis acutis confertis perennantibus, caule fruticoſo. *Caper with pointed ſpear-ſhaped leaves growing in cluſters, which continue through the year, and a ſhrubby ſtalk.*
8. Capparis (*Confertis*) foliis lanceolatis alternis petiolis longiſſimis floribus confertis. *Caper with ſpear-ſhaped leaves placed alternate on very long foot-ſtalks, and flowers growing in cluſters.* Capparis alia arboreſcens Lauri foliis fructu oblongo ovato. Plum. Cat. 7.
9. Capparis (*Breynia*) pedunculis racemoſis, foliis perſiſtentibus oblongis, pedunculis calycibuſque tomentoſis, floribus octandris. Jacq. Amer. tab. 103. *Caper with branching foot-ſtalks, oblong evergreen leaves, flowers with eight ſtamina, whoſe foot-ſtalks and cups are woolly.*
10. Capparis (*Trifloris*) foliis lanceolatis nervoſis perennantibus pedunculis trifloris. *Caper with nervous ſpear-ſhaped leaves which continue through the year, and three flowers upon each foot-ſtalk.*

The firſt is the common Caper, whoſe full grown flower-bud is pickled, and brought to England annually from Italy, and the Mediterranean. This is a low ſhrub, which generally grows out of the joints of old walls, the fiſſures of rocks, and amongſt rubbiſh, in moſt of the warm parts of Europe: the ſtalks are ligneous, and covered with a white bark, which ſends out many lateral ſlender branches; under each of theſe are placed two ſhort crooked ſpines, between which and the branches come out the foot-ſtalk of the leaves, which are ſingle, ſhort, and ſuſtain a round, ſmooth, entire leaf; at the intermediate joints between the branches, come out the flowers upon long foot-ſtalks; before theſe expand, the bud, with the empalement, is gathered for pickling; but thoſe which are left expand in form of a ſingle Roſe, having five large, white, roundiſh, concave petals; in the middle is placed a great number of long ſtamina, ſurrounding a ſtyle, which riſes above them, and is crowned with an oval germen, which afterward becomes a capſule, filled with kidney-ſhaped ſeeds.

This ſort is cultivated upon old walls about Toulon, and in ſeveral parts of Italy. Mr. Ray obſerved it growing naturally on the walls and ruins at Rome, Sienna, and Florence.

The ſecond ſort hath a tree-like ſtem dividing into branches, which are ſmooth, having no ſpines on them; the leaves are oblong, oval, and ſmooth, which continue through the year. From the wings of the leaves come out the foot-ſtalks of the flowers, which are produced ſingly; theſe flowers are like thoſe of the former, but are much larger, as are alſo the buds.

The plants of the firſt ſort are with difficulty preſerved in England, for they delight to grow in crevices or rocks, and the joints of old walls or ruins, and always thrive beſt in an horizontal poſition; ſo that when they are planted either in pots, or the full ground, they rarely thrive, though they may be kept alive for ſome years. They are propagated by ſeeds in the warm parts of Europe, but it is very difficult to get them to grow in England. I have ſeveral times ſowed theſe ſeeds without ſucceſs, as have many other perſons; I never had raiſed any of the plants from ſeeds, excepting in the years 1738 and 1765, when I had three plants come up in an old wall, which being young and tender, were deſtroyed in the year 1740; but in the year 1765, raiſed a good number of plants from ſeeds, which were ſown the year before. There is an old plant growing out of a wall in the gardens at Cambden-Houſe, near Kenſington, which has reſiſted the cold for many years, and annually produces many flowers, but the young ſhoots of it are frequently killed to the ſtump every winter.

The roots of this plant are annually brought from Italy, by the perſons who import Orange-trees, ſome of which have been planted in walls, where they have lived a few years, but have not continued long.

The third ſort I received from Carthagena in New Spain, near which place it grows naturally. This riſes with a woody ſtem to the height of twelve or fourteen feet, ſending out many lateral branches, covered with a ruſſet bark, garniſhed with oblong oval leaves, ſtanding upon long foot-ſtalks; the flowers are produced from the ſide of the branches, ſingle, ſtanding upon long foot-ſtalks, which are like thoſe of the laſt ſort.

The fourth ſort was ſent me from Carthagena by the late Mr. Robert Millar, ſurgeon. This grows with a ſtrong upright trunk near twenty feet high, ſending out many lateral branches, garniſhed with a very white bark, and cloſely garniſhed with large, oblong, ſtiff leaves, of a thicker conſiſtence than thoſe of the common Laurel, of a ſplendid green, having ſeveral tranſverſe nerves from the midrib to the border, which are prominent on their under ſide; the flowers come out from the ſide of the branches, which are large, and the ſummits of the ſtamina are purple.

The fifth ſort was ſent me from the ſame country. This riſes with a trunk about twenty feet high, ſending out many long ſlender branches, which are covered with a brown bark, and garniſhed with leaves like thoſe of the Bay-tree, but longer, and deeply ribbed on their under ſide, ſtanding upon pretty long foot-ſtalks oppoſite. The flowers are produced upon long branching foot-ſtalks, which terminate the branches, each ſuſtaining two or three flowers, which are large, white, and are ſucceeded by pods two or three inches long, the thickneſs of a man's little finger, which are filled with large kidney-ſhaped ſeeds: theſe pods have a thick fleſhy cover.

The ſixth ſort was ſent me from Tolu in America. This riſes with a ſhrubby ſtalk to the height of eight or ten feet, ſending out many ligneous branches, covered with a reddiſh brown bark, garniſhed with oblong, ſpear-ſhaped, ſtiff leaves, having punctures on their under ſide; from the wings of the leaves ariſe the foot-ſtalks of the flowers, which are long, ſlender, and compreſſed, each of which ſuſtains a ſmall white flower, which is ſucceeded by an oval pod, containing many ſmall kidney-ſhaped ſeeds.

The ſeventh ſort riſes with a ſhrubby ſtem to the height of twelve or fourteen feet, ſending out many ſtrong lateral branches, covered with a dark brown bark, garniſhed with ſpear-ſhaped pointed leaves, placed alternately, having very ſhort foot-ſtalks; the leaves are of a thicker conſiſtence than thoſe of the Bay-tree; at the foot-ſtalk of each leaf comes out a ſingle flower, almoſt the whole length of the branches, which are ſmall, and ſtand upon ſhort foot-ſtalks; the ſummits of theſe flowers are of a purpliſh colour, but the ſtamina are white. This ſort was ſent me from Tolu.

The eighth ſort riſes with a ſhrubby ſtalk to the height of ten or twelve feet, ſending out ſlender horizontal branches, which are covered with a reddiſh bark; the joints of theſe branches are far diſtant; at each of theſe come out ſeveral leaves in cluſters, without order, ſtanding upon pretty long foot-ſtalks; they are ſix inches long, and three broad in the middle, and as thick as thoſe of the Laurel, of a ſhining green, ſmooth on their upper ſide, but have many tranſverſe ribs on their under ſide, which are prominent. I received this ſort from Tolu, with the former.

The ninth ſort grows naturally in moſt of the iſlands in the Weſt Indies; it hath a ſtrong woody ſtem, twenty-five or thirty feet high, dividing into many branches, covered with an Aſh-coloured bark, and garniſhed with oblong oval leaves, downy on their under ſide, but ſmooth on their upper, placed without order; the flowers are produced in looſe panicles at the extremity of the branches; theſe conſiſt of four pretty large concave petals, of a purple colour, including eight long purple ſtamina, with a very long ſtyle crowned by an obtuſe ſtigma; the germen afterward turns to an oblong fleſhy pod, containing four or five ſeeds.

The tenth ſort hath ſlender ſhrubby ſtalks, which riſe ſeven or eight feet high, ſending out many ligneous branches, garniſhed with very long, nervous, ſpear-ſhaped leaves. The flowers come out at the end of the branches, three ſtanding upon each foot-ſtalk; theſe are ſmall, white, and are ſucceeded by oval fruit.

Theſe laſt nine ſorts are natives of warm countries, ſo will not live through the winter in England, without the aſſiſtance of a ſtove. They are propagated by ſeeds, which muſt be procured from the countries where they grow naturally, for they do not produce any in England; theſe muſt be ſown in ſmall pots, filled with light ſandy earth, and plunged into a hot-bed of tanners bark; which ſhould be now and then refreſhed with water, but by no means ſhould have it given in too great plenty: theſe ſeeds frequently remain in the ground a year before they vegetate, therefore the pots in which they are ſown ſhould be protected in winter; and the ſpring following muſt be plunged into a freſh hot-bed of tanners bark, which will bring up the plants if the ſeeds were good; when the plants appear they muſt have but little wet, and a good ſhare of air in warm weather; but when they are large enough to remove, they muſt be each tranſplanted into a ſeparate ſmall pot, filled with the ſame earth, and then plunged into the hot-bed again, obſerving to ſhade them until they have taken freſh root; after which they ſhould have freſh air admitted to them every day, in proportion to the warmth of the ſeaſon. In the autumn they muſt be removed into the ſtove, and plunged into the bark-bed, where they ſhould conſtantly remain, and will require the ſame treatment as other tender exotic plants from the ſame countries; with this difference only, that they require but little water, eſpecially during the winter, for the roots of theſe plants are very ſubject to rot with wet.

If the ſeeds are brought over in their capſules, they will keep much better than without them; but theſe ſhould be ſecured from inſects, by wrapping them in Tobacco leaves which are well dried; without this precaution, the ſeeds will be deſtroyed before they arrive.

CAPER [BEAN.] See Zygophyllum.

CAPRARIA. Lin. Gen. Plant. 686. Sweet Weed.

The Characters are,

It hath a permanent empalement of one leaf, cut into five oblong narrow ſegments, which are erect and ſtand aſunder; the flower is bell-ſhaped, of one leaf, divided at the top into five equal parts, the two upper ſtanding erect; it hath four ſtamina, which are inſerted in the baſe of the petal, and but little more than half ſo long, two of the under being ſhorter than the other, and terminated by heart-ſhaped ſummits; it hath a conical germen ſupporting a ſlender ſtyle, longer than the ſtamina, crowned by a bivalve heart-ſhaped ſtigma. The germen afterward becomes an oblong conical capſule, compreſſed at the point, having two cells, divided by a partition filled with roundiſh ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhort ſtamina, and the ſeeds being included in a capſule.

We have but one Species of this genus, viz.

Capraria (*Biflora*) foliis alternis floribus geminis. Jacq. tab. 15. *Capraria with alternate leaves, and foot-ſtalks with two flowers.* Capraria Curaſſavica. Par. Bat. 110.

This plant grows naturally in the warm parts of America, where it is often a troubleſome weed in the plantations; it riſes with an angular green ſtalk about a foot and a half high, ſending out branches at every joint, which ſometimes come out by pairs oppoſite, but generally there are three at a joint ſtanding round the ſtalk; the leaves are alſo placed round the branches by threes; theſe ſtand upon ſhort foot-ſtalks, are oval, hairy, and a little indented on their edges. The flowers are produced at the wings of the leaves, coming out on each ſide the ſtalk, each foot-ſtalk ſuſtaining two flowers; they are white, and ſucceeded by conical capſules compreſſed at the top, opening in two parts, and filled with ſmall ſeeds.

This plant is preſerved in botanic gardens for the ſake of variety; but as it hath no great beauty, ſo is ſeldom admitted into other gardens.

It is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring of the year, and the plants muſt be brought forward by planting them upon a ſecond hot-bed; and about the middle or latter end of June they may be tranſplanted either into pots of rich earth, or a warm border, and may then be expoſed to the open air, where they will perfect their ſeeds in autumn.

CAPREOLATE plants [of capreolus, *Lat.* the tendril of a Vine,] ſuch plants as twiſt and climb upon others, by means of tendrils.

CAPRIFOLIUM. See Periclymenum.

CAPSICUM. Lin. Gen. Plant. 225. [takes its name of capſa, *Lat.* a cheſt; becauſe the ſeeds of this plant are included, as it were, in a little cheſt; or elſe of κάπτω, to bite, becauſe it is a burning pungent plant.] Guinea Pepper; in French, *Poivre d'Inde ou de Guinée.*

The Characters are,

The flower hath a permanent empalement of one leaf, divided into five parts, which are erect. It hath but one petal, which is wheel-ſhaped, having a very ſhort tube, ſpread open above, and divided into five parts; it hath five ſmall ſtamina, terminated by oblong ſummits, which are connected. It hath an oval germen, ſupporting a ſlender ſtyle, longer than the ſtamina, and crowned by an obtuſe ſtigma. The germen afterward becomes a ſoft fruit, or capſule, of an indeterminate figure, having two or more cells, divided by intermediate partitions, to which adhere many compreſſed kidney-ſhaped ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and but one ſtyle.

The Species are,

1. Capsicum (*Annuum*) caule herbaceo, fructu oblongo propendente. *Capſicum with an herbaceous ſtalk, and an oblong fruit hanging downward.* Capſicum ſiliquis longis propendentibus. Tourn. Inſt. 152.

2. Capsicum (*Cordiforme*) caule herbaceo, fructu cordiformi. *Capſicum with an herbaceous ſtalk, and an heart-ſhaped fruit.* This is the Capſicum ſiliqua propendente oblonga & cordiformi. Tourn. Inſt. 152.

3. Capsicum (*Tetragonum*) caule herbaceo, fructu maximo anguloſo obtuſo. *Capſicum with an herbaceous ſtalk, and a large angular obtuſe fruit.* Capſicum fructu longo, ventre tumido, per ſummum tetragono. Tourn. Inſt. 153. *Bell Pepper.*

4. Capsicum (*Anguloſum*) caule herbaceo, fructu cordiformi anguloſo. *Capſicum with an herbaceous ſtalk, and an angular heart-ſhaped fruit.* Capſicum ſiliquis ſurrectis cordiformibus angulatis. Tourn. Inſt. R. H. 153.

5 Capsicum (*Ceraſiforme*) caule herbaceo, fructu rotundo glabro. *Capſicum with an herbaceous ſtalk, and a round ſmooth fruit.* Capſicum ſiliquis ſurrectis Ceraſi forma. Tourn. Inſt. 153.

6. Capsicum (*Olivæforme*) caule herbaceo, fructu ovato. *Capſicum with an herbaceous ſtalk, and an oval-ſhaped fruit.* Capſicum ſiliqua olivæ forma. Tourn. Inſt. 153.

7. Capsicum (*Pyramidale*) caule fruticoſo foliis lineari-lanceolatis, fructu pyramidali erecto luteo. *Capſicum with a ſhrubby ſtalk, narrow ſpear-ſhaped leaves, and yellow pyramidal fruit growing upright.*

8. Capsicum (*Conoide*) caule fruticoſo fructu conico erecto rubro. *Capſicum with a ſhrubby ſtalk, and a conical red fruit growing erect, commonly called Hen Pepper.*

9. Capsicum (*Fruteſcens*) caule fruticoſo, fructu parvo pyramidali erecto. *Capſicum with a ſhrubby ſtalk, and a ſmall pyramidal fruit growing erect.* Capſicum minus fructu parvo pyramidali erecto. Sloan. Hiſt. Jam. vol. i. p. 240. *Commonly called Barberry Pepper.*

10. Capsicum (*Minimum*) caule fruticoſo, fructu parvo ovato erecto. *Capſicum with a ſhrubby ſtalk, and a ſmall oval fruit growing erect, commonly called Bird Pepper.*

The firſt is the common long podded Capſicum, which is frequently cultivated in the gardens; of this there is one with red, and another with yellow fruit, which only differ in the colour of their fruit, which difference is permanent; for I have cultivated both ſorts many years, and never have found them change from one to the other; but both will vary in the ſhape of their fruit and their manner of growing, ſo that the following varieties I have raiſed from the ſame ſeeds, viz.

1. Capsicum fructu ſurrecto oblongo. Tourn. *Capſicum with oblong fruit growing erect.*
2. Capsicum fructu bifido. Tourn. *Capſicum with a divided fruit.*
3. Capsicum ſiliquis ſurrectis & oblongis brevibus. Tourn. *Capſicum with oblong and ſhort pods growing erect.*
4. Capsicum fructu tereti ſpithameo. Tourn. *Capſicum with a taper fruit a ſpan long.*

Of theſe different forms I have had both the red and yellow, but neither of them have changed their colours, though they have frequently varied in their ſhape.

The ſecond ſort with heart-ſhaped fruit, is undoubtedly a different ſpecies from the firſt, and never alters toward it, though there are ſeveral varieties of this, which ariſe from the ſame ſeeds; of this there are red and yellow fruit, which do not alter in colour, though they produce the following varieties.

1. Capsicum ſiliqua propendente rotunda & cordiformi. Tourn. *Capſicum with round, heart-ſhaped, hanging pods.*
2. Capsicum ſiliqua latiore & rotundiore. Tourn. *Capſicum with a larger and rounder pod.*
3. Capsicum rotundo maximo. Tourn. *Capſicum with the largeſt round fruit.*
4. Capsicum ſiliquis ſurrectis cordiformibus. Tourn. *Capſicum with upright heart-ſhaped pods.*
5. Capsicum ſiliquis ſurrectis rotundis. Tourn. *Capſicum with round upright pods.*

The third ſort I have cultivated many years, and have not found it alter, nor have I ſeen any other but the red fruit of this. It is the only ſort which is proper for pickling, the ſkin of the fruit being fleſhy and tender, whereas thoſe of the other ſorts are thin and tough. The pods of this ſort are from one inch and a half, to two inches long, are very large, ſwelling, and wrinkled; flatted at the top, where they are angular, and ſometimes ſtand erect, at others grow downward. When the fruit of this are deſigned for pickling, they ſhould be gathered before they arrive to their full ſize, while their rind is tender; then they muſt be ſlit down on one ſide to get out the ſeeds, after which, they ſhould be ſoaked two or three days in ſalt and water; when they are taken out of this and drained, boiling vinegar muſt be poured on them, in a ſufficient quantity to cover them, and cloſely ſtopped down for two months; then they ſhould be boiled in the vinegar to make them green; but they want no addition of any ſort of ſpice, and are the wholeſomeſt and beſt pickle in the world.

The fourth ſort is alſo a diſtinct ſpecies from all the other: this hath broad wrinkled leaves; the fruit is alſo furrowed and wrinkled, generally growing upright, and of a beautiful ſcarlet colour: ſome of the fruit will have their tops compreſſed like a bonnet, from whence it had the name; others upon the ſame plants will be bell-ſhaped, but they never alter to any of the other ſorts. This is much tenderer than either of the former, ſo will not ripen its fruit in the open air in England; but if the plants are kept under glaſſes, without any artificial heat, they will thrive better, and produce more fruit, than in hot-beds or ſtoves.

The fifth ſort was ſent me from the Spaniſh West-Indies: this doth not grow ſo tall as the other ſorts, but ſpreads near the ground. The leaves come out in cluſters, which are of a ſhining green, and ſtand on long foot-ſtalks. The fruit is round, ſmooth, of a beautiful red, and the ſize of a common Cherry. I have cultivated this ſeveral years, and have not found it change.

The ſixth ſort I received from Barbadoes: this is like the common in its ſtalk and leaves, but the fruit is oval, and about the ſize of a French Olive. I have cultivated this many years, and find it conſtantly the ſame.

Theſe ſix ſorts are annual with us, whatever they may be in their native countries, for their ſtalks decay ſoon after the fruit is ripe. They are propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring; and when the plants have ſix leaves, they ſhould be tranſplanted on another hot-bed, at four or five inches diſtance, ſhading them in the day time from the ſun, until they have taken root, after which, they muſt have a large ſhare of air admitted to them in warm weather, to prevent their drawing up weak. Toward the end of May, the plants muſt be hardened by degrees to bear the open air; and in June they ſhould be carefully taken up, preſerving as much earth about their roots as poſſible, and planted into borders of rich earth, obſerving to water them well, as alſo to ſhade them until they have taken root; after which time, they will require no other management, but to keep them clean from weeds, and in very dry ſeaſons to refreſh them three or four times a week with water. They will flower the end of June and in July, and their fruit will ripen in autumn. Theſe directions are for the culture of the common ſorts of Capſicum, which are generally planted by way of ornament. But the plants of the third ſort, which are propagated for pickling, ſhould be planted in a rich ſpot of ground, in a warm ſituation, about a foot and a half aſunder, and ſhaded till they have taken root, and afterward duly watered in dry weather; which will greatly promote their growth, and cauſe them to be more fruitful, as alſo enlarge the ſize of the fruit. By this management, there may be at leaſt two crops of fruit for pickling obtained the ſame year, provided the ſeaſon proves not too cold; but there ſhould be one plant, whoſe pods are large and forward, choſen for to ſave ſeeds; ſo the firſt fruits on this ſhould be ſuffered to remain, that they may have time to perfect their ſeeds before the froſt comes in autumn, for the early froſt generally deſtroys theſe plants. When the fruit is fully ripe, it ſhould be cut off, and hung up in a dry room till the ſpring, when the ſeeds are wanted.

The fourth, fifth, and ſixth ſorts being tender, the plants ſhould be put into pots, and placed in an old hot-bed under a deep frame, where they may have room to grow; or if they are planted in the full ground, the plants ſhould be each covered with a bell-glaſs to ſcreen them from cold. Theſe glaſſes may be ſet off every day in warm weather, and placed over them in the evening again; and at ſuch times as the weather is not favourable, the glaſſes ſhould be raiſed on the contrary ſide to the wind, to admit the freſh air. With this care, the fruit of theſe ſorts will ripen in England, which without it, rarely come to maturity, but in very warm ſeaſons.

The beauty of theſe plants is in their ripe fruit, which being of different forms and colours, intermixed with the green leaves, and white flowers at the ſame time, do make a pretty appearance in the latter part of ſummer, when they are properly diſpoſed in the borders of the flower-garden; or if they are planted in pots, for the decoration of courts, &c. being intermixed with other annual plants, which are in beauty at the ſame ſeaſon, they will make an agreeable variety; eſpecially, if as many of the different ſhaped fruits, of both the red and yellow colours as can be procured, are propagated.

The four laſt ſorts have perennial ſhrubby ſtalks, which riſe four or five feet high; theſe are not ſo hardy as the other, therefore when the plants have been brought forward in the hot-bed, as was directed for the common ſorts, they ſhould be each planted in a pot filled with rich earth, and plunged into a very moderate hot-bed, under a deep frame, where they may have room to advance; and in warm weather, they ſhould have a large ſhare of air admitted to them, but muſt be covered with glaſſes every night, or in cold weather, and frequently watered. With this management, they will produce plenty of fruit in autumn, which ripen in winter; but they muſt be removed into the ſtove, on the firſt approach of froſt, and placed where they may have a temperate warmth, in which they will thrive better than in a greater heat; and the fruit will continue in beauty moſt part of winter, making a pretty appearance in the ſtove during that ſeaſon.

The ſeeds of the ſeventh ſort I received from Egypt: the leaves of this are much narrower than thoſe of any other ſort I have yet ſeen; the pods always grow erect, and are produced in great plenty, ſo that the plants make a good appearance for three months in the winter, and they may be preſerved two or three years; but as the young plants are the moſt fruitful, ſo few perſons preſerve the old longer, than till they have perfected their fruit, when they begin to loſe their beauty. I have cultivated this ſort ſeveral years, and have never found it vary, ſo conclude it is a diſtinct ſpecies.

The eighth ſort I received from Antigua, by the title of Hen Pepper. This riſes with a ſhrubby ſtalk three or four feet high, ſending out many branches toward the top: the fruit is about half an inch long, ſhaped in form of an obtuſe cone, and of a bright red, growing erect. This ripens its fruit in winter, when it makes a pretty appearance.

The ninth ſort grows about the ſame height as the eighth, but differs from it in the ſhape and ſize of the fruit: thoſe of this ſort being about the bigneſs of a Barberry, and nearly of the ſame ſhape. This I have long cultivated, and have not obſerved it to alter.

The tenth ſort is commonly known by the title of Bird Pepper in America. This riſes with a ſhrubby ſtalk four or five feet high: the leaves are broad, and rounder at the ends than thoſe of the other ſorts, and of a lucid green: the fruit grows at the diviſions of the branches, ſtanding erect: theſe are ſmall, oval, and of a bright red; they are much more ſharp and biting than thoſe of the other ſorts. From the fruit of this ſort is made the Cayan butter, or what the inhabitants of America call Pepper-pots, which they eſteem as the beſt of all the ſpices. The following is a receipt for making a Pepper-pot: take of the ripe pods of this ſort of Capſicum, and dry them well in the ſun, then put them into an earthen or ſtone pot, mixing flour between every ſtrata of pods, and put them into an oven after the baking of bread, that they may be thoroughly dried; after which, they muſt be well cleanſed from the flour, and if any of the ſtalks remain to the pods, they ſhould be taken off, and the pods beaten, or ground to fine powder; to every ounce of this, add a pound of Wheat flour, and as much leaven as is ſufficient for the quantity intended; after this has been properly mixed and wrought, it ſhould be made into ſmall cakes, and baked in the ſame manner as common cakes of the ſame ſize; then cut them into ſmall parts, and bake them again, that they may be as dry and hard as biſcuit, which, beaten into fine powder and ſifted, may be kept for uſe. This may be uſed as the common Pepper, to ſeaſon meat or broth, or for any of the purpoſes that the ordinary Pepper is uſed: it gives a better reliſh to meat or ſauce, and is found of excellent uſe to break and diſcuſs the wind, both in the ſtomach and the guts; therefore is very proper ſauce for ſuch meats as are flatulent and windy, or that breed much moiſture or crudity. A ſcruple of this powder put into chicken or veal broth, is greatly commended for comforting cold ſtomachs, or diſpelling of phlegm or viſcous humours, and helping digeſtion.

Moſt of the ſorts of Capſicum are natives of both the Indies; but they have been brought to Europe from America, where they abound in all the Caribbee iſlands, and are by the inhabitants greatly uſed in all their ſauces; but eſpecially by the negroes, who are great devourers of them; from whence it had the appellation of Negro Pepper, and probably the title of Guinea Pepper may have been applied to it for the ſame reaſon. In Spain and Portugal theſe fruit are much cultivated, where they are uſed for the ſame purpoſes as in America; but in England, they are chiefly cultivated for ornament, being rarely uſed for ſauce, or in medicine; though it is much uſed in both, in ſeveral other countries.

If the ripe pods of Capſicum are thrown into the fire, they will raiſe ſtrong and noiſome vapours, which occaſion vehement ſneezing and coughing, and often vomiting, in thoſe who are near the place, or in the room where they are burnt. Some perſons have mixed the powder of the pods with ſnuff, to give to others for diverſion; but where it is in quantity, there may be danger in uſing it, for it will occaſion ſuch violent fits of ſneezing, as to break the blood-veſſels of the head, as I have obſerved in ſome to whom it has been given.

CAPSULATE pods [of capſula, *Lat.* a cheſt] are little, ſhort, dry ſeed-veſſels of plants.

CAPSULATED plants, are ſuch as produce their ſeeds in ſhort dry pods or huſks.

CARACALLA. See PHASEOLUS.

CARAGANA. See OROBUS.

CARDAMINDUM. See TROPÆOLUM.

CARDAMINE. Lin. Gen. Plant. 727. [takes its name of Cardamum, which is called Naſturtium; hence it is a ſmall ſpecies of Naſturtium,] in Engliſh, Ladies Smock.

The CHARACTERS are,

The empalement is compoſed of four oval oblong leaves. The flower hath four oblong petals, placed in form of a croſs, which at their baſe are erect, but ſpread open above, and are much larger than the empalement; it hath ſix ſtamina, four of which are the length of the empalement; the other two, which are oppoſite, are much longer: theſe are terminated by oblong, heart-ſhaped, erect ſummits. It hath a ſlender cylindrical germen, as long as the ſtamina, having no ſtyle, but is crowned by an obtuſe ſtigma. The germen afterward turns to a long, compreſſed, cylindrical pod, with two cells, opening in two valves which twiſt ſpirally, and caſt out the ſeeds when ripe, by their elaſticity.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa; the flowers of this claſs have ſix ſtamina, four of which are ſhort, and two are longer, ſtanding oppoſite, and the ſeeds are included in long pods.

The SPECIES are,

1. CARDAMINE (*Pratenſis*) foliis pinnatis, foliolis radicalibus ſubrotundis, caulinis lanceolatis. Lin. Sp. Plant. 656. *Ladies Smock with winged leaves, whoſe lobes at bottom are roundiſh, but thoſe on the ſtalks are ſpear-ſhaped.* Cardamine pratenſis magno flore purpuraſcente. Tourn. Inſt. 224.
2. CARDAMINE (*Parviflora*) foliis pinnatis, foliolis inciſis, floribus exiguis, caule erecto ramoſo. *Ladies Smock with winged leaves, cut lobes, very ſmall flowers, and an upright branching ſtalk.* Cardamina annua exiguo flore. Tourn. Inſt. R. H. 224.

3. Cardamine (*Hirſuto*) foliis pinnatis, floribus tetrandis. Hort. Cliff. 336. *Ladies Smock, or impatient Creſs with winged leaves, and flowers with four ſtamina.* Cardamine quarta. Dalechamp. Ludg.
4. Cardamine (*Impatiens*) foliis pinnatis inciſis ſtipulatis, floribus apetalis. Lin. Sp. 914. *Impatient Creſs with winged leaves, cut ſtipulæ, and fugacious flowers.* Cardamine pratenſis parvo flore. Tourn. Inſt. 224.
5. Cardamine (*Græca*) foliis pinnatis foliolis palmatis æqualibus petiolatis. Prod. Ley. 345. *Impatient Creſs with winged leaves, whoſe lobes are handed, equal, and have foot-ſtalks.* Cardamine Sicula, foliis Fumariæ. Tourn. Inſt. 225. *Sicilian impatient Creſs with Fumitory leaves.*
6. Cardamine (*Amara*) foliis pinnatis, foliolis ſubrotundis anguloſis. Hall. Helv. 558. *Impatient Creſs with winged leaves, whoſe lobes are roundiſh and angular.* Naſturtium aquaticum majus & amarum. C. B. P. 104.
7. Cardamine (*Trifolia*) foliis ternatis obtuſis, caule ſubnudo. Lin. Sp. Plant. 654. *Three-leaved impatient Creſs with a naked ſtalk.* Naſturtium Alpinum trifolium. C. B. P. 104.
8. Cardamine (*Bellidifolia*) foliis ſimplicibus ovatis integerrimis petiolis longis, Flor. Lap. 206. *Impatient Creſs with ſingle, oval, entire leaves, having long foot-ſtalks.* Naſturtium Alpinum Bellidis folio minus. C. B. P. 105. *Smaller Alpine Creſs with a Daiſey leaf.*
9. Cardamine (*Petræa*) foliis ſimplicibus oblongis dentatis. Lin. Sp. Plant. 654. *Impatient Creſs with ſingle, oblong, indented leaves.* Naſturtium petræum. Pluk. Alm. 261. *Rock Creſs.*
10. Cardamine (*Chelidonia*) foliis pinnatis foliolis quinis inciſis. Lin. Sp. Plant. 655. *Impatient Creſs with winged leaves, having five lobes which are cut.* Cardamine glabra Chelidonii folio. Tourn. Inſt. 225.

The firſt ſort grows naturally in the meadows in many parts of England; it is called Cuckow Flower, and Ladies Smock. Of this there are four varieties, viz. the ſingle purple with white flowers, which are frequently intermixed in the meadows, and the double flower of both colours. The ſingle ſorts are ſeldom admitted into gardens; but as the firſt ſort ſtands in the liſt of medicinal plants, I have enumerated it. The young leaves of this plant have been gathered in the ſpring, by ſome perſons, and put into ſallads inſtead of Creſs: it is ſuppoſed to be an antiſcorbutic. The two varieties with double flowers were accidentally found growing in the meadows, and were tranſplanted into gardens, where they have been propagated. Theſe deſerve a place in ſhady moiſt borders of the flower-garden, where they will thrive, and make a pretty appearance during their continuance in flower: they are propagated by parting their roots; the beſt time for this is in autumn, when they ſhould be tranſplanted annually. They delight in a ſoft loamy ſoil, not too ſtiff, and muſt have a ſhady ſituation. This flowers in May, and in cool ſeaſons will continue part of June.

The ſeventh, eighth, and tenth ſorts, grow naturally on the Alps, and other mountainous places. I received theſe from Verona, in the neighbourhood of which place they grow naturally. Theſe are low perennial plants, which may be propagated by parting their roots in the autumn, and require a ſtrong ſoil and ſhady ſituation: they may alſo be propagated by ſeeds, which ſhould be ſown in the autumn, on a ſhady border, where they will come up ſoon after, and are never hurt by froſt, ſo will flower the following ſeaſon. Theſe varieties are preſerved in ſome gardens, but having little beauty, are ſeldom admitted into the flower-garden.

The ninth ſort is a low biennial plant, which grows naturally in ſeveral parts of England and Wales, and is preſerved in ſome gardens for the ſake of variety. It may be propagated by ſeeds, which ſhould be ſown in the autumn, upon poor light ground in an open ſituation, and will require no other care but to keep the plants clear from weeds. It flowers in June, and the ſeeds ripen in July.

The ſixth ſort grows naturally by the ſides of rivers and ditches in moſt parts of England, ſo is not admitted into gardens. There has been a variety of this found with double flowers, but it is not as yet much known. This flowers the latter end of April, and in May.

The other ſorts are low annual plants, which grow naturally in ſeveral parts of England, ſo are ſeldom admitted into gardens. Theſe have the title of Impatient Creſs, from the elaſticity of their pods, which, if touched when they are ripe, ſpring open, and caſt out their ſeeds with violence, to a conſiderable diſtance. Theſe ſorts when young, are, by the country people, eaten in ſallads, and have the flavour of the common Creſs, but milder.

Theſe plants, when once admitted into a garden, propagate in plenty; for they produce great quantities of ſeeds, which, if permitted to ſcatter, there will be a ſupply of plants, which only require to be thinned and kept clean from weeds, and will thrive beſt in the ſhade.

CARDIACA. See Leonurus.

CARDINALS FLOWER. See Rapuntium.

CARDIOSPERMUM. Lin. Gen. Plant. Heart Pea; by the inhabitants of America called Wild Parſley; by the French, *Pois de Merveille.*

The Characters are,

It hath a permanent empalement compoſed of four concave leaves. The flower has four obtuſe petals, which are alternately larger; it hath a ſmall four-leaved nectarium encompaſſing the germen, and eight ſtamina, three and three ſtanding oppoſite, the other two on each ſide; theſe are terminated by ſmall ſummits. The germen is three-cornered, and ſupports three ſhort ſtyles, crowned by ſingle ſtigma. The germen afterward becomes a roundiſh ſwollen capſule with three lobes, divided into three cells, opening at the top, each having one or two globular ſeeds, marked with a heart.

This genus of plants is ranged in the third ſection of Linnæus's eighth claſs, intitled Octandria Trigynia, the flower having eight ſtamina and three ſtyles.

The Species are,

1. Cardiospermum (*Corindum*) foliis ſubtus tomentoſis. Lin. Sp. 526. *Heart Pea with woolly leaves.* Corindum folio & fructu minori. Tourn. Inſt. 431.
2. Cardiospermum (*Halicacabum*) foliis lævibus. Hort. Cliff. 150. *Heart-ſeed with ſmooth leaves.* Corindum folio ampliori, fructu majore. Tourn. Inſt. 431.

The firſt ſort riſes with a ſlender, channelled, climbing ſtalk, to the height of four of five feet, ſending out many ſide branches, garniſhed with leaves, upon very long foot-ſtalks, coming out oppoſite at the lower part of the ſtalk; but upward the leaves come out on one ſide, and the foot-ſtalk of the flower at the oppoſite; the foot-ſtalks of the leaves are divided into three, each of which ſuſtain ſmall leaves, which are again divided into three parts, that are ſharply cut on their edges, and end in ſharp points. The foot-ſtalk of the flowers are long, naked, and toward the top, divided into three ſhort ones, each ſuſtaining a ſingle flower. Immediately under theſe diviſions, comes out tendrils or claſpers, like thoſe of the Vine, but ſmaller; theſe faſten themſelves to whatever plants grow near them, and are thereby ſupported. The flowers are ſmall, white, and compoſed of four ſmall concave petals, two of which ſtanding oppoſite, are larger than the other; when theſe fall away, the germen afterward becomes a large inflated bladder, having three lobes, in each of which is contained one, two, and ſometimes three ſeeds, which are round, hard, and the ſize of ſmall Peas, each being marked with a black ſpot in ſhape of a heart.

The ſecond ſort differs from the firſt in having taller ſtalks, the leaves being firſt divided into five, and again into three parts. The foot-ſtalks are ſhorter, and the ſeeds and bladders in which they are contained are much larger, and the whole plant is ſmoother, in other reſpects they agree.

Theſe plants grow naturally in both Indies, where they climb upon whatever ſhrubs are near them, and riſe to the height of eight or ten feet, but in England they ſeldom are much above half ſo high; they ſend out many ſide branches, which ſpread to a conſiderable diſtance every way, and, if permitted, will faſten themſelves to the plants which are near them by their ſmall tendrils, and thereby ſpread over them.

They are annual, and periſh ſoon after they have perfected their ſeeds, and being natives of hot countries, they will not thrive in England in the open air. They are propagated by ſeeds, which ſhould be ſown upon a hot-bed in the ſpring; and when the plants are two inches high, they ſhould be each tranſplanted into a pot filled with light ſandy earth, not too rich, then plunged into a very moderate hot-bed, where they muſt be carefully ſhaded until they have taken freſh root; after which they muſt have a large ſhare of air admitted to them, to prevent their being drawn up tall and weak; and when their roots have filled the pots, they ſhould be carefully ſhaken out, preſerving all the earth to their roots (for if that ſhould fall off, the plants will not ſurvive it;) then put them into pots a little larger, filling them up with the ſame light earth, and place them either under a deep frame, or behind the plants in the ſtove, where they may be ſcreened from the ſun till they are well ſettled in the pots; after which they may be removed into a glaſs-caſe, where they may have room to grow and be ſcreened from the cold of the nights, but in warm weather they will require a large ſhare of air; with this management they will flower in July, and their ſeeds will ripen in autumn.

CARDUUS. Lin. Gen. Plant. 832. Thiſtle, in French, *Chardon.*

The CHARACTERS are,

It hath a compound flower made up of many hermaphrodite florets, which are fruitful; theſe are included in one common ſcaly empalement, which is ſwollen in the middle, each ſcale ending in a ſharp ſpine; the florets are funnel-ſhaped, of one leaf, having a ſlender tube, with an erect brim, cut into five narrow ſegments; each of theſe florets have five ſhort hairy ſtamina, terminated by cylindrical ſummits, which are indented at the top. In the center is ſituated an oval germen, crowned with down, ſupporting a ſlender ſtyle, which is longer than the ſtamina, crowned with a ſingle, naked, indented ſtigma. The germen afterward becomes an oblong four-cornered ſeed, crowned with down, and incloſed by the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis; the flowers of this claſs have their ſummits connected into a cylindrical tube, but the ſtamina are ſeparate, and thoſe of this ſection have only hermaphrodite fruitful flowers.

1. CARDUUS (*Ptarmicifolia*) foliis integris ſubtus tomenſis, ſpinis ramoſis lateralibus. Prod. Leyd. 133. *Thiſtle with entire leaves, woolly on their under ſide, and branching ſpines proceeding from the ſide of the ſtalks.* Carduus humilis aculeatus, Ptarmicæ Auſtriacæ foliis. Triumf. obſ. 96.

2. CARDUUS (*Eriophorus*) foliis ſeſſilibus bifariam pinnatifidis laciniis alternis erectis, calycibus globoſis villoſis. Hort. Upſal. 249. *Thiſtle with leaves growing cloſe to the ſtalks, which are doubly pinnated, the ſegments alternately erect, and globular woolly heads.* Carduus eriocephalus. Dod. Pempt. 723. *Woolly-headed Thiſtle, called by ſome Friars Crown.*

3. CARDUUS (*Acarna*) foliis lanceolatis dentatis ciliatis decurrentibus, ſpinis marginalibus duplicibus. *Thiſtle with ſpear-ſhaped indented leaves running along the ſtalks, with hairy edges, and the ſpines double on their borders.* Acarna major caule folioſo. C. B. P. 379. *Greater Fiſh Thiſtle.*

4. CARDUUS (*Marianus*) foliis amplexicaulibus haſtato-pinnatifidis ſpinoſis, calycibus aphyllis, ſpinis canaliculatis duplicato-ſpinoſis. Gouan. Monſp. 422. *Thiſtle with prickly leaves embracing the ſtalks, empalements without leaves, and doubly armed with channelled ſpines.* Carduus Mariæ. Dalech. Hiſt. 1475. *Our Ladies Thiſtle, or Milk Thiſtle.*

5. CARDUUS (*Cirſium*) foliis lanceolatis decurrentibus denticulis inermibus, calyce ſpinoſo. Hort. Cliff. 392. *Thiſtle with ſpear-ſhaped leaves running along the ſtalks, with ſmooth indentures, and a prickly empalement.* Cirſium Anglicum. Ger. Emac. 1183. *Engliſh ſoft or gentle Thiſtle.*

6. CARDUUS (*Caſabonæ*) foliis ſeſſilibus lanceolatis integerrimis ſubtus tomentoſis, margine ſpinis ternatis. Hort. Cliff. 393. *Thiſtle with entire ſpear-ſhaped leaves growing cloſe to the ſtalks, whoſe borders are ſet with triple ſpines.* Acarna Theophraſti anguillaræ. Lob. Icon. 486. *The ſuppoſed true Fiſh Thiſtle of Theophraſtus.*

There are a great number of ſpecies more than are here enumerated, ſome of which are very troubleſome weeds in the gardens and fields, therefore are better to be kept out of both; ſo I thought it needleſs to mention them here. The few ſorts which I have here enumerated, being often preſerved in the gardens of the curious for the ſake of variety, or cultivated for uſe by ſome perſons, therefore choſe not to omit them.

The firſt ſort grows naturally in Sicily. This is an annual plant, which riſes with a channelled ſtem about a foot and a half high, ſending out ſeveral ſide branches toward the top, garniſhed with long narrow leaves like thoſe of the Auſtrian Ptarmica, which are of a deep green above, but white on their under ſide, placed alternate: juſt below the foot-ſtalk of the leaf come out ſeveral unequal yellow ſpines, and at the end of the branches the flowers are produced; theſe have very prickly empalements, under which are placed two long leaves; the flowers are purple, and ſhaped like thoſe of the common Thiſtle, but are ſmaller; theſe are ſucceeded by oblong ſmooth ſeeds, which have a long woolly down ſitting on their top. This ſort flowers in July and Auguſt, and the ſeeds ripen in September. It is propagated by ſeeds, which ſhould be ſown on a bed of light earth in the ſpring where the plants are to remain, for they do not bear tranſplanting, unleſs it is performed when they are very young; for they ſend long ſlender roots deep into the ground, which, if broken, the plant ſeldom ſurvives it. The only care they will require, is to keep them clean from weeds, and thin the plants where they are too cloſe.

The ſecond ſort grows naturally in ſeveral of the midland counties of England. This is a biennial plant, which ſends out many long leaves near the ground, having ſeveral long ſegments, placed alternate, which are joined to a winged border running on each ſide the mid-rib the whole length; theſe ſegments point upward; the under ſide of the leaves, and the margin of the midrib, are armed with long ſharp ſpines, ſtanding every way. The following ſpring, there ariſes from the center of the plant one ſtrong channelled ſtalk, four or five feet high, branching every way toward the top: the ſtalk and branches are garniſhed with the ſame ſhaped leaves as below, and each branch is terminated by a ſingle head of purple flowers, having a woolly empalement. This flowers in June and July, and the ſeeds ripen in the autumn. One or two of theſe plants may be allowed a place in ſome abject part of the garden, for its ſingularity. The ſeeds of this plant ſhould be ſown where the plants are to remain, and will require no other care but to keep them clean from weeds. The ſecond year they will flower, and then the whole plant periſhes.

The third ſort grows naturally in Spain and Portugal. This riſes ſix feet high; the leaves are long, narrow, and the edges are ſet cloſely with ſmall hairs; at every indenture of the leaves there comes out two long yellowiſh ſpines; at the end of the branches the flowers are produced from the ſide of the ſtalk, which have woolly oval empalements, cloſely armed with ſlender ſpines. The flowers are yellow, but make no great appearance, as they advance very little above the empalement. It flowers in July and Auguſt, and the ſeeds ripen in autumn. This plant may be propagated by ſeeds in the ſame manner as the former ſort. It is called Fiſh Thiſtle, from the reſemblance which the ſpines have to the bones of fiſh.

The fourth ſort grows very common on the ſide of banks, and in waſte land in many parts of England, and is by ſome perſons blanched and dreſſed as a curious diſh. This is a biennial plant, which ſhould be ſown very thin, and when the plants are come up ſo as to be well diſtinguiſhed, the ground ſhould be hoed, to cut down all the young weeds, and the plants left about a foot and a half diſtance; and the following ſummer the ground ſhould be kept clean from weeds. In the autumn the leaves of the plants ſhould be tied up, and the earth drawn up cloſe to blanch them; when they are properly whitened, they will be fit for uſe. This is a biennial plant, which periſhes ſoon after the ſeeds are ripe.

The fifth ſort is a biennial plant, which is by ſome cultivated for medicinal uſe, and has been ſuppoſed a remedy for ſome ſort of madneſs. This may be propagated by ſeeds in the ſame manner as the ſecond ſort. It grows naturally in the northern parts of England, and flowers in June.

The ſixth ſort is ſuppoſed to be the true Fiſh Thiſtle of Theophraſtus. This is a biennial plant, which riſes with an upright ſtalk ſix feet high, garniſhed with long ſpear-ſhaped leaves, armed with triple ſpines at every indenture on their edges; at the top of the ſtalks the flowers come out in cluſters, which are of a purple colour, and are ſucceeded by ſmooth, oval, black ſeeds. It grows naturally in Sicily and the Levant. It is propagated by ſeeds as the ſecond ſort, which ſhould be ſown on a warm border, otherwiſe the plants will not live through the winter. It flowers in June, and the ſeeds ripen in autumn.

CARDUUS BENEDICTUS. See Centaurea.

CARDUUS FULLONUM. See Dipsacus.

CARICA. Lin. Gen. Plant. 1000. Papaw, in French *Papaie*.

The Characters are,

It is male and female in different plants; the flowers of the male have ſcarce any empalement; they are funnel-ſhaped, and of one leaf, having a long ſlender tube, which expands at the top, where it is divided into five narrow obtuſe parts, which turn backward; it hath ten ſtamina, five of which are alternately longer than the other, and are terminated by oblong ſummits. The female flowers have a ſmall permanent empalement indented in five parts; it hath five long ſpear-ſhaped petals, which are obtuſe, and turn backward at the top; the oval germen ſupports five oblong blunt ſtigma, which are broad at the top, and crenated. The germen afterward becomes a large oblong fleſhy fruit, having five longitudinal cells, which are full of ſmall oval furrowed ſeeds, incloſed in a glutinous pulp.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Decandria; the plants of this claſs have male and female flowers on different plants, and in this ſection the male flowers have ten ſtamina.

The Species are,

1. Carica (*Papaya*) foliorum lobis ſinuatis. Hort. Cliff. 461. *Papaw with the lobes of the leaves ſinuated.* Papaya fructu Melopeponis effigie. Plum. *Papaw with the fruit ſhaped like the Squaſh.*
2. Carica (*Poſopoſa*) foliorum lobis integris. Hort. Cliff. 461. *Papaw with the lobes of the leaves entire.* Papaya ramoſa fructu pyriformi. Feuil. Peruv. 2. p. 52. tab. 39. *Branching Papaw with a Pear-ſhaped fruit.*

There are ſeveral varieties of the firſt ſort, which differ in the ſize and ſhape of their fruit. Plumier mentions three of the female or fruitful Papaw, beſide the male, one of which he titles Melon-ſhaped, and the other ſhaped like the fruit of the Gourd; and I have ſeen another variety in England, with a large, ſmooth, pyramidal fruit: but theſe are ſuppoſed to be accidental varieties, which ariſe from the ſame ſeeds.

This ſort riſes with a thick, ſoft, herbaceous ſtem, to the height of eighteen or twenty feet, which is naked till within two or three feet of the top, and hath marks of the veſtiges of the fallen leaves great part of its length; the leaves come out on every ſide the ſtem upon very long foot-ſtalks; thoſe which are ſituated undermoſt are almoſt horizontal, but thoſe on the top are erect: theſe leaves (in full grown plants) are very large, and divided into many parts (or lobes) which are deeply ſinuated, or cut into irregular diviſions. The whole plant abounds with a milky acrid juice, which is eſteemed good for the ringworm: the ſtem of the plant, and alſo the foot-ſtalks of the leaves, are hollow in the middle. The flowers of the male plants are produced from between the leaves on the upper part of the plant, on every ſide, which have foot-ſtalks near two feet long, at the ends of which the flowers ſtand in looſe cluſters, each having a ſeparate ſhort foot-ſtalk; theſe are of a pure white, and have an agreeable odour. They are monopetalous, having pretty long tubes, but are cut at the top into five parts, which twiſt backward like a ſcrew; ſometimes theſe are ſucceeded by ſmall fruit, about the ſize and ſhape of a Catherine Pear, which has occaſioned ſome to ſuppoſe it was a diſtinct ſpecies; but I have frequently raiſed this, and the female or fruitful ſort, from the ſame ſeeds, and in general the male flowers fall away, without any fruit ſucceeding them. The flowers of the female Papaw alſo come out between the leaves, toward the upper part of the plant, upon very ſhort foot-ſtalks, ſingly ſitting cloſe to the ſtem; they are large and bell-ſhaped, compoſed of ſix petals, which are commonly yellow, but thoſe of the pyramidal ſort, which I before mentioned, were purple: when theſe fall away, the germen ſwells to a large fleſhy fruit, the ſize of a ſmall Melon, which are of different forms; ſome are angular, and compreſſed at both ends, others are oval and globular, and ſome pyramidal; the fruit alſo abounds with the ſame acrid milky juice as the plants. This fruit, when ripe, is by the inhabitants of the Caribbee Iſlands eaten with pepper and ſugar as Melons, but are much inferior to our moſt common Melon in flavour, in its native country; but thoſe which have ripened in England were deteſtable: the only uſe I have made known of this fruit, was, when they were about half grown, to ſoak them in ſalt water, to get out the milky juice, and pickle them for Mangos, for which they have been a good ſubſtitute. Theſe plants are ſuppoſed to be natives of America, from whence they were carried to the Philippine Iſlands, and to ſeveral parts of India, where they are now pretty common. Though theſe plants have been ſuppoſed to have male flowers only in ſome plants, and female on the other, yet I have often ſeen ſmall fruit on the male plants, and have frequently had fruit on the female, whoſe ſeeds have grown as well as any I ever ſowed, though no male plants were in the ſame ſtove with them.

The ſecond ſort was found growing in a garden at Lima, by father Feuillée, and it was the only plant he ſaw of that ſort in his travels. This differs from the other, in having a branching ſtalk, the lobes or diviſions of the leaves being entire, and the fruit being ſhaped like a Pear, which he ſays were of different ſizes; that which he deſigned was about eight inches long, and three and a half thick, yellow within and without, and of a ſweet flavour. The flower, he ſays, was of a Roſe colour, and divided but into five parts.

Theſe plants being natives of hot countries, will not thrive in England, unleſs they are preſerved in a warm ſtove; where there are ſuch conveniencies, of a proper height to contain the plants, they deſerve a place as well as almoſt any of the plants which are cultivated for ornament; for when they are grown to a large ſize, they make a noble appearance with their ſtrong upright ſtems, which are garniſhed on every ſide near the top with large ſhining leaves, ſpreading out near three feet all round the ſtem: the flowers of the male ſort come out in cluſters on every ſide; and the fruit of the female growing round the ſtalks between the leaves, being ſo different from any thing of European production, may intitle them to the care of the curious.

They are eaſily propagated by ſeeds, which are annually brought in plenty from the Weſt-Indies. Theſe ſhould be ſown in a hot-bed early in the ſpring, that the plants may obtain ſtrength before the autumn: when the plants are near two inches high, they ſhould be each tranſplanted into a ſeparate ſmall pot filled with a light, gentle, loamy ſoil, and plunged into a hot-bed of tanners bark, carefully ſhading them from the ſun till they have taken root; after which they muſt be treated in the ſame manner as other tender plants from the ſame country; but as theſe plants have ſoft herbaceous ſtalks, and abound with a milky juice, they muſt not have too much water, for they are frequently killed with moiſture. There ſhould alſo be great care taken when theſe plants are ſhifted from ſmall pots into larger, to preſerve the whole ball of earth to their roots; for whenever they are left bare, they rarely ſurvive it. As the plants advance in their growth, they will require larger pots, and when they are too tall to remain under frames, they muſt be placed in the tan-bed of the bark-ſtove, where they ſhould conſtantly remain, being careful not to give them much water, eſpecially during the winter ſeaſon; and in ſummer their waterings ſhould be often repeated, but given in ſmall quantities. With this management I have raiſed plants near twenty feet high in three years, which have produced their flowers and fruit in great perfection.

CARLINA. Lin. Gen. Plant. 836. The Carline Thiſtle.

The Characters are,

It hath a compound flower, made up of many hermaphrodite florets, which are fruitful; theſe are included in a common, ſwollen, ſcaly empalement; the inner ſcales are long, and placed in a circular order. The flowers are funnel-ſhaped, having a narrow tube, but are bell-ſhaped above, and cut into five parts at the brim; theſe have each five ſhort hairy ſtamina, terminated by cylindrical ſummits. In the center is ſituated a ſhort germen crowned with down, ſupporting a ſlender ſtyle the length of the ſtamina, crowned with an oblong bifid ſtigma. The germen afterward becomes a ſingle taper ſeed, crowned with a branching plumoſe down.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis, the flowers being compoſed of only hermaphrodite florets which are fruitful, whoſe ſummits are connected, and form a tube.

The Species are,

1. Carlina (*Vulgaris*) caule multifloro corymboſo, floribus terminalibus calycibus radio albis. Hort. Cliff. 395. *Carline Thiſtle with many flowers in a corymbus, which terminate the ſtalk, having white rays to the empalement.* Carlina ſylveſtris vulgaris. Cluſ. Hiſt. 2. p. 155. *Common wild Carline Thiſtle.*
2. Carlina (*Racemoſa*) floribus ſeſſilibus, lateralibus pauciſſimis. Sauv. Meth. 293. *Carline Thiſtle with a few flowers growing cloſe to the ſide of the ſtalk.* Carlina ſylveſtris minor Hiſpanica. Cluſ. Hiſt. 2. p. 157. *Small wild Spaniſh Carline Thiſtle.*
3. Carlina (*Acaulis*) caule unifloro flore breviore. Hort. Cliff. 395. *Carline Thiſtle with one ſhorter flower on each ſtalk.* Carlina acaulos magno flore albo. C. B. P. 380.
4. Carlina (*Lanata*) caule multifloro lanato, calycibus radio purpureis. Lin. Sp. 1160. *Carline Thiſtle with many downy flowers on a ſtalk, which have purple rays to their empalement.* Acarna flore purpureo rubente patulo. C. B. P. 372.
5. Carlina (*Corymboſa*) caule multifloro ſubdiviſo, floribus ſeſſilibus calycibus radio flavis. Prod. Leyd. 135. *Carline Thiſtle with many flowers on a ſtalk, which is ſubdivided, the flowers ſit cloſe on the ſtalks, and have yellow rays to their empalement.* Acarna apula umbellata. Colum. Ecphr. 27.

The firſt ſort grows naturally upon ſterile ground in moſt parts of England, ſo is rarely admitted into gardens. The others are often preſerved in botanic gardens for the ſake of variety. They grow naturally in the ſouth of France, Spain, and Italy.

They may all be propagated by ſowing their ſeeds in the ſpring on a bed of freſh undunged earth, where they are deſigned to remain; for, as they ſend forth tap roots, they will not bear tranſplanting ſo well as moſt other plants. When the plants appear above ground, they ſhould be carefully weeded; and, as they grow in ſize, they ſhould be thinned, where they are too cloſe, leaving them about ten inches or a foot aſunder. The ſecond year moſt of theſe plants will flower; but, unleſs the ſummer proves dry, they rarely produce good ſeeds in England, and moſt of them decay ſoon after they have flowered, therefore it is pretty difficult to maintain theſe plants in this country.

CARNATION. See Dianthus.

CARPESIUM. Lin. Gen. 948. Nodding Starwort.

The Characters are,

It hath an imbricated empalement, the outer leaves are larger, ſpreading, and reflexed, the inner are ſhorter and equal: the flower is equal and compounded; the hermaphrodite florets are funnel-ſhaped, opening at the top in five parts; theſe compoſe the diſk. The female florets are tubulous, quinquefid, cloſing together, which compoſe the border. The hermaphrodite florets have five ſhort ſtamina, crowned by cylindrical ſummits, and an oblong germen, with a ſingle ſtalk, crowned by a bifid ſtigma; the female florets have the like, and both are ſucceeded by oval naked ſeeds incloſed in the empalement.

This genus of plants is ranged in the ſecond order of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua, the flowers being compoſed of female and hermaphrodite florets, which are both fruitful.

The Species are,

1. Carpesium (*Cernuum*) floribus terminalibus. Lin. Sp. 1203. *Nodding Starwort whoſe flowers terminate the ſtalks.* Aſter Cernuus. Col. Ecphr. 1. p. 251.
2. Carpesium (*Abrotanoides*) floribus lateralibus. Oſb. It. tab. 10. *Nodding Starwort whoſe flowers come from the ſide of the ſtalks.*

The firſt ſort grows naturally in Italy. It is a biennial plant, whoſe lower leaves are obtuſe, woolly, and ſoft to the touch. The flower-ſtalk riſes from the center of the plant near a foot and a half high, branching toward the top, and garniſhed with leaves of the ſame form with thoſe at bottom, but ſmaller: each of the branches are terminated by one pretty large flower of an herbaceous yellow colour, nodding on one ſide the ſtalk; theſe are compoſed of female florets which compoſe the border, and hermaphrodite florets which compoſe the diſk, both which are ſucceeded by oval naked ſeeds. This flowers in July, and the ſeeds ripen in September.

The plant is eaſily propagated by ſeeds, which may be ſown on a bed of light earth in the ſpring, and when the plants come up, if they are thinned and kept clean from weeds, they will require no other culture. The ſecond year they will flower and produce ſeeds, ſoon after which the plants decay.

The ſecond ſort grows naturally in China, and at preſent is rare in England. This hath a hard branching ſtalk, garniſhed with broad ſpear-ſhaped leaves ſlightly crenated on the edges: the flowers are thinly ſcattered on the ſide of the ſtalks and branches, where they ſit very cloſe, nodding downward; their empalements are compoſed of many ſmall leaves which ſpread open, and incloſe a great number of florets.

This may be propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted in a ſingle pot; and when the weather becomes warm, they may be expoſed, but in autumn they muſt be houſed.

CARPINUS. Lin. Gen. Plant. 952. [ſo called of carpere, *Lat.* to crop; becauſe it may be eaſily cropped, or its wood is eaſily cleft.] The Hornbeam, or Hard-beam, in French *Charme.*

The Characters are,

It hath male and female flowers, growing ſeparate on the ſame plant. The male flowers are diſpoſed in a cylindrical rope or katkin, which is looſe and ſcaly, each ſcale covering one flower, which hath no petals, but ten ſmall ſtamina, terminated by compreſſed hairy ſummits. The female flowers are diſpoſed in the ſame form, and are ſingle under each ſcale; theſe have one petal, which is ſhaped like a cup, cut into ſix parts, and two ſhort germen, each having two hairy ſtyles, crowned by a ſingle ſtigma. The katkin afterward grows large, and at the baſe of each ſcale is lodged an oval angular nut.

This genus of plants is ranged in the eighth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Polyandria, the plants of this claſs having male and female flowers growing ſeparate on the ſame tree, and thoſe of this ſection have many ſtamina.

The Species are,

1. Carpinus (*Vulgaris*) ſquamis ſtrobilorum planis. Hort. Cliff. 447. *Hornbeam with flat ſcales to the cones.* Carpinus. Dod. Pempt. 841. *Common Hornbeam.*
2. Carpinus (*Oſtrya*) ſquamis ſtrobilorum inflatis. Hort. Cliff. 447. *Hornbeam with inflated ſcales to the cones.* Oſtrya ulmo ſimilis, fructu racemoſo lupulo ſimilis. C. B. P. 427. *The Hop Hornbeam.*
3. Carpinus (*Orientalis*) foliis ovato-lanceolatis ſerratis ſtrobilis brevibus. *Hornbeam with oval, ſpear-ſhaped, ſawed leaves, and the ſhorteſt cones.* Carpinus Orientalis folio minori, fructu brevi. T. Cor. 40. *Eaſtern Hornbeam, with a ſmaller leaf and ſhorter fruit.*
4. Carpinus (*Virginiana*) foliis lanceolatis acuminatis, ſtrobilis longiſſimis. *Hornbeam with pointed ſpear-ſhaped leaves, and the longeſt cones.* Carpinus Virginiana floreſcens. Pluk. *Virginia flowering Hornbeam.*

The firſt ſort is very common in many parts of England, but is rarely ſuffered to grow as a timber-tree, being generally reduced to pollards by the country people; yet where the young trees have been properly treated, they have grown to a large ſize. I have ſeen ſome of them in woods, upon a cold ſtiff clay, which have been near ſeventy feet high, with large, noble, fine ſtems, perfectly ſtrait and ſound. Of late years, this has been only conſidered as a ſhrub, and never cultivated but for under-wood in the country, and in the nurſeries to form hedges, after the French taſte; for in moſt of their great gardens, their cabinets, &c. are formed of theſe trees, as are their trelliſſes and hedges which ſurround their plantations. But ſince theſe ſort of ornaments have been almoſt baniſhed from the Engliſh gardens, there has been little demand for theſe trees in the nurſeries.

As this tree will thrive upon cold, barren, expoſed hills, and in ſuch ſituations where few other ſorts will grow, it may be cultivated to great advantage by the proprietors of ſuch lands. It will reſiſt the violence of winds better than moſt other trees, and is by no means ſlow in its growth. But where theſe are propagated for timber, they ſhould be raiſed from ſeeds, upon the ſame ſoil, and in the ſame ſituation, where they are deſigned to grow; and not brought from better land, and a warmer ſituation, as is too frequently practiſed. Nor ſhould they be propagated by layers, which is the common method where they are intended for hedges or under-wood; for which thoſe ſo raiſed will anſwer the purpoſe full as well as thoſe raiſed from ſeeds, but the latter muſt always be preferred for timber-trees.

The ſeeds of this tree ſhould be ſown in the autumn, ſoon after they are ripe; for if they are kept out of the ground till ſpring, the plants will not come up till the following year. When the plants appear, they muſt be kept very clean from weeds, and treated as other foreſt-trees; in two years time they will be fit to tranſplant, for the ſooner all trees which are deſigned for timber are planted where they are to remain, the larger they will grow, and the wood will be firmer and more durable. If theſe are not intermixed with other kind of trees, they ſhould be planted pretty cloſe; eſpecially on the outſide of the plantations, that they may protect and draw each other up: and if they are kept clean from weeds three or four years, it will greatly promote their growth, after which the plants will have obtained ſufficient ſtrength to keep down the weeds.

As the trees advance in their growth, they muſt be thinned, which ſhould be done with caution, cutting away the moſt unpromiſing plants gradually, ſo as not to let much cold air at once, to thoſe which are left, eſpecially on the borders of the plantation. For in all young plantations of timber, it is much the better method, to take away a few trees every year, where it is wanted, than, as is commonly practiſed, to let all grow till it is fit to cut as under-wood, and then cut all away, except thoſe intended for timber; whereby ſo much cold air is ſuddenly let in upon them, as to ſtop their progreſs for ſome years: but by this method a preſent advantage is gained, which is now more generally attended to, than the future profit.

The timber of this tree is very tough and flexible, and might be converted to many uſeful purpoſes, when ſuffered to grow to a proper ſize; but as they have been generally treated otherwiſe, the principal uſes it has been applied to, was for turnery ware, for which it is an excellent wood, and alſo for making mill-cogs, heads of beetles, &c. It is alſo excellent fuel. The leaves of this tree remain upon them, till the young buds in the ſpring thruſt them off, ſo they afford much ſhelter to birds in winter; and this renders them very proper to plant round the borders of other plantations in expoſed ſituations, where they will defend the other trees in winter, and thereby greatly promote their growth.

The Hop Hornbeam ſheds its leaves in winter, with the Elm, and other deciduous trees. This tree, tho' but lately much known in England, is very common in Germany, growing promiſcuouſly with the common ſort. It is alſo ſaid to grow plentifully in many parts of North America, but it is doubtful whether that is not a different ſort from this. The Hop Hornbeam is of quicker growth than the common ſort, but what the wood of that will be I do not know; for there are but few of the trees in England growing upon their own roots, moſt of them having been grafted upon the common Hornbeam, which is the uſual method of propagating them in the nurſeries; but the trees ſo raiſed are of ſhort duration, for the graft generally grows much faſter than the ſtock, ſo that in a few years there is a great diſproportion in their ſize; and where they happen to ſtand expoſed to ſtrong winds, the graft is frequently broken from the ſtock, after many years growth; for which reaſon, I would caution every perſon not to purchaſe any of theſe trees which have been ſo propagated.

The Virginian flowering Hornbeam is ſtill leſs common than the laſt, and only to be ſeen in curious gardens; it is equally as hardy as the other, and may be increaſed by layers.

This ſort will grow to the height of thirty feet, or more, and is of quicker growth than either of the former ſorts: it ſheds its leaves in autumn, about the ſame time with the Elm; and, during the time of its verdure, this tree makes a good appearance, being well clothed with leaves, which are of a deep, ſtrong, green colour, reſembling more the long-leaved Elm than the Hornbeam.

The Eaſtern Hornbeam is a tree of humble growth, rarely riſing above ten or twelve feet high in this country, ſhooting out many horizontal irregular branches, ſo cannot eaſily be trained up to a ſtem. The leaves of this ſort are much ſmaller than thoſe of the common Hornbeam, and the branches grow cloſer together, therefore may be very proper for low hedges, where they are wanted in gardens; being a very tonſile plant, it may be kept in leſs compaſs than almoſt any deciduous tree. It is as hardy as any of the ſorts, and may be propagated in the ſame manner; but at preſent it is rare in the Engliſh nurſeries.

CARROTS. See Daucus.

CARTHAMUS. Lin. Gen. Plant. 838. [ſo called of καθαίρειν, *Gr.* to purge, becauſe the ſeeds of it are purging,] Baſtard Saffron, or Safflower in French; *Cartame, ou Saffran Batard.*

The Characters are,

It hath a flower compoſed of ſeveral hermaphrodite florets, included in one common ſcaly empalement. The ſcales are compoſed of many flat leaves, broad at their baſe, ending in a ſpine, and ſpread open below. The florets are funnel-ſhaped, of one leaf, cut into five equal ſegments at the top; theſe have five ſhort hairy ſtamina, terminated by cylindrical tubular ſummits; in the center is ſituated a ſhort germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by a ſingle ſtigma. The germen afterward becomes a ſingle, oblong, angular ſeed, incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Æqualis; the flowers of this ſection being compoſed of only fruitful florets, and their ſummits are connected in form of a cylindrical tube.

The Species are,

1. Carthamus (*Tinctorius*) foliis ovatis integris ſerrato-aculeatis. Hort. Cliff. 394. *Baſtard Saffron with oval entire leaves, which have ſpiny ſerratures.* Carthamus officinarum, flore croceo. Tourn. Inſt. 457. *Baſtard Saffron of the ſhops, with a Saffron-coloured flower.*
2. Carthamus (*Lanatus*) caule piloſo ſuperne lanato, foliis inferioribus pinnatifidis, ſummis amplexicaulibus dentatis. Hort. Upſal. 251. *Carthamus with a hairy ſtalk, woolly above, the under leaves indented, and the upper embracing the ſtalk.* Atractylis lutea. C. B. P. *Yellow Diſtaff Thiſtle.*
3. Carthamus (*Creticus*) caule læviuſculo, calycibus ſublanatis, floſculis ſubnovenis, foliis inferioribus lyratis, ſummis amplexicaulibus dentatis. Lin. Sp. 1163. *Carthamus with a ſmooth ſtalk, woolly empalements, generally nine florets, the under leaves lyre-ſhaped, and the upper embracing the ſtalk.* Cnicus Creticus Atractylidis folio & facie, flore leucophæo. Tourn. Cor. 33.
4. Carthamus (*Tingitanus*) foliis radicalibus pinnatis, caulinis pinnatifidis, caule unifloro. Lin. Sp. 1163. *Carthamus whoſe radical leaves are winged, thoſe on the ſtalks wing-pointed, and one flower on a ſtalk.* Cnicus perennis cæruleus Tingitanus. H. L. 162. *Blue perennial Cnicus of Tangier.*
5. Carthamus (*Carduncellus*) foliis caulinis linearibus pinnatis longitudine plantæ. Lin. Sp. Plant. 831. *Carthamus with narrow winged leaves on the ſtalks, which are as long as the plant.* Cnicus cæruleus humilis Montis Lupi. H. L. *Dwarf Cnicus of Mount Lupus with a blue flower.*
6. Carthamus (*Cæruleus*) foliis lanceolatis ſpinoſo-dentatis, caule ſubunifloro. Hort. Cliff. 1163. *Carthamus with ſpear-ſhaped leaves prickly indented, and one flower on each ſtalk.* Cnicus cæruleus aſperior. C. B. P. 378. *Rougher blue Cnicus.*
7. Carthamus (*Arboreſcens*) foliis enſiformibus ſinuato-dentatis. Prod. Leyd. 136. *Carthamus with ſword-ſhaped leaves which are ſinuated and indented.* Cnicus Hiſpanicus arboreſcens fœtidiſſimus. Tourn. Inſt. 451. *Stinking ſhrubby Cnicus of Spain.*
8. Carthamus (*Corymboſus*) floribus umbellatis numeroſis. *Carthamus with many flowers in umbels.* Chamæleon niger umbellatus, flore cæruleo hyacinthino. C. B. P. 380. *Black umbellated Chamæleon with blue flowers.*

The firſt ſort grows naturally in Egypt, and in ſome of the warm parts of Aſia. I have frequently received the ſeeds of this from the Britiſh iſlands in America, but whether they were originally carried thither, or if it grows naturally there, I could never be rightly informed. It is at preſent cultivated in many parts of Europe, and alſo in the Levant, from whence great quantities of Safflower are annually imported to England, for dyeing and painting.

This is an annual plant, which riſes with a ſtiff ligneous ſtalk two feet and a half, or three feet high, dividing upward into many branches, which are garniſhed with oval pointed leaves, ſitting cloſe to the branches: theſe are entire, and are ſlightly ſawed on their edges, each tooth being terminated by a ſhort ſpine. The flowers grow ſingle at the extremity of each branch: the heads of flowers are large, incloſed in a ſcaly empalement; each ſcale is broad at the baſe, flat, and formed like a leaf of the plant, terminating in a ſharp ſpine. The lower part of the empalement ſpreads open, but the ſcales above cloſely embrace the florets, which ſtand out near an inch above the empalement; theſe are of a fine Saffron colour, and this is the part which is gathered for the uſes above-mentioned. When the florets decay, the germen which is ſituated in each, become ſingle, oblong, angular ſeeds, of a white colour, and have a pretty ſtrong ſhell or cover to them. It flowers in July and Auguſt, and the ſeeds ripen in autumn; but if the ſeaſon proves cold and moiſt, when the plants are in flower, there will be no good ſeeds produced; ſo that there are few ſeaſons, wherein the ſeeds of this plant do come to perfection in England.

The ſeeds of this plant are ſometimes uſed in medicine, and are accounted a pretty ſtrong cathartic, but at preſent they are ſeldom preſcribed. It is propagated by ſeeds, which ſhould be ſown in April, upon a bed of light earth: the beſt way is to ſow them in drills, drawn at two feet and a half diſtance from each other, in which the ſeeds ſhould be ſcattered thinly, for the plants muſt not ſtand nearer each other than a foot in the rows; but as ſome of the ſeeds will fail, ſo a greater quantity ſhould be ſown, as it will be eaſy to thin the plants, at the time when the ground is hoed. If the ſeeds are good, the plants will appear in leſs than a month; and in a fortnight or three weeks after, it will be proper to hoe the ground to deſtroy the weeds, and at the ſame time the plants ſhould be thinned where they are too cloſe; but at this time they ſhould not be ſeparated to their full diſtance, leſt ſome of them ſhould afterward fail; ſo that if they are now left ſix inches aſunder, there will be room enough for the plants to grow, till the next time of hoeing, when they muſt be thinned to the diſtance they are to remain for good: after this they ſhould have a third hoeing, which, if carefully performed in dry weather, will deſtroy the weeds and make the ground clean, ſo that the plants will require no farther care, till they come to flower; when, if the Safflower is intended for uſe, the florets ſhould be cut off from the flowers as they come to perfection; but this muſt be performed when they are perfectly dry, and then they ſhould be dried in a kiln, with a moderate fire, in the ſame manner as the true Saffron, which will prepare the commodity for uſe.

But if the plants are deſigned for ſeed, the flowers muſt not be gathered; for if the florets are cut off, it will render the ſeeds abortive, though they may ſwell and grow to their uſual ſize, as I have frequently experienced; yet when they are broken, there will be found nothing more than a ſhell without any kernel. And this frequently happens to be the caſe with theſe ſeeds, in wet cold ſeaſons; though in very wet years the germen will rot, and never come ſo forward as to form a ſhell.

I have been informed, that this plant was formerly cultivated in the fields in ſeveral parts of England, for the dyers uſe; and particularly in Glouceſterſhire, where the common people frequently gathered the florets, and dried them, to put into their puddings and cheeſecakes, to give them a colour; but ſome by putting it in too great quantity, gave their puddings a cathartic quality.

If this plant was ever cultivated here in great quantity, it is ſurpriſing how it came to be ſo totally neglected, as that at preſent, there are not the leaſt traces to be met with, in any part of England, of its ever having been cultivated; nor is the commodity ſcarce known, except to thoſe who deal in it: the quantity of this which is annually conſumed in England is ſo great, as to make a very conſiderable article in trade, ſo that it might be very well worthy of the public attention; for although the ſeeds ſeldom come to perfection in England, yet theſe might be annually procured from abroad, and the plants would conſtantly produce the flower, which is the only part uſeful. A few years paſt I ſent a ſmall parcel of the ſeeds of this plant to South Carolina, where I was afterward informed it grew amazingly, for in ſix weeks after the ſeeds were ſown, the crop of Safflower was fit to cut, and the gentleman to whom the ſeeds were given, ſent ſome of the commodity to his brother in London, who was ſo kind as to ſend me a ſpecimen of it, with an account that the dyers complained of its want of colour; and upon examining it, I found the florets were drawn out of their empalements the whole length, ſo that their tails which had been included in their covers were white, and being mixed together gave the whole a pale appearance; upon this I wrote to the gentleman to deſire he would cut off the upper part of the florets with ſciſſars, which would be eaſier performed, but have heard nothing from him ſince; however, a year or two after I received a letter from his excellency Governor Lyttleton, in which he wrote that the Safflower bid fair to prove one of their great branches of commerce, but how it has turned out I have not ſince heard.

This plant is cultivated in great plenty, in ſome parts of Germany, where the ſeeds conſtantly come to perfection; and as I have obtained a ſhort account of their method of cultivation, from a curious gentleman of that country, ſo I ſhall inſert it for the benefit of thoſe who may be induced to engage in this undertaking.

The ground in which they propoſe to ſow the Carthamus, has always a double fallow given to it, firſt to deſtroy the weeds, and afterward to make it fine. They make choice of their lighteſt land, and ſuch as is clear from Couch Graſs, and other troubleſome weeds. After the land has been fallowed a ſummer and winter, in which time they give it four ploughings, and harrow it between each, to break the clods, and pulverize it: in the latter end of March they give it the laſt ploughing, when they lay it in narrow furrows of about five feet or a little more, leaving a ſpace of two feet between each: then they harrow theſe lands to make them level, and after it is finiſhed, they ſow the ſeeds in the following manner. With a ſmall plough, they draw four ſhallow furrows in each land, at near a foot and a half diſtance, into which they ſcatter the ſeeds thinly; then with a harrow, whoſe teeth are little more than one inch long, they draw the earth into the drills to cover the ſeeds; after this, they draw a roller over the ground, to ſmooth and ſettle it. When the plants are come up, ſo as to be diſtinguiſhed, they hoe the ground to deſtroy the weeds; and at this firſt operation, where the plants happen to be cloſe, they cut up the leaſt promiſing, leaving them all ſingle, at the diſtance of three or four inches; which they always ſuppoſe will be ſufficient room for their growth, till the ſecond time of hoeing, which muſt be performed in about five weeks after their firſt; in which they are guided by the growth of the weeds, for as this work is performed with a Dutch hoe, ſo they never ſuffer the weeds to grow to any ſize before they cut them; in which they judge right, for when the weeds are ſmall, one man will hoe as much ground in a day, as can be performed by three, when they are permitted to grow large; and the weeds will be more effectually deſtroyed.

They give a third hoeing to the plants, about five or ſix weeks after the ſecond; which generally makes the ground ſo clean, as to require no more cleaning, till the Carthamus is pulled up. When the plants begin to flower, and have thruſt out their florets (or thrum) to a proper length, they go over the ground once a week to gather it; and as it is from time to time gathered, it is dried in a kiln for uſe. There is uſually a ſucceſſion of flowers for ſix or ſeven weeks. After the crop is gathered, the ſtalks are pulled, and tied in bundles for fuel; and when they have been ſet up a few days to dry, they are carried off, and the ground is ploughed for Wheat; which they ſay, always ſucceeds well after this plant.

The good quality of this commodity is chiefly in the colour, which ſhould be of a bright Saffron colour; and herein that which is cultivated in England often fails; for if there happens much rain during the time the plants are in flower, it will cauſe the florets to change to a dark or dirty yellow, which will alſo befal that which is gathered when there is any moiſture remaining upon it; therefore great care muſt be taken not to gather it till the dew is quite dried off, nor ſhould it be preſſed together till it has been dried on the kiln. The manner of doing this being the ſame as for the true Saffron, I ſhall not mention it here, but deſire the reader to turn to the article Crocus, where that is fully treated.

In Spain this plant is cultivated in their gardens, as Marigolds are in England, to put into their ſoups, olios, and other diſhes, to give them a colour. The Jews alſo are very fond of this, and mix it in moſt of their viands; and it is very probable they were the perſons who firſt carried the ſeeds of this plant to America, and taught the inhabitants the uſe of it, for it is now as commonly uſed by the Engliſh there, as in any part of Europe.

This plant may be admitted to have a place in the borders of large gardens, where it will add to the variety, during the time of its continuance in flower, which is commonly two months, or ten weeks; for if the ſeeds are ſown in the beginning of April, the firſt flowers will appear in the middle of July at fartheſt; and there will be a ſucceſſion of flowers on the ſide branches, till the end of September, or in mild warm ſeaſons till the middle of October, during which time the plants will not be deſtitute of flowers; which being of a bright Saffron colour, make a pretty appearance; and if the plants are ſupported to prevent their being broken, or blown down by the wind, they will not interfere with the other flowers, becauſe theſe have a regular upright growth.

When they are cultivated for this purpoſe, the ſeeds ſhould be ſown in the places where the plants are deſigned to remain, becauſe they do not bear tranſplanting well; therefore three or four ſeeds ſhould be ſown in each patch, leſt any of them ſhould fail; and when the plants are grown ſo ſtrong as to be out of danger, the moſt promiſing in each patch ſhould be left, and the others pulled up, that they may not draw or injure thoſe which are to ſtand.

The ſecond ſort grows naturally in the ſouth of France, Spain, and Italy, where the women uſe the ſtalks of this plant for diſtaffs, from whence it had the title of Diſtaff Thiſtle. It is by ſome called Baſtard wild Saffron. The leaves of this plant are ſometimes ordered for medicine, and are ſuppoſed to have the ſame virtues as Carduus Benedictus.

This plant is annual, periſhing ſoon after the ſeeds are ripe; the lower leaves ſpread flat upon the ground; theſe are five or ſix inches long, narrow, and deeply indented on both ſides; they are hairy, and have a few ſoft ſpines on their edges; the ſtalk riſes about two feet high, covered with hairs, and garniſhed with oblong hairy leaves, which embrace the ſtalk with their baſe, and are deeply ſinuated, with ſharp thorns growing on their edges. The upper part of the ſtalk divides into many branches, which are garniſhed with leaves of the ſame form, but ſmaller. The flowers are produced at the end of the branches, having a cluſter of ſtiff, hard, prickly leaves below the ſcaly empalement, which contains many yellow hermaphrodite flowers, ſucceeded by oblong angular ſeeds. It flowers in June and July, and the ſeeds ripen in autumn. If the ſeeds of this ſort are ſown in autumn, the plants will flower early the following ſummer, ſo there will be a certainty of good ſeeds. They may be ſown upon a bed of earth in any ſituation, and will require no other culture, but to keep them clean from weeds, and thin the plants where they are too cloſe; this being a medicinal plant, is kept in ſome gardens, but it hath little beauty.

There is a variety of this, which grows much taller, the heads are larger, and the leaves are placed cloſer upon the ſtalks. This was found by Dr. Tournefort in the Levant.

The third ſort was alſo diſcovered by Tournefort in the iſland of Crete, from whence he ſent the ſeeds to the royal garden at Paris. This differs from the former, in having a ſmooth ſtalk; the leaves are very ſtiff, deeply indented, ſmooth, and are armed with very ſtrong ſpines; the heads of flowers are oval, the florets white, and the plant grows near four feet high. This is an annual plant, which may be ſown and treated in the ſame way as the former, and flowers about the ſame time.

The fourth ſort hath a perennial root, but an annual ſtalk. This grows naturally in Spain, and was firſt brought to England from Tangier; the ſeeds of this are never perfected in England, ſo it is propagated by parting of the roots. The beſt time for tranſplanting and parting them, is about the beginning of March; they ſhould have a dry ſoil and a warm ſituation, otherwiſe they are liable to be deſtroyed in ſevere winters.

The ſtalks of this riſe about a foot and a half high, ſeldom putting out any branches, garniſhed with narrow ſpear-ſhaped leaves the whole length of the ſtalk; theſe are deeply ſawed on their edges, each of the ſerratures ending in a ſharp point. The ſtalk is terminated by one large ſcaly head of blue flowers, ſhaped like thoſe of the other ſpecies.

The fifth ſort grows naturally in the ſouth of France, Spain, and Italy. This hath a perennial root and an annual ſtalk, which riſes about ſix inches high; it is channelled, hairy, and garniſhed with long narrow leaves, ending in ſeveral ſharp ſpines; their edges are indented, each indenture ending in a ſpine. Each ſtalk is terminated by one large head of blue flowers, having a leafy empalement, compoſed of very broad ſcales, each ending in a ſharp ſpine. It flowers in June.

This ſort is difficult to propagate in England, for the roots do not put out offſets like the former, ſo is only to be raiſed from ſeeds; which do not come to perfection here, unleſs the ſeaſon proves warm and dry. This plant ſhould have a dry ſoil and a warm ſituation.

The ſixth ſort is ſuppoſed by ſome, to be the ſame with the fourth, which is a great miſtake, for they are extremely different. This riſes with a ſingle ſtalk about two feet high, which is of a purpliſh colour, hairy, and channelled, cloſely garniſhed with broad ſpear-ſhaped leaves, which are ſharply ſawed on their edges, and covered with a ſhort hairy down. The ſtalk is terminated by a ſingle large head of blue flowers, having a ſcaly empalement, compoſed of two orders of leaves, the outer being broad, long, and armed with ſharp ſpines on their edges; the inner are narrow, and terminate with a ſharp thorn. It flowers in June and July, and the ſeeds ripen in autumn. This ſort may be propagated by parting of their roots, which ſhould be performed in autumn, when the leaves decay. It ſhould have a light dry ſoil, in which it will endure the cold of our winters, and continue many years. It may alſo be propagated by ſeeds, which ripen well in dry ſeaſons, but in wet ſummers the ſeeds are generally abortive; this requires no other care but to keep it clean from weeds. It grows naturally in Spain, France and Italy, on arable land.

The ſeventh ſort I received from Andaluſia, where it grows naturally in great plenty. This riſes with a ſhrubby perennial ſtalk to the height of eight or ten feet, dividing into many branches, garniſhed with pretty long ſword-ſhaped leaves, which are indented, armed with ſpines on their edges, and embrace the ſtalks with their baſe. The branches are terminated by large, ſcaly, prickly heads of yellow flowers, which come out in July, but are never ſucceeded by ſeeds in this country, ſo can only be propagated by ſide ſhoots, ſlipped from the branches in the ſpring, and planted in pots filled with light ſandy earth, and plunged into a moderate hot-bed, obſerving to ſhade them till they have taken root; then they muſt be gradually hardened, and removed into the open air, and when they have obtained ſtrength, they may be ſeparated, and ſome of them planted in a warm dry border, where they will endure the cold of our ordinary winters; but, in ſevere froſt, they are frequently deſtroyed, therefore a plant or two ſhould be kept in pots, and ſheltered in winter to preſerve the ſpecies.

The ſeeds of the eighth ſort were ſent me from Spain, where it grows naturally. This hath a perennial root but an annual ſtalk, which is ſingle, and never puts out any ſide branches; theſe are white, ſmooth, and channelled. The leaves are long, narrow, of a pale green, and cloſely armed on their edges with ſhort ſtiff ſpines, which come out double. The ſtalks are terminated by ſingle, oval, ſcaly heads of white flowers, each ſcale being terminated by a purpliſh ſpine. This ſquamous empalement is cloſely joined at the top, ſo as few of the hermaphrodite florets appear viſible above it; and this is guarded by a border of long, narrow, prickly leaves, ſurrounding the head, which riſe conſiderably above the flowers. This plant flowers in July and Auguſt, but ſeldom perfects its ſeeds in England. It ſhould be planted in a light ſoil and a warm ſituation, where it will live abroad in our ordinary winters, but in ſevere froſt it is ſometimes deſtroyed. As the ſeeds of this ſort rarely ripen in England, the only method to propagate the plant, is by parting the roots in the ſpring.

CARUM. Lin. Gen. Plant. 327. Carvi [ſo called of Κάρα, *Gr.* the head, as though good for the head; but others derive the name from Caria, where the antients found this plant.] Carui, or Carraway.

The Characters are,

It hath an umbellated flower, compoſed of ſeveral ſmall umbels; which are formed as rays to the general umbel, neither of which have any involucrum; the ſingle flowers have very ſmall empalements; each hath five heart-ſhaped obtuſe petals, turned inward at their points; it hath five hairy ſtamina the length of the petals, terminated by roundiſh ſmall ſummits. The germen is ſituated under the flower, ſupporting two ſmall ſtyles, crowned by a ſingle ſtigma. The germen afterward becomes an oblong channelled fruit, dividing into two parts, each having an oblong furrowed ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Dygynia, the flowers having five ſtamina and two ſtyles.

The Species are;

1. Carum (*Carvi*) foliis pinnatifidis planis, umbellatis inæqualibus conſertis. *Carraway with plain leaves ending with many points, and unequal umbels, growing cloſe.* Cuminum pratenſe, Carui officinarum. C. B. P. 159. *Meadow Cumin, or Carraway of the ſhops.*
2. Carum (*Hiſpanicum*) foliis capillaribus multifidis, umbellis laxis. *Carraway with capillary multifid leaves, and looſe umbels.* Carvi Hiſpanicum, ſemine majore, & latiore. Juſſ. *Spaniſh Carraway with a larger and broader ſeed.*

The firſt ſort is the common Carraway, whoſe ſeeds are greatly uſed, not only in medicine, but alſo in the kitchen, &c. This grows naturally in ſome rich meadows in Lincolnſhire and Yorkſhire, and is ſometimes found growing in the paſtures near London. It is alſo cultivated for uſe in Eſſex, and ſome other counties.

This is a biennial plant, which riſes from ſeeds one year, flowers the next, and periſhes ſoon after the ſeeds are ripe. It hath a taper root like a Parſnep, but much ſmaller, which runs deep into the ground, and hath a ſtrong aromatic taſte, ſending out many ſmall fibres; from the root ariſes one or two ſmooth, ſolid, channelled ſtalks, about two feet high, garniſhed with winged leaves, having long naked foot-ſtalks, and many ſmall wings placed oppoſite on the midrib, which are compoſed of many narrow, little, plain leaves, ending in ſeveral points. The ſtalks divide upward into ſeveral ſmaller branches, each of which is terminated by an umbel, compoſed of ſix or eight ſmall ſeparate umbels or rays, which divide into ſeveral ſmall foot-ſtalks, each ſuſtaining a ſingle white flower, with five heart-ſhaped petals; the flowers of theſe ſmall umbels are cloſely joined together. After the flowers are decayed, the germen becomes an oblong channelled fruit, compoſed of two oblong channelled ſeeds, plain on one ſide, but convex on the other. It flowers in June, and the ſeeds ripen in autumn.

The beſt ſeaſon for ſowing the ſeeds of this plant is in autumn, ſoon after they are ripe, when they will more certainly grow, than thoſe ſown in the ſpring; and the plants which riſe in the autumn, generally flower the following ſeaſon, ſo that a ſummer's growth is hereby ſaved. When the plants come up, the ground ſhould be hoed to deſtroy the weeds; and where the plants are too cloſe, they muſt be thinned in the ſame manner as is practiſed for Carrots, leaving them three or four inches apart. In the following ſpring they will require to be twice more hoed, which will keep the ground clean till the ſeeds are ripe; then the ſtalks muſt be pulled up, and tied in bundles, ſetting them upright to dry, when the ſeeds may be threſhed out for uſe.

The ſecond ſort grows naturally in Spain: the ſeeds of this were ſent me from the royal garden at Paris. This plant riſes with a ſtronger ſtalk than the former, which ſeldom grows more than a foot and a half high, but is cloſely garniſhed with fine narrow leaves like thoſe of Dill; the ſtalks divide upward into many branches, each being terminated by looſe umbels of white flowers, which are ſucceeded by large broad ſeeds, having the ſame aromatic flavour as the common ſort. This is a biennial plant, and may be treated in the ſame manner as the former.

CARYOPHYLLATA. See Geum.

CARYOPHYLLUS. Lin. Gen. 594. Caryophyllus aromaticus. Tourn. Inſt. R. H. 661. tab. 432. *The Clove-tree, or All-ſpice.*

The Characters are,

It hath a double empalement, that of the flower is of one leaf, cut into four obtuſe parts, upon which the germen is ſituated; the fruit hath another empalement, which is ſmall, and ſlightly divided into four parts, which are permanent. The flower hath four blunt petals, which are ſituated oppoſite to the inciſſures of the empalement. It hath many ſtamina, which riſe from the ſides of the empalement, terminated by roundiſh ſummits. The germen is ſituated under the flower, and is crowned by the ſmall empalement, ſupporting a ſingle upright ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a ſoft berry with two cells, each containing a ſingle kidney-ſhaped ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flower having many ſtamina and but one ſtyle.

The Species are,

1. Caryophyllus (*Aromaticus*) foliis ovato-lanceolatis oppoſitis, floribus terminalibus, ſtaminibus corollâ longioribus. *The Clove-tree with oval ſpear-ſhaped leaves growing oppoſite, and flowers terminating the ſtalks, whoſe ſtamina are longer than the petals.* Caryophyllus aromaticus fructu oblongo. C. B. P. 410. *Aromatic Clove with an oblong fruit.*
2. Caryophyllus (*Pimento*) foliis lanceolatis oppoſitis, floribus racemoſis terminalibus, & axillaribus. *Clove-tree with ſpear-ſhaped leaves growing oppoſite, and flowers growing in bunches at the ends of the branches, and wings of the leaves.* Myrtus arborea aromatica foliis laurinis. Sloan. Cat. 161. *The Pimento, or All-ſpice.*
3. Caryophyllus (*Fruticoſus*) foliis lanceolatis oppoſitis, floribus geminatis alaribus. Brown. Hiſt. Jam. 248. *Clove-tree with ſpear-ſhaped leaves placed oppoſite, and flowers growing by pairs from the ſides of the ſtalks.*
4. Caryophyllus (*Cotinifolia*) foliis ovatis obtuſis oppoſitis, floribus ſparſis alaribus. *Clove-tree with oval blunt leaves placed oppoſite, and flowers growing thinly from the ſides of the branches.* Myrtus cotini folio. Plum. Cat. 19. *Myrtle with a leaf of Venice Sumach.*
5. Caryophyllus (*Racemoſus*) foliis oblongo-ovatis, emarginatis, ridigis, glabris, floribus racemoſis terminalibus. *Clove-tree with oblong oval leaves, which are ſtiff, ſmooth, and indented at the edges, and flowers growing in branches terminating the ſtalk.*

The firſt ſott grows naturally in the Moluccas, and the hotteſt parts of the world, where it riſes to the height of a common Apple-tree; but the trunk generally divides at about four or five feet from the ground into three or four large limbs, which grow erect, and are covered with a thin ſmooth bark, which adheres cloſely to the wood. Theſe limbs divide into many ſmall branches, which form a ſort of conical figure; the leaves are like thoſe of the Bay-tree, and are placed oppoſite on the branches. The flowers are produced in looſe bunches at the end of the branches, which are ſmall, white, and have a great number of ſtamina, which are much longer than the petals. The flowers are ſucceeded by oval berries, which are crowned with the empalement, divided into four parts, which ſpread flat on the top of the fruit, in which form they are brought to Europe; for it is the young fruit beaten from the trees before they are half grown, which are the Cloves uſed all over Europe.

I have not heard of any plants of this kind being in the gardens, either in England or Holland, but I choſe to mention it here, to introduce the other.

The ſecond ſort grows naturally in Jamaica, but particularly on the north ſide of that iſland, where it is found in great plenty, and is a conſiderable branch of their trade; the unripe fruit dried, being the All-ſpice ſo well known in Europe. It is now cultivated with care in many of the plantations, for the trees will thrive upon ſhallow rocky land, which is unfit for the Sugar-cane; ſo that a great advantage ariſes to the planters from thoſe lands, which would otherwiſe be of ſmall account to them.

This tree grows to the height of thirty feet or more, with a ſtrait trunk, covered with a ſmooth brown bark, dividing upward into many branches which come out oppoſite, garniſhed with oblong leaves, reſembling thoſe of the Bay-tree in form, colour, and texture, but are longer, and are placed by pairs: when theſe are bruiſed or broken, they have a very fine aromatic odour like that of the fruit. The branches grow very regular, ſo that the trees make a fine appearance, and as they retain their leaves through the year, the trees are worthy of being propagated for ornament and ſhade about the habitations of the planters. The flowers are produced in large looſe bunches from the ſide of the branches, towards their ends, each branch is alſo terminated by a larger bunch than the other; the flowers are ſmall, and of an herbaceous colour; they are male and female upon diſtinct trees. I was favoured with fine ſamples of both, and alſo a particular account of the trees, by William Williams, Eſq; of St. Anne's, on the north ſide of Jamaica, who has the greateſt number of theſe trees on his plantation of any perſon in that iſland. The male flowers have very ſmall petals, and a great number of ſtamina in each, which are of the ſame colour with the petals, terminated by oval bifid ſummits; the female flowers have no ſtamina, but an oval germen, ſituated below the flower, ſupporting a ſlender ſtyle, with a blunt ſtigma at the top. The germen afterward becomes a globular pulpy berry, including two kidney-ſhaped ſeeds. The uſual ſeaſon when theſe trees flower, is in June, July, and Auguſt.

When the fruit of theſe trees are deſigned for uſe, they are gathered, or beaten down from the trees a little before they arrive to their full ſize, and are ſeparated from leaves, ſtalks, or any rubbiſh which may have accidentally mixed with them; then the fruit is expoſed every day to the ſun, ſpread on cloths for ten or twelve days to dry, but removed under cover every evening to ſcreen it from the dews; when the fruit is perfectly dry, it is packed up for exportation. If the fruit is permitted to grow to maturity, the pulp, which ſurrounds the ſeeds, is ſo full of moiſture, and is ſo glutinous, as to ſtick to the fingers of thoſe who bruiſe them, therefore are unfit for thoſe uſes to which the dried fruit are applied.

It is called by ſome Jamaica Pepper, but the moſt general appellation is All-ſpice, from its reliſh and flavour, partaking of many other ſpices, and is deſervedly accounted one of the beſt; and if it was as ſcarce and difficult to procure as thoſe ſpices in the eaſt, would be much more ſought after and eſteemed: our neighbours the Dutch, who have engroſſed the ſpice trade to themſelves, have alſo been artful enough to deceive us with this of our production, by purchaſing the dried fruit of the All-ſpice in England at a low price, and grinding it to a powder, then ſelling it to us at an advanced price for powder of Cloves. This I have been credibly informed of, by an eminent merchant, through whoſe hands great quantities of this commodity have paſſed.

The Dutch have alſo drawn an oil from the fruit of this tree, which they vend for oil of Cloves. I had a ſmall phial of this oil ſent me from Jamaica, which was ſhewn to ſome of the beſt judges of drugs in London, who tried many experiments with it, and declared they thought it as good oil of Cloves as they had ſeen.

As there is ſo great an affinity between this tree and the true Clove, it might be worthy of trial, if the fruit when firſt formed, or the flowers were beaten down from the trees, and dried in the ſame manner as the eaſtern Cloves, might not anſwer the ſame purpoſe; or, at leaſt, it would be a good ſuccedaneum for that ſpice; and as it is the production of our own colonies, ſhould have proper encouragement.

This tree is propagated by ſeeds, which in the natural place of its growth is conveyed, and ſown by birds, to a great diſtance; and, it is very probable, the ſeeds paſſing through them, are rendered fitter for vegetation, than thoſe which are immediately gathered from the tree; for I have received great quantities of the berries from the gentleman before-mentioned, which were perfectly ripe and freſh, great part of which I ſowed in different ways, and communicated ſome of them to ſeveral other curious perſons, who did the ſame, but none of them have yet ſucceeded; and upon informing my friend Mr. Williams of this, he told me that a friend of his, whoſe plantation was on the ſouth ſide of Jamaica, deſired him to ſave a large quantity of the ripe berries for him to ſow on his plantation, which he accordingly did, but his friend forgot to ſend for them till near two years after; during which time, they had lain in a large heap, and had fermented, and, on ſowing thoſe berries, the plants came up with the firſt rains in great abundance; ſo that it may be of great ſervice to theſe ſeeds, either to paſs through animal bodies, or to be fermented before they are ſown.

The plants cannot be preſerved in England unleſs they are placed in a ſtove during the winter ſeaſon, but they will thrive in a moderate degree of warmth: they ſhould be planted in a ſoft light ſoil, and in winter muſt have but little water. In the ſummer they ſhould have a large ſhare of air, and in July, if the ſeaſon proves warm, they may be placed in the open air, in a warm ſheltered ſituation; but upon the approach of cold nights, they muſt be removed into the ſtove again. The expoſing of theſe plants to the open air for one month only, will be of great ſervice to clean their leaves from inſects or filth, which they are ſubject to contract, by remaining long in the ſtove; but if the ſeaſon ſhould prove very wet or cold, it will not be ſafe to truſt theſe plants long abroad; therefore their leaves ſhould be now and then waſhed with a ſponge to clean them, which will not only render them more ſightly, but alſo promote their growth. This tree is pretty difficult to propagate in England, where the ſeeds do not ripen; the only method in which this has been done, is by laying down the young branches, ſlitting them at a joint in the ſame manner as is practiſed in making layers of Carnations. If this is carefully performed, and the layers are regularly but gently watered, they will put out roots in one year; then they may be carefully ſeparated from the old plants, and each planted in a ſmall pot filled with light earth, and plunged into the tan-bed, either in the ſtove or under a frame, being careful to ſhade them until they have taken new root, after which they may be treated as the older plants. This plant, being an Evergreen, makes a fine appearance in the ſtove at all ſeaſons of the year; and their leaves having ſuch an agreeable fragrancy when rubbed, render them as worthy of a place in the ſtove, as any other tender exotic plant which is preſerved for ornament.

The third ſort grows naturally in Jamaica, from whence I received it ſome years paſt. This riſes with a divided trunk to the height of eight or ten feet, ſending out many branches, which are placed oppoſite, covered with a grey bark: the leaves come out oppoſite, which are ſhorter and rounder at their points than thoſe of the laſt ſpecies; they are alſo ſmoother, and of a firmer texture. The flowers come out from the ſide of the branches between the leaves, upon ſlender foot-ſtalks, about an inch in length, two generally ariſing from the ſame point: theſe are ſucceeded by round berries, of a brighter colour than thoſe of the former, having the empalement on their crowns. The leaves and fruit of this ſort have no aromatic flavour, ſo are not of uſe, but the characters of the flower and fruit are the ſame as in the other ſort.

This tree retains its leaves all the year, which being of a ſplendent green, make a very good appearance, when it is intermixed with other exotic plants in the ſtove; but the flowers being ſmall, and growing thinly upon the branches, do not make any great figure, ſo it is only preſerved for the beauty of its foliage. It is propagated by ſeeds, and requires the ſame treatment as the other ſort.

The fourth ſort was ſent me by the late Mr. Robert Millar, ſurgeon, from Carthagena in New Spain: this riſes with many irregular ſtems about twelve or fourteen feet high, covered with an Aſh-coloured bark, dividing into many branches upward: theſe are garniſhed with ſtiff oval leaves, placed oppoſite. The flowers are produced from the ſide of the branches, ſometimes four, five, or ſix foot-ſtalks ariſe from the ſame point; at other times, they come out ſingle, or perhaps by pairs: theſe are white, and of the ſame ſhape with thoſe of the ſecond ſort, and are ſucceeded by berries which are rounder, and, for the moſt part, contain but one kidney-ſhaped ſeed.

This ſort agrees with the ſecond in its general characters, but not in the virtues, for it hath none of the aromatic flavour, with which that abounds; but as it retains its leaves through the year, may merit a place in the ſtove, better than many other plants which are preſerved by the curious. This is propagated by ſeeds, in the ſame way as the ſecond ſort, and the plants muſt be treated in the ſame manner as thoſe.

The fifth ſort was ſent me from the iſland of Berbuda, where it riſes to the height of twenty feet; the trunk and branches are covered with a ſmooth brown bark. The branches come out by pairs; they grow erect, and are garniſhed with very ſtiff, ſmooth, lucid leaves, which are placed oppoſite, and have very ſhort foot-ſtalks. The leaves vary much in their form; ſome of them are oval, others oblong, and ſome are indented ſo deeply at their ends, as to be almoſt heart-ſhaped. Their conſiſtence is much thicker than thoſe of the common Laurel, and their colour is a ſplendent green, with one deep midrib running through their middle, and many ſmall veins going from thence tranſverſly to their border. The flowers are produced in ſmall looſe bunches at the extremity of the branches, which have ſeveral narrow leaves intermixed with the bunches. Theſe are ſucceeded by berries of the ſame ſhape with thoſe of the ſecond ſort, but larger.

This tree is propagated by ſeeds as the other ſpecies, and deſerves a place in the ſtove, for the beauty of its evergreen leaves, which being of a thick conſiſtence, and of a ſhining green colour, make a fine appearance in the ſtove at all ſeaſons of the year; but this hath no aromatic flavour to recommend it, as hath the ſecond ſort, for which reaſon it is ſeldom noticed. I take this to be the Bay-tree, mentioned by Hughes, in the Hiſtory of Barbadoes, which he deſcribes to have no flavour; for I have ſeen plants of this ſort which were brought from Barbadoes, ſo that I ſuppoſe it grows naturally there.

As the plants of theſe ſorts do not riſe ſo readily from ſeeds in England, the beſt way to obtain them, is to get ſome perſon of ſkill in America, to take up a number of young plants, and plant them cloſe in boxes of earth, ſetting them in the ſhade till they have taken new root; then remove them into an open ſituation, where they may have time to eſtabliſh their roots before they are ſhipped for England; and in their paſſage they muſt be guarded from the ſpray of the ſea, and ſalt water, and ſhould have very little water given them; for moſt of the plants which are ſent to England, are killed in their paſſage by having too much wet. If theſe directions are obſerved, the plants may be brought in good health to England, provided they come over any time in the ſummer, that they may have time to get freſh root before the cold ſeaſon begins; and when once they are well eſtabliſhed in their roots here, they may be preſerved many years in vigour; but I have not ſeen many of the plants in flower here as yet.

CASIA. See Osyris.

CASSIA. Lin. Gen. Plant. 461. Caſſia, or Wild Senna.

The Characters are,

The empalement is compoſed of five concave coloured leaves; the flower hath five roundiſh concave petals, which ſpread open: it hath ten declining ſtamina, three of the lower are long, the three upper are ſhorter; the ſummits of the three lower are large, arched, beaked, and ſeparated at their points; the three upper ſtamina have very ſmall ſummits; the four ſide ſtamina have no beaks, but ſpread from the other. In the center is ſituated a long taper germen, having a ſhort ſtyle, terminated by an obtuſe ſtigma. The germen afterward becomes a long pod, divided by tranſverſe partitions, each containing one or two roundiſh ſeeds, faſtened to the margin of the upper valve.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, the flowers having ten ſtamina and one ſtyle.

The Species are,

1. Cassia (*Occidentalis*) foliis quinquejugis, ovato-lanceolatis, margine ſcabris, exterioribus majoribus, glandulâ baſeos petiolorum. Lin. Sp. Plant. 337. *Caſſia with leaves compoſed of five pair of oval ſpear-ſhaped lobes with rough borders, the upper lobes being the largeſt, and a ſmall gland at the baſe of the foot-ſtalk.* Senna occidentalis, odore opii viroſo, orobi Pannonici foliis mucronatis glabris. Hort. Amſt. 1. p. 51. tab. 26.

2. Cassia (*Fruteſcens*) foliolis quinquejugatis ovatis glabris, exterioribus longioribus, caule fruticoſo. *Caſſia with leaves compoſed of five pair of ſmooth oval lobes, the upper being the longeſt, and a ſhrubby ſtalk.* Senna ſpuria Americana fruteſcens, foliis mucronatis minoribus, ſiliquis teretibus, duplici ſeminum ordine fœtus. Houſt. MSS.

3. Cassia (*Alata*) foliolis octojugatis, ovali-oblongis, interioribus minoribus, petiolis eglanduloſis ſtipulis patulis. Hort. Cliff. 158. *Caſſia with eight pair of oblong oval lobes, the inner being the leaſt, foot-ſtalks without glands, and a ſpreading ſtipula.* Caſſia ſylveſtris fœtida, ſiliquis alatis. Plum. Cat. 18. *Wild ſtinking Caſſia with winged pods.*

4. Cassia (*Villoſa*) foliolis trijugatis, oblongo-ovatis æqualibus villoſis, ſiliquis articulatis, caule erecto arboreo. *Caſſia with three pair of oblong, oval, hairy leaves, which are equal, jointed pods, and an upright woody ſtem.* Senna ſpuria arborea, villoſa, foliis latis mucronatis, ſiliquis articulatis. Houſt. MSS.

5. Cassia (*Uniflora*) foliolis trijugatis, ovato-acuminatis, villoſis, floribus ſolitariis axillaribus, ſiliquis erectis. *Caſſia with three pair of lobes in each leaf, which are oval, pointed, hairy, and ſingle flowers proceeding from the ſides of the ſtalks, with upright pods.* Senna ſpuria herbacea orobi Pannonici foliis rotundioribus, flore parvo, ſiliquis erectis. Houſt. MSS.

6. Cassia (*Marylandica*) foliis octojugis ovato-oblongis, æqualibus, glandula baſeos petiolorum. Lin. Sp. 541. *Caſſia with ſmall leaves compoſed of eight pair of oblong, oval, equal lobes, having a gland at the baſe of the foot-ſtalk.* Caſſia Marylandica pinnis foliorum oblongis, calyce floris reflexo. Mart. Cent. 1. 21.

7. Cassia (*Bicapſulari*) foliolis trijugatis obovatis glabris, interioribus rotundioribus minoribus, glandulâ interjectâ globoſâ. Hort. Cliff. 159. *Caſſia with three pair of oval ſmooth leaves, the inner ones being rounder, ſmaller, and a globular gland placed between the leaves.* Caſſia hexaphylla, ſiliquâ bicapſulari. Plum. Cat. 18.

8. Cassia (*Fiſtula*) foliis quinquejugatis ovatis acuminatis, petiolis eglanduloſis. Flor. Zeyl. 149. *Caſſia with five pair of oval, pointed, ſmooth lobes, and foot-ſtalks having no glands.* Caſſia fiſtula Alexandrina. C. B. P. 405. *The purging Caſſia of Alexandria, or Pudding Pipe-tree.*

9. Cassia (*Bahamenſis*) foliolis ſexjugatis, lanceolatis, glabris, interioribus minoribus, floribus terminatricibus. *Caſſia with ſix pair of ſmooth ſpear-ſhaped lobes, the inner ones being ſmaller, and flowers terminating the ſtalk.* Caſſia Bahamenſis, pinnis foliorum mucronatis anguſtis, calyce floris non reflexo. Martyn. Cent. 1. p. 21.

10. Cassia (*Fruticoſa*) foliolis bijugatis, ovato-lanceolatis, glabris, floribus terminalibus, ſiliquis longis teretibus, caule fruticoſo. *Caſſia with two pair of oval, ſpear-ſhaped, ſmooth lobes, flowers terminating the ſtalks, long taper pods, and a ſhrubby ſtalk.* Caſſia fruticoſa tetraphylla, ſiliquis erectis. Houſt. MSS.

11. Cassia (*Javanica*) foliolis duodecemjugatis, oblongis, obtuſis, glabris, glandula nulla. Lin. Sp. Plant. 379. *Caſſia with twelve pair of ſmooth lobes, which have no glands.* Caſſia fiſtula Braſilania. C. B. P. 403. *Purging Caſſia of Braſil, commonly called Horſe Caſſia in America.*

12. Cassia (*Liguſtrina*) foliolis ſeptemjugatis, oblongo-ovatis, floribus ſpicatis axillaribus, ſiliquis recurvis. *Caſſia with ſeven pair of oblong oval lobes, and ſhort ſpikes of flowers proceeding from the ſides of the ſtalks, and recurved pods.* Senna folio liguſtri. Plum. Cat. 18. *Senna with a Privet leaf.*

13. Cassia (*Emarginata*) foliolis trijugatis, obtuſis, emarginatis, caulibus piloſis, floribus ſolitariis axillaribus petiolis longioribus. *Caſſia with three pair of obtuſe leaves, indented at the top, hairy ſtalks; flowers growing ſingly from the ſides of the ſtalks upon a long foot-ſtalk.* Senna ſpuria fruteſcens, foliorum pinnis latioribus, caulibus piloſis, ſiliquis longiſſimis pediculis inſidentibus. Houſt. MSS.

14. Cassia (*Biflora*) foliolis quadrijugatis oblongo-ovatis, caulibus procumbentibus, floribus axillaribus pedunculis bifloris. *Caſſia with four pair of oval oblong leaves, trailing ſtalks, and flowers proceeding from the ſides of the ſtalks, two growing upon each foot-ſtalk.* Senna ſpuria minima, procumbens, foliorum pinnis ſubrotundis, caule pubeſcente. Houſt. MSS.

15. Cassia (*Arboreſcens*) foliolis bijugatis oblongo-ovatis, ſubtus villoſis, floribus corymboſis, caule erecto arboreo. *Caſſia with two pair of oblong oval leaves, hairy on their under ſide, flowers growing in round bunches, and an erect tree-like ſtem.* Senna ſpuria

tetraphylla arborea, ſiliquis compreſſis, anguſtis, longiſſimis, pendulis. Houſt. MSS.

16. Cassia (*Flexuoſa*) foliolis multijugatis linearibus, floribus ſolitariis axillaribus, pedunculis longiſſimis. *Caſſia with many pair of narrow leaves, ſingle flowers proceeding from the ſides of the ſtalks, and very long foot-ſtalks.* Senna occidentalis, foliis herbæ mimoſæ, ſiliquâ ſingulari, floribus pediculis longioribus inſiſtentibus. Sloan. Hiſt. Jam. 2. 51.

17. Cassia (*Chamæcriſta*) foliolis multijugatis linearibus, caulibus procumbentibus, fruteſcentibus, floribus maximis ſolitariis axillaribus, ſiliquis glabris. *Caſſia with many pair of ſmall leaves, which are narrow, ſhrubby trailing ſtalks, large flowers growing ſingly from the ſides of the ſtalks, and ſmooth pods.* Senna ſpuria mimoſæ foliis, fruteſcens & procumbens, flore maximo, ſiliquis glabris. Houſt. MSS.

18. Cassia (*Pentagonia*) foliolis trijugatis ovatis, exterioribus majoribus glandulâ ſubulatâ inter inferiora. Prod. Leyd. 46. *Caſſia with three pair of ſmall oval leaves, the upper being the largeſt, and an awl-ſhaped glandule between the lower pair.* Senna ſpuria plerumque hexaphylla ſiliquâ pentagonâ alatâ. Houſt. MSS.

19. Cassia (*Racemoſa*) foliolis quinquejugatis, lanceolatis rigidis floribus racemoſis axillaribus, ſiliquis planis, caule fruticoſo. *Caſſia with five pair of ſpear-ſhaped ſtiff leaves, flowers growing in bunches from the ſides of the ſtalk, flat pods, and a ſhrubby ſtalk.*

20. Cassia (*Procumbens*) foliolis bijugatis ovatis, caulibus procumbentibus, floribus ſolitariis axillaribus, ſiliquis hirſutis. *Caſſia with two pair of ſmall oval leaves, trailing ſtalks, ſingle flowers proceeding from the ſides of the ſtalk, and hairy pods.* Senna ſpuria tetraphylla herbacea procumbens, ſiliquis hirſutis. Houſt. MSS.

21. Cassia (*Glanduloſa*) foliolis multijugatis, glandulâ petioli pedicellatâ, ſtipulis enſiformibus. Hort. Upſal. 101. *Caſſia with many pair of leaves, and the gland on the foot-ſtalk reſembling an inſect, and ſword-ſhaped ſtipulæ.* Chamæ chriſta pavonis Americana, ſiliquâ multiplici. Breyn. Cent. 64.

The firſt ſort grows naturally in moſt of the iſlands in the Weſt Indies, where it is called Stinking Weed, from its unſavoury odour. This riſes with a channelled ſtalk three or four feet high, dividing into ſeveral branches, garniſhed with winged leaves placed alternately; each of theſe is compoſed of five pair of lobes which are oval, ſpear-ſhaped, ſitting cloſe to the midrib, having rough edges, the lower pair of lobes being the ſmalleſt, the others enlarge to the top, which are the biggeſt; at the baſe of the foot-ſtalk is produced a ſmall protuberance, which is called a gland; this is differently ſituated in the ſeveral ſpecies of this genus. The flowers come out from the ſides of the ſtalks, two growing upon each foot-ſtalk; but the branches are terminated by looſe ſpikes of flowers, which are compoſed of five concave yellow petals, with ten declining ſtamina, ſituated round the germen and ſtyle, which becomes a ſword-ſhaped flat pod, having a border on each ſide, and is indented between each ſeed.

This is a biennial plant, which is propagated by ſeed in plenty, in the countries where it grows naturally; but in England, the ſeeds muſt be ſown on a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted in a ſeparate pot, filled with light earth, and plunged into a moderate hot-bed, where they ſhould be ſhaded till they have taken freſh root; after which they ſhould have freſh air admitted to them every day, in proportion to the warmth of the ſeaſon, and ſhould be frequently watered. When the plants have filled the pots with their roots, they ſhould be ſhifted into larger; and if they are too tall to remain in the hot-bed, they muſt be placed either in the ſtove, or a glaſs-caſe, where they may be defended from cold, but in warm weather have plenty of air. With this management the plants will flower in Auguſt, and perfect their ſeeds in October, but may be preſerved through the winter in a ſtove, where they will continue flowering a long time. In warm ſummers the plants may be placed in the open air toward the latter end of June, where they will flower very well; but theſe will not perfect their ſeeds, unleſs they are removed into the ſtove in autumn.

The ſecond ſort was ſent me from Jamaica by the late Dr. Houſtoun, who found it growing there naturally. This riſes with a ſhrubby ſtalk five or ſix feet high, ſending out many branches toward the top, garniſhed with winged leaves, compoſed of five pair of ſmall oval leaves, the upper ones being longeſt. The flowers come out from the ſide of the ſtalks, and alſo terminate the branches in looſe ſpikes; theſe are yellow, and ſhaped like thoſe of the former, but are ſmaller; the pods are long, taper, and contain two rows of ſeeds.

This plant may be preſerved three or four years in the ſtove, and will annually flower and perfect the ſeeds. It is propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring; and the plants muſt be treated in the ſame manner as the former ſort, with only this difference, that theſe, when they are too tall to remain longer under the frames on the hot-bed, muſt be removed into the ſtove, where they will often flower in autumn or winter, but they ſeldom perfect their ſeeds till the ſecond year.

The third ſort hath an herbaceous ſtalk, which riſes five or ſix feet high, garniſhed with long winged leaves, compoſed of eight or ten pair of large oval lobes, each being more than three inches long, and one broad, rounded at the end, where they are ſlightly indented. The flowers are produced in looſe ſpikes at the top of the ſtalk, which are large, yellow, and of the ſame ſhape with thoſe of the other ſpecies; the pods are long, taper, and have four borders or wings running longitudinally; theſe contain a double row of angular ſeeds. The whole plant hath a ſtrong fœtid odour.

This ſort ſeldom continues more than two years; it muſt be raiſed from ſeeds as the former ſorts, and placed in the tan-bed in the ſtove, being very tender, and ſhould have but little water in winter. The ſecond year the plants will flower, but they very rarely produce ſeeds in England.

The fourth ſort was ſent me from Campeachy by the late Dr. Houſtoun, who found it growing there in great plenty. This riſes with a woody ſtem to the height of fourteen or ſixteen feet, ſending out many lateral branches, garniſhed with winged leaves, compoſed of three pair of oblong, oval, hairy lobes, of equal ſize; the flowers come out in looſe bunches at the end of the branches, which are of a pale ſtraw colour, and ſmall, but ſhaped like the others; the pods are long, narrow, and jointed, each ſeed being lodged in a ſort of iſthmus; the ſeeds are oval and brown.

This may be propagated by ſeeds, which muſt be ſown upon a hot-bed, and the plants afterward treated as the former ſorts, placing them in a warm ſtove, where they will continue ſeveral years producing their flowers in ſummer, and in warm ſeaſons the ſeeds will ripen.

The fifth ſort is a low herbaceous plant, ſeldom riſing a foot high; the ſtalk is ſingle, and garniſhed with winged leaves, compoſed of three pair of oval pointed lobes, which are hairy; the flowers come out ſingle from the ſide of the ſtalks; they are of a pale yellow, and ſmall; theſe are ſucceeded by narrow taper pods two inches long, which grow upright. This plant is annual; the ſeeds muſt be ſown on a hot-bed, and the plants treated as the firſt ſort: they will flower in July, and ripen their ſeeds in autumn. This was ſent me from Campeachy by the late Dr. Houſtoun.

The ſixth ſort grows naturally in Maryland, from whence I received the ſeeds. It hath a perennial root, compoſed of a great number of black fibres; this ſends out ſeveral upright ſtalks in the ſpring, which riſe four or five feet high, garniſhed with winged leaves, compoſed of nine pair of oblong ſmooth lobes, which are equal; toward the upper part of the ſtalks the flowers come out from the wings of the leaves, two or three together; but the ſtalks are terminated by looſe ſpikes of pale yellow flowers, which are rarely ſucceeded by pods in England. The ſtalks decay in autumn, and riſe again in the ſpring. The roots of this ſort continue many years, and will live abroad in a warm border and a dry ſoil. The ſeeds will come up in the full ground, if ſown in April, and in autumn they may be planted into the borders where they are deſigned to remain.

The ſeventh ſort is an annual plant, which riſes a foot and a half high, with an erect herbaceous ſtalk, garniſhed with winged leaves, compoſed of three pair of oval lobes; the flowers come out ſingly from the wings of the leaves; theſe are ſmall, yellow, and of the ſame ſhape with thoſe of the other ſpecies, and are ſucceeded by taper pods, having cells containing two rows of ſeeds. It grows naturally in Jamaica, and the other ſugar iſlands.

This is propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring, and the plants afterward treated in the ſame manner as hath been directed for the firſt ſort. They flower in July, and the ſeeds ripen in October, and then the plants will decay.

The eighth ſort is the tree which produces the purging Caſſia which is uſed in medicine. It grows naturally in Alexandria, and in both Indies, where it riſes to the height of forty or fifty feet, with a large trunk, dividing into many branches, garniſhed with winged leaves, compoſed of five pair of ſpear-ſhaped lobes, which are ſmooth, having many tranſverſe nerves from the midrib to the borders; the midrib is very prominent on the under ſide; the flowers are produced in long ſpikes at the end of the branches, each ſtanding upon a pretty long foot-ſtalk; theſe are compoſed of five large concave petals, of a deep yellow colour, and are ſucceeded by cylindrical pods, which are from one to two feet long, with a dark brown woody ſhell, having a longitudinal ſeam on one ſide, divided into many cells by tranſverſe partitions, each containing one or two oval, ſmooth, compreſſed ſeeds, lodged in a ſweetiſh black pulp, which is the part uſed in medicine.

This tree is propagated by ſeeds, which may be eaſily procured from the druggiſts who import the pods for uſe; theſe muſt be ſown on a hot-bed in the ſpring, and when the plants come up, they muſt be treated in the ſame manner as the firſt ſort, during the firſt ſummer; and in autumn they muſt be removed into a ſtove, and plunged into the tan-bed: during the winter they ſhould have very little water; for as theſe trees grow naturally in dry ſandy land, moiſture is a great enemy to them, but eſpecially during that ſeaſon. In the ſummer they ſhould have a good ſhare of air admitted to them in warm weather, but they will not thrive in the open air in this country, at the warmeſt time of the year, ſo ſhould conſtantly remain in the ſtove. With proper care theſe plants will grow to the height of eight or ten feet, and produce their flowers, when they make a fine appearance.

The ninth ſort grows naturally in the Bahama Iſlands, from whence I received the ſeeds. This is an annual plant, which riſes with an upright ſtalk two feet and a half high, garniſhed with winged leaves, compoſed of ſix pair of lobes, which are ſmooth, narrow, and ſpear-ſhaped, ſtanding at wide diſtances; the flowers are collected into looſe bunches at the top of the ſtalks, which are of a pale yellow, and are ſucceeded by long compreſſed pods. It flowers in July, and the ſeeds ripen in autumn. This muſt be treated as the firſt ſort.

The tenth ſort was ſent me from La Vera Cruz, in New Spain, by the late Dr. Houſtoun. This grows upward of twenty feet high, with ſeveral trunks covered with brown bark; theſe divide into many branches upward, garniſhed with winged leaves, compoſed of two pair of lobes, which in the lower leaves are oval; but thoſe of the upper are five inches long, and two and a half broad in the middle, ſmooth, and of a light green. The flowers are produced in looſe ſpikes at the extremity of the branches, which are large, of a gold colour, and ſucceeded by taper brown pods about nine inches long, having many tranſverſe partitions, in which the ſeeds are lodged in a thin pulp.

This ſort is propagated by ſeeds, which muſt be ſown upon a hot-bed, and the plants afterward treated in the ſame manner as the eighth ſort, for the plants will not live abroad in this country in the warmeſt ſeaſon of the year; but if properly managed in the ſtove, will produce their beautiful flowers in three or four years from the ſeed.

The eleventh ſort grows in great plenty in moſt of the iſlands of the Weſt Indies. This riſes to a great magnitude, with a large trunk, dividing into many branches, garniſhed with very long winged leaves, compoſed of twelve or fourteen pair of oblong blunt lobes, which are ſmooth, of a light green, and placed near together. The flowers come out in looſe ſpikes at the end of the branches, which are of a pale Carnation colour, ſhaped like thoſe of the other ſpecies, and are ſucceeded by large cylindrical pods, divided by tranſverſe partitions into many cells, in which the ſeeds are lodged, ſurrounded with a black purging pulp. This is called Horſe Caſſia, becauſe it is generally given to horſes, and ſeldom taken by any perſons on account of its griping quality.

It is propagated by ſeeds, which ſhould be ſown, and the plants afterward treated in the ſame manner as the eighth ſort, with which management they will thrive and produce flowers in England.

The twelfth ſort was ſent me from the Havannah by the late Dr. Houſtoun. This hath an herbaceous ſtalk, which divides into many branches, riſing about three feet high, garniſhed with winged leaves, compoſed of ſeven pair of oblong oval lobes, which are rounded at the end. The flowers come out from the ſide of the branches, upon very long foot-ſtalks, diſpoſed in looſe ſpikes; theſe are of a pale yellow, and are ſucceeded by recurved pods, containing one row of compreſſed ſeeds.

This is a biennial plant, which, if brought forward early in the ſpring, will ſometimes perfect ſeeds the ſame year; but if they ſhould fail, the plants may be kept through the winter in a ſtove, as the firſt ſort, and good ſeeds may be obtained the following ſeaſon.

The thirteenth ſort riſes with ſeveral weak ſhrubby ſtalks about two feet high, cloſely garniſhed with winged leaves, compoſed of three pair of lobes, which are very narrow at their baſe, enlarging to the top, where they are blunt, and rounded with a little indenture at the point; theſe contract cloſely every evening, after the ſun has left them. The flowers come out ſingle from the ſide of the branches, ſtanding upon very long foot-ſtalks; they are of a bright yellow, and ſhaped like thoſe of the other ſpecies, and are ſucceeded by narrow flat pods, an inch and a half long. This grows plentifully in Jamaica. It is propagated by ſeeds, which muſt be ſown on a hot-bed, and managed as the other tender ſorts; it will continue two or three years, if placed in a warm ſtove.

The fourteenth ſort ſends out from the root two or three ſlender ſtalks, which trail on the ground, garniſhed with winged leaves, having four pair of ſmall roundiſh lobes, of a pale green; at the inſertion of the foot-ſtalks ariſe thoſe of the flower, which is jointed, dividing into two ſhorter at the top, ſuſtaining two ſmall yellow flowers. This grows naturally in Jamaica, from whence the ſeeds were ſent me. It is an annual plant, whoſe ſeeds muſt be ſown early in the ſpring on a hot-bed, and treated like the other kinds; but as the branches of this grow near the ground, ſo the plants may remain under a frame all the ſummer, and will flower in July; when, if the ſeaſon is warm, they muſt have have a large ſhare of air, otherwiſe the flowers will fall off, without being ſucceeded by pods; but if rightly managed, the ſeeds will ripen in autumn.

The fifteenth ſort was ſent me from La Vera Cruz, in New Spain, by the late Dr. Houſtoun. This riſes with a ſtrong upright trunk, to the height of twenty-five, or thirty feet, dividing into many branches, which are covered with an Aſh-coloured bark, garniſhed with winged leaves, having long foot-ſtalks; each being compoſed of two pair of oblong oval lobes, four inches long, and near two broad, which are ſmooth, of a dark green on their upper ſide, but paler underneath. The flowers are produced ſometimes from the ſide of the ſtalks, where they are few and ſcattering, but the ends of the branches have large round bunches of flowers, which branch out from one center; they are of a deep yellow, inclining to an Orange colour. Theſe are ſucceeded by compreſſed pods, near nine inches long, having a border on each ſide, and contain one row of oval, ſmooth, compreſſed ſeeds.

This ſort may be propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring, and when the plants come up, they will require the ſame treatment as the ſeventh ſort; with which management the plants will thrive, and produce their flowers in a few years.

The ſixteenth ſort hath very ſlender trailing ſtalks, about two feet long, garniſhed with winged leaves, ſitting cloſe to the branches, compoſed of many narrow pinnæ, like thoſe of the Senſitive Plant; the flowers come out ſingle from the ſide of the ſtalk, upon long ſlender foot-ſtalks, which are ſmall, of a bright yellow colour, ſhaped like thoſe of the other ſpecies; they are ſucceeded by ſhort flat pods, containing two or three ſeeds. This grows naturally in Jamaica. It is a biennial plant, and requires the ſame treatment as the firſt ſort.

The ſeventeenth ſort was ſent me by the late Dr. Houſtoun from La Vera Cruz, where he found it growing naturally. This riſes with ſeveral ſhrubby trailing ſtalks, which are two feet long, ſending out many ſide branches, cloſely garniſhed with winged leaves, compoſed of ſeveral pair of very narrow pinnæ, ſmaller than thoſe of the ſenſitive Plant. The flowers are produced ſingle from the ſide of the branches, on very ſhort foot-ſtalks; they are large, of a deep Orange colour, and are ſucceeded by ſhort, narrow, ſmooth pods. This plant differs much from the Chamæ criſta pavonis major, of Breynius, in having a ſhrubby trailing ſtalk; the leaves are much ſhorter, having but half the number of pinnæ, which are alſo narrower and ſhorter, the flower is alſo larger.

This plant will continue two or three years, and produce flowers annually, but it muſt be treated in the ſame manner as the other tender ſorts; for it will not thrive unleſs it is preſerved in a warm ſtove, where it will perfect ſeeds the ſecond year. It flowers in July and Auguſt, and the ſeeds ripen in autumn.

The eighteenth ſort was ſent me from Campeachy, by the late Dr. Houſtoun. This riſes with a ſhrubby ſlender ſtalk about two feet high, dividing upward into ſeveral branches, which are thinly garniſhed with winged leaves, compoſed of three pair of oval lobes, the upper being the largeſt; theſe ſtand upon long foot-ſtalks, from the baſe of which comes out the flower, ſtanding ſingle on a ſhort foot-ſtalk, of a pale yellow colour, and is ſucceeded by a bending pod, near four inches long, having five longitudinal wings, ending in a point.

It is a biennial plant, which if brought forward in the ſpring, will flower the ſame ſummer, and ſometimes perfect ſeeds in autumn; but if the plants are placed in a warm ſtove, they will live through the winter, and the following ſeaſon will flower earlier, and good ſeeds may then be obtained.

The nineteenth ſort riſes with a ſhrubby ſtalk to the height of ten or twelve feet, dividing upward into many branches, garniſhed with winged leaves, compoſed of five pair of ſtiff ſpear-ſhaped lobes; the flowers come out from the ſide of the branches, on long branching foot-ſtalks, collected into large looſe ſpikes; theſe are of a deep Orange colour, large, and ſhaped like thoſe of the other ſpecies, and are ſucceeded by flat brown pods, about four inches long, containing one row of flat, ſmooth, oval ſeeds. This ſort was ſent me from Carthagena, by the late Mr. Robert Millar.

This ſort is propagated by ſeeds in the ſame manner as the other ſpecies, and requires a warm ſtove to preſerve it, where it will thrive and produce flowers annually.

The twentieth ſort was ſent me from La Vera Cruz, by the late Dr. Houſtoun. This hath ſeveral trailing herbaceous ſtalks, about two feet long, garniſhed with winged leaves, having long foot-ſtalks, which are placed at a conſiderable diſtance from each other; they have two pair of oval ſmooth lobes. The flowers come out ſingle from the ſide of the branches, which are of a pale yellow colour, and are ſucceeded by ſhort, flat, hairy pods, containing one row of flat ſeeds.

This is an annual plant, which muſt be raiſed on a hot-bed early in the ſpring, and treated in the ſame manner as the other annual ſorts before-mentioned. It flowers in July, and the ſeeds ripen in autumn.

The twenty-firſt ſort grows common in all the iſlands of the Weſt-Indies. This riſes with a ſlender ſtalk about two feet high, ſending out a few ſide branches upward, garniſhed with winged leaves, compoſed of many pairs of narrow pinnæ, like thoſe of the Senſitive Plant. The flowers come out upon ſhort foot-ſtalks from the ſide of the branches, each foot-ſtalk ſuſtaining two or three yellow flowers, of the ſame form with the other ſpecies of this genus; theſe are ſucceeded by ſhort flat pods, containing three or four flat ſeeds in each.

This is an annual plant, and requires the ſame treatment as the laſt; but as the ſtalks of this grow upright, they will be too tall to remain under a frame all the ſummer; therefore when the plants are advanced ſo high as to be near the glaſſes, they ſhould be removed into the ſtove, or a glaſs caſe, where they may have room to grow, and be ſcreened from the cold, but in warm weather ſhould have a good ſhare of air admitted to them; with this management they will flower in July, and perfect their ſeeds in autumn.

Theſe plants are frequently preſerved in the gardens of ſeveral curious perſons, therefore I have enumerated them here, though ſeveral of them have not much beauty to recommend them, but are chiefly kept for the ſake of variety. The moſt beautiful are the fourth, the eighth, tenth, eleventh, fifteenth, and nineteenth ſorts; theſe all make a good appearance in the ſtove, eſpecially when they are in flower; and as they retain their leaves all the year, they make an agreeable variety in the winter ſeaſon, when intermixed with other plants from the ſame countries.

All the ſpecies of this genus contract their leaves every evening as the ſun declines, and open them again with the riſing ſun in the morning; which is alſo common to many other plants, ſome of which turn their upper ſurface outward, but all thoſe of this genus turn their under ſurface outward, the upper being very cloſely folded together. Theſe are what Linnæus titles ſleeping plants. It muſt alſo be obſerved that moſt of thoſe plants, whoſe under ſurface is turned outward, are ſuch as grow upon dry ſandy land, where their roots do not find a ſupply of moiſture, ſo that the lower ſurface of their leaves being generally covered with a ſhort ſoft down, or hairs, detain the nightly dews, which are inhaled by the leaves, and furniſh part of their nouriſhment; whereas the other, whoſe upper ſurface is turned outward, do not ſtand in need of this ſupply; being ſmooth, the moiſture is caſt off, and not imbibed by them.

CASSIDA [i. e. an helmet,] Scull-cap. See SCUTELLARIA.

CASSINE. Lin. Gen. Plant. 333. The Caſſioberry Buſh, and South-Sea Thea.

The Characters are,

It hath a ſmall permanent empalement, which is divided into five parts; the flower hath but one petal, which is cut into five obtuſe ſegments, which ſpread open; it hath five ſtamina, which ſpread from each other, and are terminated by ſingle ſummits; it hath a conical germen, without a ſtyle, ſupporting three reflexed ſtigma. The germen afterward becomes an umbilicated berry with three cells, each containing a ſingle ſeed.

This genus of plants is ranged in the third ſection of Linnæus's fifth claſs, intitled, Pentandria Trigynia, the flower having five ſtamina, and three ſtigma.

The Species are,

1. Cassine (*Corymboſa*) foliis ovato-lanceolatis, ſerratis, oppoſitis, floribus corymboſis axillaribus. Fig. Pl. plat. 83. f. 1. *Caſſine with oval ſpear-ſhaped leaves placed oppoſite, and flowers growing in round bunches from the ſides of the branches.* Caſſine vera perquam ſimilis, arbuſcula, Phillyreæ foliis antagoniſtis, ex Provinciâ Carolinienſi. Pluk. Mant. 40. *The Caſſioberry Buſh.*
2. Cassine (*Paragua*) foliis lanceolatis alternis ſempervirentibus, floribus axillaribus. Fig. pl. Plat. 83. f. 2. *Caſſine with evergreen ſpear-ſhaped leaves placed alternately, and flowers proceeding from the ſides of the branches.* Caſſine vera Floridanorum, arbuſculâ bacciferâ, Alaterni ferme facie, foliis alternatim ſitis tetrapyrene. Pluk. Mant. 40. *Evergreen Caſſine, Yapon, or South-Sea Thea.*
3. Cassine (*Oppoſitifolia*) foliis ovatis acutis glabris, floribus axillaribus ſparſis. *Caſſine with oval acute leaves placed oppoſite, and flowers coming from the wings of the ſtalks, commonly called Hyſſon Tea.*

The firſt ſort riſes with two or three ſtems, which ſend out many ſide branches their whole length, and become buſhy; theſe ſeldom riſe more than eight or nine feet high. The branches are garniſhed with oval ſpear-ſhaped leaves, ſawed on their edges, which grow oppoſite. Toward the upper part of the branches the flowers come out from the ſides, growing in roundiſh bunches; theſe are white, and are divided into five parts almoſt to the bottom; in their center is placed the germen, attended by five ſtamina, which ſpread open, near as much as the ſegments of the petal. After the flower is paſt, the germen ſwells to a round berry, having three cells, each containing a ſingle ſeed. This is by Dr. Linnæus ſuppoſed to be the ſame plant as the Phillyrea Capenſis folio celaſtri. Hort. Elth. But thoſe who know both the plants, can have no doubt of their being different. The Caſſine here mentioned drops its leaves in autumn, whereas that Phillyrea is evergreen; the former lives abroad in the open air, but the latter can ſcarce be kept through the winter in a green-houſe, without artificial heat; nor have the plants the ſame appearance, and withal differ eſſentially, according to his own ſyſtem, in the number of ſtamina, which removes them to different claſſes.

The firſt ſort has been pretty common in the nurſeries near London ſome years, where it is propagated by laying down the branches, which afford ſhoots in plenty for that purpoſe from the root, and lower part of the ſtem, ſo as to become very buſhy and thick, if they are not cut off; there are numbers of theſe ſhrubs which produce flowers in England every year, but none of them ripen their ſeeds.

The leaves of this plant are extremely bitter, ſo that if a ſingle one is chewed, the bitterneſs cannot be gotten rid of in a long time. Theſe leaves will continue green very late in autumn, if the ſeaſon proves mild, and they come out early in the ſpring, but are frequently pinched by the froſt in March, when they appear ſo ſoon. This ſhrub flowers in July and Auguſt. It grows naturally in Virginia and Carolina.

It loves a light ſoil, not too dry, and ſhould have a warm ſituation; for, in expoſed places, the young ſhoots are frequently killed in the winter, whereby the ſhrubs are rendered unſightly; but where they are near the ſhelter of trees, or walls, they are very rarely hurt.

The ſecond ſort grows naturally in Carolina, and alſo in ſome warm parts of Virginia, but chiefly near the ſea; this, in the natural places of its growth, riſes to the height of ten or twelve feet, ſending out branches from the ground upward, which form themſelves into a ſort of pyramid, garniſhed with ſpear-ſhaped leaves, placed alternately; theſe are in texture and colour like thoſe of Alaternus, and continue green through the year. The flowers are produced in cloſe whorls round the branches, at the foot-ſtalks of the leaves; they are white, and of the ſame ſhape as the former; theſe are ſucceeded by red berries, like thoſe of the former ſort.

Dr. Linnæus has ſeparated this from the claſs in which he has placed the other, and has joined it to the Dahoon Holly, ſuppoſing them to be the ſame plant; in which he is equally miſtaken, for they not only differ in the ſhape of their leaves, but alſo in their eſſential characters; for the Dahoon Holly muſt, according to his ſyſtem, be ranged in his twenty-ſecond claſs, and the Caſſine muſt be ranged in his fifth.

This plant was many years preſerved in ſeveral curious gardens near London, till the ſevere winter in 1739, when moſt of them were deſtroyed, ſo that there was ſcarce any left; but of late years there have been many of the young plants raiſed from ſeeds, which came from Carolina, ſome of which have been growing in the full ground ſeveral years, and have reſiſted the cold of the winters, without covering; though they often ſuffer in very cold ſeaſons, where they are not very well ſheltered. If this plant can be brought to thrive well in England, and to endure the winter in the open air, it will be a fine plant, to make a variety in plantations of Evergreen-trees. The leaves of this ſort are not ſo bitter as thoſe of the firſt, eſpecially when green, therefore are preferred to them for making the Thea; but an infuſion of the leaves of the firſt, has been taken for a loſs of appetite by ſome perſons with good ſucceſs; but it muſt not be too ſtrong, leſt it ſhould prove emetic or cathartic.

The inhabitants of North Carolina and Virginia, where this ſhrub grows in plenty, give it the title of Yapon, which I ſuppoſe to be the Indian name; for, as it is a plant much eſteemed by the Indians for its medicinal virtues, they certainly have a name for it; this grows to the height of ten or twelve feet; the leaves are about the ſize and ſhape of thoſe of the ſmall leaved Alaternus, but are ſomewhat ſhorter, and a little broader at their baſe; they are a little notched about their edges, and are of a thick ſubſtance, and deep green colour; the flowers of this ſort are produced at the joints near the foot-ſtalk of the leaves, but the Caſſioberry Buſh produces its flowers in umbels at the extremity of the ſhoots; the berries of this Yapon continue upon the plants moſt part of the winter, and, being of a bright red colour, intermixed with the green leaves, make a fine appearance at that ſeaſon. From theſe berries continuing ſo long untouched by the birds, we may reaſonably conclude, they have ſome venomous quality, becauſe few of the fruits, or berries, which are wholeſome, eſcape the birds, in a country where there are ſuch flocks of many kinds of them.

Theſe ſhrubs are propagated by ſowing their ſeeds (which are obtained from Carolina, where they grow in great plenty near the ſea-coaſts;) they ſhould be ſown in pots filled with light ſandy earth, and plunged into a gentle hot-bed, obſerving to water them frequently, until you ſee the plants appear, which is ſometimes in five or ſix weeks time, and at other times they will remain in the ground until the ſecond year; therefore, if the plants ſhould not come up in two months time, you ſhould remove the pots into a ſhady ſituation, where they may remain till October, being careful to keep them clean from weeds, and now and then in dry weather giving them a little water; then remove theſe pots into ſhelter during the winter ſeaſon, and in the March following put them upon a freſh hot-bed, which will forward the ſeeds in their vegetation.

When the plants are come up, they ſhould, by degrees, be expoſed to the open air, in order to inure them to our climate; yet they ſhould not be expoſed to the open ſun at firſt, but rather let them have the morning ſun only, placing them for ſome time where they may be ſheltered from cold winds; they ſhould enjoy a ſhelter during the two or three firſt winters, after which the Caſſioberry Buſh may be planted abroad; but the South-Sea Thea ſhould be kept in pots a year or two longer, being ſlower of growth, and will therefore not have ſtrength enough to reſiſt the cold when young.

The third ſort has been but few years introduced to the Engliſh gardens; this riſes eight or ten feet high, ſending out branches from the root to the top, garniſhed with oval, ſmooth, entire leaves placed oppoſite, whoſe foot-ſtalks are drawn toward each other, whereby the leaves turn upward; the flowers come out from the wings of the leaves thinly, they are white, and of the ſame ſhape with thoſe of the other ſorts, but are not ſucceeded by berries in England.

This is propagated by ſeeds as the other ſorts, or by laying down the branches in the ſpring, which if carefully performed will take root in one year; when they may be cut from the old plant, and put into ſmall pots, and placed in the ſhade till they have taken new root; afterward they may be expoſed in ſummer, but in autumn they muſt be removed into ſhelter.

The Paraguay, or South-Sea Thea, is accounted by the Indians very wholeſome, and (as I have been informed by ſeveral worthy perſons, who reſided for ſeveral years in Carolina) is the only phyſic the Indians uſe; and for which, at certain times of the year, they come in droves, ſome hundred miles diſtant, for the leaves of this tree (it not being known to grow at any conſiderable diſtance from the ſea;) where their uſual cuſtom is, to make a fire upon the ground, and, putting a great kettle of water thereon, they throw into it a large quantity of theſe leaves, and immediately ſet themſelves round the fire, and, with a bowl that holds about a pint, they begin drinking large draughts, which in a very ſhort time vomits them ſeverely; thus they continue drinking and vomiting, for the ſpace of two or three days, until they have ſufficiently cleanſed themſelves; then they gather every one a bundle of the ſhrub to carry away with them, and retire to their habitations. But theſe gentlemen obſerved ſomething very extraordinary in the operation of this plant, which was, that in vomiting it gave them no uneaſineſs, or pain, but came away in a full ſtream from their mouths, without ſo much as declining their heads, or the leaſt reaching.

This plant is generally ſuppoſed to be the ſame as that which grows in Paraguay, where the jeſuits of that country make a great revenue of the leaves, which they export to ſeveral other countries, where it is infuſed and drank like tea; indeed, there are ſome perſons who doubt its being the ſame; which will be pretty difficult to determine, ſince there is ſo little converſe between the inhabitants of Paraguay and thoſe in Europe; and all the leaves of that tea, which have been brought to Europe, have been generally ſo broken and defaced, as to render it almoſt impoſſible to know their true figure; however, from ſome of the faireſt leaves, which were picked out of the Paraguay Tea by a perſon of ſkill, who compared them with thoſe of the Yapon, he had great reaſon to believe they were the ſame; and as the virtues attributed to the Yapon are nearly, if not abſolutely, the ſame with thoſe of the Paraguay, the Indians of theſe northern parts of America making the ſame uſe of it as the inhabitants of the ſouth parts of America do, viz. to reſtore loſt appetites, and they ſay it gives them courage and agility, for which purpoſes it has been in uſe time out of mind: we may alſo obſerve, that the place of its growth in the north, is the ſame latitude as Paraguay is ſouth; ſo I ſhall beg leave to inſert the account given of the Paraguay Tea by Monſ. Frezier, who travelled through great part of New Spain, by expreſs order of the king of France.

In South Carolina the plant is called Caſſena, or South-Sea Tea: the inhabitants of that country do not make ſo great uſe of this Tea, as thoſe of Virginia and North Carolina; in the laſt of which, the white people have it in as great eſteem as the Indians, and make as conſtant uſe of it.

Monſieur Frezier alſo ſays, that the Spaniards who live near the gold mines in Peru, are obliged frequently to drink of the herb Paraguay or Mate, to moiſten their breaſts, without which, they are liable to a ſort of ſuffocation, from the ſtrong exhalations which are continually coming from the mines.

The ſame author alſo adds, that the inhabitants of Lima, during the day-time, make much uſe of the herb Paraguay, which ſome call St. Bartholomew's Herb, who, they pretend, came into thoſe provinces, where he made it wholeſome and beneficial; whereas, before it was venomous; this, he ſays, is brought to Lima dry, and almoſt in powder.

Inſtead of drinking the tincture or infuſion apart, as we drink tea, they put the herb into a cup or bowl made of a calabaſh tipped with ſilver, which they call mate; they add ſugar, and pour the hot water upon it, which they drink immediately, without giving it time to infuſe, becauſe it turns black as ink. To avoid ſwallowing the herb, which ſwims at the top, they make uſe of a ſilver pipe, at the end whereof is a bowl full of little holes; ſo that the liquor ſucked in at the other end, is clear from the herb. They drink round with the ſame pipe, pouring hot water on the ſame herb, as it is drunk off. Inſtead of a pipe, which they call bombilla, ſome part the herb with a ſilver ſeparator, called apartador, full of little holes. The reluctancy which the French have ſhewn to drink after all ſorts of people, in a country where many have the venereal diſeaſe, has occaſioned the inventing the uſe of little glaſs pipes, which they begin to uſe at Lima. This liquor, he ſays, in his opinion, is better than tea; it has a flavour of the herb, which is agreeable enough: the people of the country are ſo uſed to it, that even the pooreſt drink it once a day, when they riſe in the morning.

The trade for this herb, (he ſays,) is carried on at Santa Fé, whether it is brought up the river of Plate. There are two ſorts of it; the one called Yerba de Palos; and the other, which is finer, and of more virtue, Yerba de Camini; the laſt is brought from the lands belonging to the jeſuits. The great conſumption of it is between La Paz and Cuſco, where it is worth half as much more as the other, which is ſent from Potoſi to La Paz. There come yearly from Paraguay into Peru about fifty thouſand arrovas, twelve thouſand hundred weight of both ſorts, whereof at leaſt one third is of the Camini, without reckoning twenty-five thouſand arrovas of that of Palos for Chili. They pay for each parcel, containing ſix or ſeven arrovas, four royals for the duty called alcavala (being a rate upon all goods ſold;) which, with the charge of carriage, being above ſix hundred leagues, doubles the firſt prices, which is about two pieces of eight; ſo that at Potoſi it comes to about five pieces of eight the arrova. The carriage is commonly by carts, which carry an hundred and fifty arrovas from Santa Fé to Jujuy, the laſt town of the province of Tucuman; and from thence to Potoſi, which is an hundred leagues farther, it is carried on mules.

What this curious author has obſerved, on there being two ſorts of this herb, may very well agree with the two laſt ſorts mentioned, ſince both of them are generally ſuppoſed to agree in their qualities, though one is much preferable to the other; therefore I imagine the Yerba de Camini, is what we call Paraguay or South-Sea Thea; and Yerba de Palos to be our third ſort. But as our author only ſaw the dried herb, he could no more diſtinguiſh their difference, than we can the Thea brought from China; I mean, as to the particular trees which produce it.

CASSYTHA. Lin. Gen. Plant. 505.

The Characters are,

It hath a ſmall three-leaved permanent empalement; the flower hath three petals which are concave and permanent, and three oblong, coloured, nectarious glands ſurrounding the germen, with nine erect compreſſed ſtamina, and two globular glands, incloſing each a ſingle ſtamina, ſitting on one ſide the baſe; theſe have ſummits under the top of the ſtamina; it has an oval germen within the coloured empalement, ſupporting a thick ſtyle the length of the ſtamina, crowned by an obtuſe almoſt trifid ſtigma; the receptacle becomes a pulpy berry, globular but a little depreſſed, incloſed in the coloured empalement, having a perforated navel incloſing many oval ſeeds.

This is ranged in Linnæus's firſt order of his eleventh claſs of plants, intitled Enneandria Monogynia, the flower having eleven ſtamina and one ſtyle.

We have at preſent but one Species of this genus.

Cassytha (*Filiformis*) Oſb. It. Lin. 530. *Slender Caſſytha.* Cuſcuta baccifera Barbadenſium. Pluk. Phyt. tab. 172. f. 2.

This plant grows naturally in both Indies. I have received it from Barbadoes, Jamaica, and the Spaniſh Weſt Indies; and that it grows alſo in the Eaſt Indies, is plain from its figure in the Hortus Malabaricus. It riſes with taper ſucculent ſtalks, which divide into many ſlender ſucculent branches; theſe come out frequently by threes or fours at the ſame joint, afterward they ſend out ſide branches ſingly without order, and become very buſhy: the flowers come out on the ſide of the branches ſingly, ſitting very cloſe thereto, having no empalement; the corolla is oval, white, with a ſmall tincture of red, opening like a navel at the top, including the germen, ſtamina, ſtyle, and nectarious glands ſo cloſely, as not to be diſcovered till the corolla is cut open; after the flower is paſt, the germen becomes many oblong, oval, dark ſeeds, ſurrounded with a mucilaginous ſubſtance.

This plant is eaſily propagated by planting cuttings of it during the ſummer months, but as theſe cuttings are ſucculent, it will be proper to cut them off a week before they are planted, laying them in the ſtove, that the part cut may have time to heal over before they are planted. Theſe cuttings ſhould be planted in ſmall pots, which muſt be plunged into a moderate hot-bed, where, if they are not over watered, they will take root in ſix weeks; then they may be parted, planting each into a ſeparate ſmall pot, filled with light ſandy earth, and may be plunged again into the hot-bed to forward their taking new root; after which they ſhould be removed into a dry ſtove, where they ſhould conſtantly remain, giving but little water in winter, and in ſummer admitting a large ſhare of air in warm weather, for this plant is too tender to thrive in the open air in this climate.

CASTANEA. Tourn. Inſt. R. H. 584. tab. 352. Fagus. Lin. Gen. Plant. 951. [It takes its name from Caſtana, a city of Theſſaly, where this tree anciently grew in great plenty.] The Cheſnut-tree, in French *Chateignier*, or *Maronnier*.

The Characters are,

It hath male and female flowers on the ſame tree, ſometimes at ſeparate diſtances, and at other times near each other. The male flowers are fixed to a long ſtring, forming a ſort of katkin; theſe have each an empalement of one leaf, cut into five parts; they have no petals, but include about ten or twelve briſtly ſtamina, terminated by oblong ſummits. The female flowers have alſo an empalement of one leaf, divided into four parts, having no petals, but a germen fixed to the empalement, ſupports three ſtyles crowned by a reflexed ſtigma. The germen, which is ſituated at the baſe of the empalement, becomes a roundiſh fruit armed with ſoft ſpines, including one or more nuts.

This genus of plants is ranged in the eighth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Polyandria, the plants of this ſection have male and female flowers, and the male flowers have many ſtamina; but he has joined this genus to the Fagus, making theſe of one genus, ſo that he has entirely aboliſhed the title. However, as the male flowers of the Cheſnut are formed into long katkins, and thoſe of the Beech are globular, they may with propriety be kept ſeparate; and this I chooſe to do, that it may be more intelligible to common readers.

The Species are,

1. Castanea (*Sativa*) foliis lanceolatis acuminato-ſerratis, ſubtus nudis. *Cheſnut with ſpear-ſhaped leaves, which are ſharply ſawed, and naked on their under ſide.* Caſtanea ſativa. C. B. P. 418. *The manured Cheſnut.*
2. Castanea (*Pumila*) foliis lanceolato-ovatis acutè ſerratis, ſubtus tomentoſis, amentis filiformibus nodoſis. *Cheſnut with oval ſpear-ſhaped leaves ſharply ſawed, which are woolly on their under ſide, and a ſlender knotted katkin.* Caſtanea pumila Virginiana, racemoſa fructu parvo in ſingulis capſulis echinato unico. Pluk. Alm. 90. *The Chinquapin.*
3. Castanea (*Sloanea*), foliis oblongo-ovatis, ſerratis, fructu rotundo maximo echinato. *Cheſnut with oblong, oval, ſawed leaves, and a very large, round, prickly fruit.* Sloanea amplis Caſtanæ foliis. fructu echinato. Plum. Nov. Gen. 49.

The Cheſnut is a tree which deſerves our care, as much as any of the trees which are propagated in this country, either for uſe or beauty, being one of the beſt ſort of timber, and affording a goodly ſhade. It will grow to a very great ſize, and ſpread its branches finely on every ſide where it has room. The leaves are large, of a lucid green, and continue late in the autumn; nor are they ſo liable to be eaten by inſects, as are thoſe of the Oak, which of late years have frequently happened to the latter, and has rendered them very unſightly great part of ſummer, which I have never obſerved to be the caſe with the Cheſnut, which renders them more valuable for parks and plantations for ornament; and there is no better food for deer, and many other animals, than their nuts, which moſt of them prefer to acorns; but yet, there ſhould not be many of theſe trees planted too near the habitation; becauſe, when they are in flower, they emit a very diſagreeable odour, which is very offenſive to moſt people.

There are ſeveral varieties of this tree, which have accidentally ariſen from ſeeds; ſome have been ſuppoſed diſtinct ſpecies, but the differences are only in the ſize of their fruit and leaves, which have been altered, and improved by culture; ſo that the wild and manured Cheſnut, are undoubtedly the ſame; for I have frequently found, that the nuts taken from the ſame tree, and cultivated in the ſame ſoil, with equal care, have produced trees with very ſmall fruit; and among them have been others, whoſe fruit have been as large as thoſe of the parent tree; therefore they can be only eſteemed as varieties. But in many countries, where the trees are cultivated for their fruit, the people graft the largeſt and faireſt fruit, upon ſtocks of Cheſnut raiſed from the nut; and theſe grafted trees are by the French called Maronnier, but they are unfit for timber.

There is alſo a Cheſnut with variegated leaves, which is propagated in the nurſeries by way of curioſity: this is maintained by budding, and inarching it upon common Cheſnut ſtocks, in the ſame manner as other fruit-trees; but theſe variegated trees and plants are not ſo much regarded at preſent, as they were ſome years paſt.

The Dwarf branching Cheſnut which is mentioned in moſt of the books, I take to be only a variety of the common; for Dr. Boerhaave ſhewed me ſome young trees in his garden near Leyden, which he had raiſed from nuts, which were ſent him by Micheli from Florence, as the true fruit of the Dwarf Cheſnut; but there appeared to be no difference between thoſe, and ſome other which came from nuts of the large ſort.

The third ſort grows in South Carolina, from whence ſome of the fruit with their outer covers, were ſent to his grace the Duke of Bedford, a few years paſt: theſe were as large and round as a tennis-ball, and armed all over with ſtrong ſpines like a hedge-hog: theſe capſulæ were divided regularly in four cells, each containing one ſmall Cheſnut. At that time I compared theſe with father Plumier's deſcription and figure, which he exhibited under the title of Sloanea, and found them to agree exactly; and upon looking through the box in which theſe were ſent, I found ſome of the leaves of the tree, which alſo tallied with his deſcription, which confirmed my former opinion; therefore, as I could ſee no other difference between the fruit of this and the common Cheſnut, but its having four regular cells, divided by partitions, whereas thoſe of the Cheſnut have generally but three; therefore I have joined them together, being perſuaded, that farther obſervations will juſtify my ſo doing.

It does not appear where Plumier found this tree growing naturally, though it is probable, it might be in Louiſiana; for I think it could not be in either of the Weſt India iſlands, where the heat is too great for this tree to thrive; though this is tender while young, for two or three young plants which were raiſed in England, did not ſurvive the third winter.

The firſt of theſe trees was formerly in greater plenty amongſt us than at preſent, as may be proved by the old buildings in London, which were for the moſt part of this timber; and in a deſcription of London, written by Fitz-Stephens, in Henry the Second's time, he ſpeaks of a very noble foreſt, which grew on the north part of it: proxime (ſays he) patet foreſta ingens, ſaltus numeroſi ferarum, latebræ cervorum, damarum, aprorum, & taurorum ſylveſtrium, &c. And there are now ſome remains of old decayed Cheſnuts, in the woods and chaces not far diſtant from London, but particularly on Enfield Chace; which plainly proves, that this tree is not ſo great a ſtranger to our climate, as many people believe; and may be cultivated in England, to afford an equal profit with any of the other ſorts of larger timber-trees, ſince the wood of this tree is equal in value to the beſt Oak, and, for many purpoſes, far exceeding it; as particularly for making veſſels for all kinds of liquor, it having a property (when once thoroughly ſeaſoned) of maintaining its bulk conſtantly, and is not ſubject to ſhrink or ſwell, as other timber is too apt to do: and I am certainly informed, that all the large caſks, tuns, &c. for their wines in Italy, are made of this timber; and it is for that, and many more purpoſes, in greater eſteem among the Italians, than any other timber whatever. It is alſo very valuable for pipes to convey water under ground, as enduring longer than the Elm, or any other wood. In Italy it is planted for coppice-wood, and is very much cultivated in ſtools, to make ſtakes for their Vines; which, being ſtuck into the ground, will endure ſeven years, which is longer than any other ſtakes will do, by near half the time. The uſefulneſs of the timber, together with the beauty of the tree, renders it as well worth propagating as any tree whatever.

Theſe trees are propagated by planting the nuts in February, in beds of freſh undunged earth. The beſt nuts for ſowing, are ſuch as are brought from Portugal and Spain, and are commonly ſold in winter for eating, provided they are not kiln-dried, which is generally the caſe of moſt of thoſe brought from abroad, which is done to prevent their ſprouting or ſhooting in their paſſage; therefore, if they cannot be procured freſh from the tree, it will be much better to uſe thoſe of the growth of England, which are full as good to ſow for timber or beauty, as any of the foreign nuts, though their fruit is much ſmaller: theſe ſhould be preſerved, until the ſeaſon for ſowing, in ſand, where mice, or other vermin cannot come to them, otherwiſe they will ſoon deſtroy them: before you ſet them, it will be proper to put them into water, to try their goodneſs, which is known by their ponderoſity; thoſe of them that ſwim upon the ſurface of the water ſhould be rejected as good for nothing; but ſuch as ſink to the bottom, you may be ſure are good.

In ſetting theſe ſeeds or nuts, the beſt way is, to make a drill with a hoe (as is commonly practiſed in ſetting Kidney Beans) about four inches deep, in which you ſhould place the nuts, at about four inches diſtance, with their eye uppermoſt; then draw the earth over them with a rake, and make a ſecond drill at about a foot diſtance from the former, proceeding as before, allowing three or four rows in a bed, with an alley between, three feet broad, for a conveniency of clearing the beds, &c. When you have finiſhed your plantation, you muſt be careful that it is not deſtroyed by mice, or other vermin; which is very often the caſe, if they are not prevented by traps, or other means.

In April theſe nuts will appear above ground; you muſt therefore obſerve to keep them clear from weeds, eſpecially while young: in theſe beds they may remain for two years, when you ſhould remove them into a nurſery, at a wider diſtance. The beſt ſeaſon for tranſplanting theſe trees, is either in October or the latter end of February; but October is the beſt ſeaſon: the diſtance theſe ſhould have in the nurſery, is three feet row from row, and one foot in the rows: you muſt be careful in tranſplanting theſe trees, to take them up without injuring their roots, nor ſhould they remain long out of the ground; but if they have a downright tap-root, it ſhould be cut off, eſpecially if they are intended to be removed again; this will occaſion their putting out lateral roots, and render them leſs ſubject to miſcarry when they are removed for good.

The time generally allowed them in this nurſery, is three or four years, according to their growth; but the younger they are tranſplanted, if deſigned for timber, the better they will ſucceed; during which time you ſhould be careful to keep them clear from weeds, obſerving alſo to prune off lateral branches, which would retard their upright growth; and where you find any that are diſpoſed to grow crooked, either by their upper bud being hurt, or from any other accident, you may the year after planting, in March, cut them down to the lowermoſt eye next the ſurface of the ground, which will cauſe them to make one ſtrong upright ſhoot, and may be afterwards trained into good ſtrait trees: but this ſhould not be practiſed, unleſs the plants have abſolutely loſt their leading ſhoot; for although the ſtems of the trees ſhould be very crooked (as is generally the caſe with them when young) yet when they are tranſplanted out, and have room to grow, as they increaſe in bulk, they will grow more upright, and their ſtems will become ſtrait, as I have frequently obſerved where there have been great plantations made of them.

But in doing of this, you muſt be careful not to diſturb or break their roots, which, perhaps might deſtroy them. Theſe trees require no other manure than their own leaves, which ſhould be ſuffered to rot upon the ground; and in the ſpring of the year, the ground ſhould have a ſlight digging, when theſe ſhould be buried between their roots, but not too cloſe to the trees, which might be injurious to their young fibres.

After having remained three or four years in the nurſery, they will be fit for tranſplanting, either in rows to grow for timber, or in quarters for wilderneſs plantations; but if you intend them for timber, it is by much the better method to ſow them in furrows (as is practiſed for Oaks, &c.) and let them remain unremoved; for theſe trees are apt to have a downright tap-root, which, being hurt by tranſplanting, is often a check to their upright growth, and cauſes them to ſhoot out into lateral branches, as is the caſe with the Oak, Walnut, &c.

Therefore, wherever any of theſe trees are planted for timber, they ſhould remain unremoved: but where the fruit of them is more ſought after, then it is certainly the better way to tranſplant them; for as tranſplanting is a check to the luxuriant growth of trees, ſo it is a promoter of their fructification, as may be evinced by obſerving low ſhrubby Oaks, Walnuts, &c. which generally have a greater plenty of fruit, than any of the larger and more vigorous trees; and the fruit of ſuch trees is much ſuperior in taſte, though the ſeeds of vigorous trees are vaſtly preferable for plantations of timber; for it is a conſtant obſervation, that, by ſaving ſeeds from dwarf trees or plants, from time to time, they may be rendered much lower in their growth than is their natural ſize; but where the fruit is moſt deſired, then they ſhould be taken from ſuch trees as produce the largeſt and ſweeteſt nuts, which are commonly found upon ſuch trees as ſpread the moſt, and have horizontal roots; for the weaker trees being leſs capable to furniſh a ſupply of nouriſhment, and having a greater quantity of fruit upon them, to which this muſt be diſtributed, together with their roots lying near the ſurface of the ground (by which means the juices are better prepared by ſun, air, &c. before it enters their veſſels,) it is certain their juices are better digeſted, and their fruits better maturated, than thoſe can poſſibly be, which grow upon ſtrong vigorous trees, which have long tap-roots running ſeveral feet deep into the earth, and conſequently take in vaſt quantities of crude unprepared juice, which is buoyed up to the extreme parts of the tree; and theſe ſeldom having many lateral branches, to digeſt and prepare their juice, by perſpiring and throwing off the crude part before it enters the fruits.

And this, I dare ſay, univerſally holds good in all ſorts of fruit trees, and is often the occaſion of the good and bad qualities of the ſame ſorts of fruits growing on the ſame ſoil.

What has been related about grafting this tree into the Walnut, to promote their bearing, or render their fruit fairer; or inoculating Cherries into the Cheſnut, for later fruit, is very whimſical and ſilly, ſince neither the Cheſnut nor Walnut will receive its own kind any other way than by inoculating or inarching; and it is the latter only, by which the Walnut can be propagated; nor was it ever known, that any two trees of a different genus would take upon each other, ſo as to produce either a good tree or fruit; therefore we may juſtly explode all thoſe different graftings of various trees upon each other, ſo much talked of by the ancients; at leaſt we may ſuppoſe thoſe trees are not known by the ſame names now, that they are mentioned by in their writings; for I have made many trials upon them, which, although performed with great care, and in different ſeaſons, yet ſcarcely one of them ſucceeded. But to return:

If you deſign a large plantation of theſe trees for timber, after having two or three times ploughed the ground, the better to deſtroy the roots of weeds, you ſhould make your furrows about ſix feet diſtance from each other, in which you ſhould lay the nuts about ten inches apart, covering them with earth about three inches deep; and, when they come up, you muſt carefully clear them from weeds: the diſtance allowed between each row, is for the uſe of the horſe hoeing plough, which will diſpatch a great deal of this work in a ſhort time; but it ſhould be performed with great care, ſo as not to injure the young plants; therefore the middle of the ſpaces only ſhould be cleaned with this inſtrument, and a hand hoe muſt be uſed to clean between the plants in the rows, and alſo on each ſide, where it will be unſafe for the plough to be drawn: and in hand hoeing, there muſt be great care taken, not to cut the tender rind of the plants. If the following ſpring the ſpaces are carefully ſtirred with the plough, it will not only make the ground clean, but alſo looſen it, ſo as that the ſun and moiſture may more eaſily penetrate the ſame, which will greatly promote the growth of the plants; and the oftener theſe ploughings are repeated, the cleaner will be the ground, and the greater will be the progreſs of the plants, which cannot be kept too clean while they are young. When theſe have remained three or four years (if the nuts ſucceeded well,) you will have many of theſe trees to remove, which ſhould be done at the ſeaſons before directed, leaving the trees about three feet diſtance in the rows; at which diſtance they may remain for three or four years more, when you ſhould remove every other tree to make room for the remaining, which will reduce the whole plantation to ſix feet ſquare, which will be diſtance enough for them to remain in, until they are large enough for poles, when you may cut down every other of theſe trees (making choice of the leaſt promiſing,) within a foot of the ground, in order to make ſtools for poles, which, in eight or ten years time, will be ſtrong enough to lop for hoops, hop poles, &c. for which purpoſes they are preferable to moſt other trees; ſo that every tenth year, here will be a freſh crop, which will pay the rent of the ground, and all other incumbent charges, and, at the ſame time, a full crop of growing timber left upon the ground: but as the large trees increaſe in bulk, their diſtance of twelve feet ſquare will be too ſmall; therefore when they have grown to a ſize for ſmall boards, you ſhould fell every other tree, which will reduce them to twenty-four feet ſquare, which is a proper diſtance for them to remain for good; this will give air to the under wood (which, by this time, would be too much overhung by the cloſeneſs of the large trees;) by which means that will be greatly encouraged, and the ſmall timber felled, will pay ſufficient intereſt for the money at firſt laid out in planting, &c. with the principal alſo: ſo that all the remaining trees are clear profit, for the under wood ſtill continuing, will pay the rent of the ground, and all other expences; and what a fine eſtate here will be for a ſucceeding generation, in about fourſcore years, I leave every one to judge.

The Chinquapin, or Dwarf Virginian Cheſnut, is at preſent very rare in England: it is very common in the woods of America, where it ſeldom grows above twelve or fourteen feet high, and produces great plenty of nuts, which are, for the moſt part, ſingle in each outer coat or capſule. This tree is very hardy, and will reſiſt the ſevereſt of our winters in the open ground, but is very apt to decay in ſummer, eſpecially if it is planted in very dry ground. The nuts of theſe trees, if brought from America, ſhould be put up in ſand as ſoon as they are ripe, and ſent to England immediately, otherwiſe they loſe their growing quality, which is the reaſon this tree is at preſent ſo ſcarce with us; for not one ſeed in five hundred ſent over ever grew, which was owing to the neglect of putting them up in this manner: indeed, moſt of the nuts which have been brought over, have been kiln-dried, to preſerve them from ſprouting, which infallibly deſtroys the germen. When the nuts arrive, they ſhould be put into the ground as ſoon as poſſible; and if the winter ſhould prove ſevere, it will be proper to cover the ground with leaves, tan, or Peaſe-haulm, to prevent the froſt from penetrating the ground, ſo as to deſtroy the nuts. This ſort of Cheſnut delights in a moiſt ſoil; but if the wet continues long upon the ground in winter, it is apt to kill the trees. This will take by inarching it upon the common ſort, but the trees ſo propagated ſeldom ſucceed well.

I have ſeen a ſpecimen, and ſome nuts of a Dwarf Cheſnut, which were brought from North America, which differed from all the other ſorts; and I have been informed, that the French have raiſed plants of this kind, from the nuts which were brought from Canada; but as I have not ſeen any of the plants raiſed in England, I can give no farther account of it, than that ſome of the late writers have ſuppoſed it might be the dwarf branching kind before-mentioned.

CASTANEA EQUINA. See ESCULUS.

CASTOREA. See DURANTIA.

CATANANCHE. Lin. Gen. Plant. 824. [Κατανάγκω, a violent allurement to love, of κατὰ and ἀνάγκη, neceſſity, or of καταναγκάζω, to compel; ſo called, becauſe the opinion the ancients had of it, that it was a ſtrong, and almoſt invincible inducement to love.] Candia Lions Foot.

The Characters are,

The flower is compoſed of many hermaphrodite florets, thoſe on the border being longer than thoſe which are in the center; theſe are included in one common ſcaly empalement, which is permanent and elegant. The florets are of one leaf, tongue-ſhaped, indented in five parts, and are longer than the empalement; theſe have each five ſhort hairy ſtamina, terminated by cylindrical ſummits. The germen is ſituated below the flower, ſupporting a ſlender ſtyle the length of the ſtamina, crowned with a bifid ſtigma which is reflexed. The germen afterward becomes a ſingle oval ſeed, which is compreſſed and crowned with briſtles, incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis; the flowers of this claſs have their ſtamina ſeparate, and their ſummits connected together in a cylinder, and thoſe of this ſection have only hermaphrodite flowers.

The Species are,

1. Catananche (*Cærulea*) ſquamis calycinis inferioribus ovatis. Hort. Cliff. 390. *Catananche whoſe under ſcales of the empalement are oval.* Catanance quorundam. Lugd. Hiſt. 1190.
2. Catananche (*Lutea*) ſquamis calycinis inferioribus lanceolatis. Hort. Cliff. 390. *Catananche whoſe under ſcales of the empalement are ſpear-ſhaped.* Catanance flore luteo, latiore folio. Tourn. Inſt. R. H. 478.

Tournefort mentions a third ſort with a narrow leaf, in which it differs from the ſecond; but if there is ſuch a diſtinct ſpecies, I have not happened to meet with it; for although I have frequently received the ſeeds from ſeveral parts of Europe by this title, yet I could not find any difference between the plants, and thoſe of the ſecond ſort; therefore I ſuppoſe Tournefort may have found the plants growing on a ſterile ſoil, where the leaves were much narrower than thoſe growing in a garden, or in better ground, which may have induced him to ſuppoſe they were diſtinct ſpecies. Both theſe plants grow naturally in the ſouth of France, in Spain, Italy, and Candia, from whence it had the title of Candia Lions Foot.

The firſt ſort ſends out many long, narrow, hairy leaves, which are jagged on their edges like thoſe of Buckſhorn Plantain, but the leaves are broader, the jags deeper, and at greater diſtances; theſe lie flat on the ground, turning their points upwards, which are very narrow. Between the leaves come out the flower-ſtalks, which are in number proportionable to the ſize of the plant; for from an old thriving root, there is frequently eight or ten, and young plants do not ſend out more than two or three. Theſe ſtalks riſe near two feet high, dividing into many ſmall branches upward, garniſhed with leaves like thoſe below, but are ſmaller, and have few or no jags on their edges: each of the foot-ſtalks are terminated with ſingle heads of flowers, having a dry, ſilvery, ſcaly empalement, in which are included three or four florets, whoſe petals are broad, flat, and indented at their ends; theſe are of a fine blue colour, having a dark ſpot at bottom, and in each the five ſtamina, with their yellow ſummits, ſtanding a little above the petal, make a pretty appearance.

It has been by ſome authors titled Chondrilla cærulea, i. e. *Blue Gum Cicory*; and by others Seſamoides, or Catanances Seſamoides. Caſpar Bauhin calls it Chondrilla cærulea cyani capitulo. Pin. 130. *Blue Gum Cicory with a Blue Bottle head.* There is a variety of this with double flowers, which is not very common in the Engliſh gardens.

The ſecond ſort hath broader leaves than the firſt, which are ſmoother, and leſs jagged on their edges: from each root ariſe two or three ſtalks, which grow a foot and a half high, ſending out two or three ſlender foot-ſtalks, each ſuſtaining a ſingle head of yellow flowers, incloſed in a dry ſcaly empalement, of a darker colour than thoſe of the firſt: as theſe flowers are ſmall, they make but little appearance, therefore the plant is only kept for the ſake of variety.

The firſt of theſe plants is a perennial, and may be propagated by heads taken off the mother plant, either in ſpring or autumn; but thoſe plants which are raiſed from ſeeds, are much ſtronger than thoſe from ſlips. Theſe plants are commonly planted in pots filled with light ſandy ſoil, in order to ſhelter them in the winter from ſevere froſts; but if they are planted in warm borders, either near walls, pales, or hedges, in a moderately dry ſoil, they will endure abroad very well. It begins flowering in May, and continues till Auguſt or September (eſpecially if the ſummer is not too dry,) is a pretty ornament to a garden, and is eaſily kept within bounds. This may alſo be propagated by ſeeds, which ſhould be ſown in a border of good light earth in March; and in May, when the plants are come up, they may be either tranſplanted into pots or borders, where they are to remain for flowering. Theſe plants ſhould remain unremoved when they are planted in the full ground, which will cauſe them to flower better, and they will produce more ſeeds. The ſeeds ripen in Auguſt.

The other ſort is an annual plant, and therefore only propagated by ſeeds, which ripen very well in this country. The time for ſowing them is early in March, in beds or borders of light earth where they are to remain, which will come up in a month or five weeks time, and require no other care but to keep them clean from weeds, and thin the plants where they are too cloſe. Theſe flower in June, and perfect their ſeeds in Auguſt or September; but as they have little beauty, they are not often kept in gardens.

CATAPUTIA Major. See Ricinus.

CATAPUTIA Minor. See Euphorbia.

CATARIA. See Nepeta.

CATCH-FLY. See Lychnis.

CATERPILLARS.

There are ſeveral kinds of this inſect, which are very pernicious to a garden; but there are two ſorts which are the moſt common, and deſtructive to the young plants: one of them is that which the white butterfly breeds. It is of a yellowiſh colour, ſpotted and ſtriped with black; this commonly infeſts the tender leaves of Cabbages, Cauliflowers, and the Indian Creſs: they eat off all the tender parts of the leaves, leaving only the fibres entire; ſo that very often we ſee, in the autumn ſeaſon, whole gardens of winter Cabbages and Savoys almoſt deſtroyed by them, eſpecially in thoſe which are crouded with trees, or are near buildings. They always increaſe moſt in very dry ſeaſons; and when the plants have been ſtinted by the drought, they are conſtantly attacked; whereas, thoſe which are in vigour, ſeldom ſuffer much by thoſe inſects. Nor is there any other method found out to deſtroy them that I know of, but to pick them off the plants before they are ſpread from the neſts; by which means, though perhaps many may be overlooked, yet their numbers will be greatly diminiſhed. But this work muſt be often repeated during the warm weather, when the butterflies are abroad, which are continually depoſiting their eggs, and in a few days time will be metamorphoſed to perfect caterpillars. But as theſe, for the moſt part, feed upon the outer leaves of plants, ſo they are more eaſily taken than the other ſort, which is much larger: the ſkin is very tough, and of a dark colour: this is called by the gardeners, a grub, and is exceeding hurtful. The eggs of this ſort of caterpillar, are, for the moſt part, depoſited in the very heart or center of the plant (eſpecially in Cabbages;) where, after it hath obtained its form, it eats its way out through all the leaves thereof; and alſo their dung, being lodged between the incloſed leaves of the Cabbages, gives them an ill ſcent.

This inſect alſo burrows juſt under the ſurface of the ground, and makes great havock on young plants, by eating them through their tender ſhanks, and drawing

ing them into their holes. The miſchief is chiefly done in the night: whenever you obſerve this, you ſhould every morning look over your plat of plants; and wherever you ſee any plants eaten off, ſtir the ground round about the place with your fingers an inch deep, and you will certainly find them out. This is the only method I know of deſtroying them.

CATKINS, or IULUS.

This is, by the botaniſts, called Flos Amentaceus: it is an aggregate of ſummits, which are joined together in form of a rope or cat's tail, and is the male flower of the trees which produce them; as the Firs, Pines, Cedars, Walnuts, Birch-trees, and Willows.

CATESBÆA. Lin. Gen. Plant. 121. Hiſt. Carolin. Vol. II. p. 100. The Lily Thorn.

The Characters are,

It hath a ſmall permanent empalement of one leaf, with five ſharp indentures; the flower is of one leaf, funnel-ſhaped, having a very long tube, which gradually widens to the top, where it is four-cornerned and ſpread open; it hath four ſtamina riſing in the neck of the tube, terminated by oblong erect ſummits; the roundiſh germen is ſituated under the flower, ſupporting a ſlender ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes an oval berry with one cell, filled with angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

We have but one Species of this plant, viz.

Catesbæa. Lin. Sp. Plant. 109. The Lily Thorn. Frutex ſpinoſus Buxi foliis, plurimis ſimul naſcentibus, flore tetrapetaloide, pendulo, ſordidè flavo, tubo longiſſimo, fructu ovali croceo, ſemina parva continente. Cateſb. Hiſt. Carol. Vol. II. p. 100.

This ſhrub was diſcovered by Mr. Cateſby, near Naſſau town, in the iſland of Providence, where he ſaw two of them growing, which were all he ever ſaw; from theſe he gathered the ſeeds, and brought them to England in 1726, from which many plants were raiſed in the Engliſh gardens, ſome of which have ſince flowered here.

It riſes with a branching ſtem to the height of ten or twelve feet, which is covered with a pale ruſſet bark; the branches come out alternately from the bottom to the top, which are garniſhed with ſmall leaves, reſembling thoſe of the Box-tree, coming out in cluſters all round the branches, at certain diſtances; the flowers come out ſingle from the ſide of the branches, hanging downward; they are tubulous, and near ſix inches long, very narrow at their baſe, but widening upward toward the top, where it is divided into four parts which ſpread open, and are reflexed backward; theſe are of a dull yellow colour. After the flower decays, the germen ſwells to an oval fleſhy berry the ſize of a middling Plumb, hollow within, and filled with ſmall angular ſeeds.

This ſhrub is propagated by ſeeds, which muſt be procured from the country where it naturally grows. If the entire fruit are brought over in ſand, the ſeeds will be better preſerved: when they arrive in England, the ſeeds muſt be ſown in ſmall pots filled with light ſandy earth, and plunged into a moderate hot-bed of tanners bark, and now and then moderately watered. If the ſeeds are good, the plants will appear in about ſix weeks after ſowing; when, if the heat of the bed declines, the tan ſhould be turned over to the bottom, and, if neceſſary, ſome freſh added to renew the heat, for theſe plants make but little progreſs the firſt year. When the pots are again plunged into the tan-bed, they muſt have freſh air admitted to them every day in proportion to the warmth of the ſeaſon, and frequently refreſhed with water, in ſmall quantities, for much wet will certainly kill them; if the nights ſhould prove cold, the glaſſes ſhould be covered with mats every evening. As theſe plants grow ſlowly, they will not require to be removed out of the ſeed-pots the firſt year. In the autumn the pots ſhould be removed into the ſtove, and plunged into the tan-bed. During the winter, the plants ſhould be watered with great caution, and in ſpring they ſhould be carefully taken up, and each planted in a ſeparate ſmall pot filled with light ſandy earth, and plunged into a freſh hot-bed of tanners bark, being careful to ſhade them until they have taken freſh root, as alſo to refreſh them with water gently, as they may require it; and in ſummer, when the weather is warm, they ſhould have a good ſhare of air admitted to them; but in autumn muſt be removed into the ſtove, where they ſhould conſtantly remain, and muſt be treated afterward in the ſame manner as other tender exotic plants.

This plant may be propagated by planting cuttings in ſmall pots filled with light earth, during the months of June and July. The pots ſhould be plunged into a moderate hot-bed of tanners bark, and the cuttings cloſely covered with ſmall bell-glaſſes to exclude the external air. If this is properly performed, the cuttings will put out roots in about two or three months, when they may be carefully ſeparated, planting each into a ſmall pot filled with light earth, and plunged into the hot-bed again, and afterward muſt be treated as the ſeedling plants.

Moſt of thoſe plants which were raiſed from Mr. Cateſby's ſeeds, were killed by the ſevere winter in 1739; but ſeven years ago I received ſome freſh ſeeds, which ſucceeded ſo well, as to enable me to communicate plants to ſeveral curious perſons in England and Holland.

CACAULIS, Baſtard Parſley.

This is one of the umbelliferous plants with oblong ſeeds, which are a little furrowed and prickly: the petals of the flower are unequal and heart-ſhaped.

There are ſeveral ſpecies of this plant preſerved in the botanic gardens; but as there is no great beauty or uſe in any of them, I ſhall paſs them over with only obſerving, that if any perſon hath a mind to cultivate them, the beſt ſeaſon to ſow their ſeeds is in autumn, ſoon after they are ripe; for if the ſeeds are kept till ſpring, the plants ſeldom produce ripe ſeeds again. They are moſt of them biennial, and require to be ſown every year. We have four or five ſpecies of them, which grow wild in England.

CAULIFEROUS plants [of Caulis, *Lat.* a ſtalk, and *fero*, to bear;] ſuch plants as have a true ſtalk.

CAULIS, is that part of a plant which riſes ſingle above the earth, from whence the leaves or little branches put forth, as Jungius defines it; or it is the upper part of a plant ſtretched forth to an height, ſo that the fore parts differ not from the hind, nor the right from the left. In trees and ſhrubs it is called Caudix; in corn Culmus; the ſtalk of any herb; the ſtem, trunk, or body of a tree. *Lat.*

CEANOTHUS. Lin. Gen. Plant. 237. Euonymus. Com. Hort. New Jerſey Thea.

The Characters are,

It hath a turbinated empalement of one leaf, which is permanent, cut into five acute ſegments which cloſe together; the flower hath five roundiſh equal petals which ſpread open, and are leſs than the empalement; it hath five erect ſtamina, placed oppoſite to the petals, and are of equal length, terminated by roundiſh ſummits, and a three-cornered germen, ſupporting a cylindrical ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a dry capſule with three cells, in which are lodged three oval ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Ceanothus (*Americanus*) foliis trinerviis. Lin. Sp. Plant. 195. *Ceanothus with leaves having three nerves.* Euonymus Nervi Belgii corni fœminæ foliis. Hort. Amſt. 1. 167. *New England Dogwood with female Cornel leaves, commonly called New Jerſey Thea.*
2. Ceanothus (*Africanus*) foliis lanceolatis enerviis, ſtipulis ſubrotundis. Lin. Sp. Plant. 196. *Ceanothus with ſpear-ſhaped leaves without nerves, and roundiſh ſtipulæ.* Alaternoides Africana lauri ſerratæ folio. Com. Præl. 61. tab. 11.

3. **Ceanothus** (*Arboreſcens*) foliis ovatis ſeſſilibus nervoſus floribus alaribus. *Ceanothus with oval nervous leaves ſet cloſe to the branches, flowers proceeding from the wings of the leaves, commonly called Red-wood.*

The firſt ſort grows naturally in moſt parts of North America, from whence great plenty of the ſeeds have been of late years brought to Europe, by the title of New Jerſey Thea, where I have been informed the inhabitants dry the leaves of this ſhrub to uſe as Thea. The people of Canada uſe the root in venereal caſes. I have received the ſeeds of this ſort from New England, Penſylvania, Virginia, and Carolina; and the French mention it as a common ſhrub in Canada, where they ſay the cattle browze upon it, and keep it very low.

In England this ſhrub ſeldom riſes more than three or four feet high, ſending out branches on every ſide from the ground upward. The branches are very ſlender, and as it is pretty late in the ſpring before they begin to ſhoot, they keep growing very late; therefore, unleſs the autumn proves dry and mild, the tender ſhoots are often killed down very low by the early froſts; but, in favourable ſeaſons, the extreme parts of the ſhoots only are injured by the cold. Theſe branches are garniſhed with oval pointed leaves, having three longitudinal veins running from the foot-ſtalk to the point, which diverge in the broad part of the leaves from each other: the leaves are placed oppoſite, and are of a light green colour. At the extremity of each ſhoot the flowers are produced in cloſe thick ſpikes, which are compoſed of five ſmall leaves, of a clear white. Theſe appear in July, and make a pretty appearance during their continuance; for, as every ſhoot is terminated by one of theſe ſpikes, the whole ſhrub is covered over with flowers, the branches commonly growing very cloſe to each other; and when the autumn proves mild, theſe ſhrubs often flower again in October. After the flowers are paſt, there ſucceeds to each flower a tricapſular ſeed-veſſel, flatted at the top, opening into three cells, each having a ſingle ſeed. In warm ſeaſons the ſeeds ripen in England. This ſhrub is beſt propagated by ſeeds, which ſhould be ſown in the autumn in ſmall pots, and plunged into an old hot-bed, where they may remain during the winter, expoſing them in mild weather to the open air, but in froſt they muſt be protected from cold. In March the pots ſhould be plunged into a moderate hot-bed to bring up the plants, which ſhould be inured to bear the open air by degrees; and as ſoon as they have obtained a little ſtrength, they ſhould be expoſed in a ſheltered ſituation till autumn, when they muſt be placed under a hot-bed frame, to ſcreen them from ſevere froſt in winter; but in mild weather they ſhould be fully expoſed to the open air, for while the plants are young, they will not endure the cold of the winter. In the following ſpring, before the plants begin to ſhoot, they ſhould be tranſplanted; ſome of them may be put into ſeparate pots, and the others into a nurſery-bed, in a warm ſituation, where they may remain a year or two to get ſtrength, after which time they may be removed to the places where they are deſigned to remain. They ſhould have a moderately dry ſoil and a ſheltered ſituation, where they will thrive and flower extremely well; but in ſtiff cold land, they are always very late in the ſpring before they come out, ſo that their young ſhoots are full of ſap in the autumn, and the firſt froſt commonly kills their tops, which frequently cauſes them to die great part of their length.

It may alſo be propagated by laying down the young branches, which, in a light ſoil, will put out roots in a year's time, but theſe layers ſhould not be much watered; for as the ſhoots are tender, moiſture will often occaſion their rotting, when it is given in quantities, or too often repeated; therefore the beſt method is to cover the ſurface of the ground in dry weather, all round the layers, either with mulch or rotten tan, which will preſerve a ſufficient moiſture in the ground, provided the ſeaſon is not extremely dry; in which caſe they ſhould have a little water once in eight or ten days, which will be ſufficient.

The beſt time for laying down theſe branches is in autumn; and if after this is performed, the ſurface of the ground is covered over with ſome old tan, taken from a decayed hot-bed, it will prevent the froſt from penetrating the ground, which will ſecure them from injury; and the ſame covering will prevent the winds from drying the ground in the ſpring, and thereby promote their putting out roots. Theſe layers, when rooted, may be taken up the following ſpring, and treated in the ſame manner as thoſe raiſed from ſeeds.

The ſecond ſort grows naturally at the Cape of Good Hope, from whence it was originally brought to Holland, and has been many years preſerved there; and ſince has been communicated to moſt of the curious gardens in Europe, where it has been long known by the title of Alaternoides, &c. and by ſome authors it is titled Ricinoides Africana arboreſcens, &c. but Dr. Linnæus, having examined the characters more exactly, has joined it to this genus.

This riſes to the height of ten or twelve feet, with a woody ſtem, covered with a rough dark-coloured bark, and ſends out many weak branches, which hang downward; theſe while young are green, but afterward change to a purpliſh colour. They are garniſhed with oblong pointed leaves, of a lucid green, which are ſmooth, and ſlightly ſawed on their edges. The flowers are ſmall, of an herbaceous colour, coming out from the ſide of the branches; theſe ſometimes appear in July, but are not ſucceeded by ſeeds in this country, nor do the plants often produce flowers; ſo that they are preſerved only for the beauty of their ſhining evergreen leaves, which make a variety in the green-houſe during the winter ſeaſon.

It may be propagated either by layers or cuttings; the latter being a very ſure and expeditious method, is generally preferred. The cuttings ſhould be planted in the ſpring into pots filled with good kitchen-garden earth, and plunged into a very moderate hot-bed, obſerving to ſhade them in the heat of the day, and now and then refreſh them with water. In about two months or leſs, they will have taken root, when they muſt be gradually inured to the open air, placing them in a ſheltered ſituation till they have obtained ſtrength, when they may be ſeparated, and each planted in a ſmall pot filled with light earth, placing them in the ſhade till they have taken freſh root; then they may be removed, and intermixed with other exotic plants for the ſummer ſeaſon. In autumn they muſt be houſed with Myrtles, and other more hardy exotic plants, and treated in the ſame manner.

The third ſort grows naturally in the Bahama Iſlands, from whence the late Mr. Cateſby brought the ſeeds to England. It alſo grows naturally in Barbadoes, and ſome other iſlands in the Weſt Indies, from whence I have received the ſeeds. This, in the countries of its natural growth, riſes to the height of forty or fifty feet, with large trunks, which are by the inhabitants ſawn into boards, and were at firſt eſteemed for the beauty of their colour; but being expoſed to the air, their colour vaniſhed and they became pale, ſo have not ſince been much regarded.

In Europe, where the plants have been properly treated, they have grown to the height of twenty feet; and if the ſtoves in which they were placed had been lofty enough, would have grown much higher. The ſtem is ſtrong, woody, and is covered with a light brown bark, which, when young, has ſeveral furrows; the branches come out irregularly from every ſide the ſtem, garniſhed with pretty large oval leaves, of a light green colour, having ſeveral longitudinal veins inclining to white. The flowers are ſmall, of an herbaceous white, ſo make little appearance; they come out from the wings of the leaves, and, in their native ſoil, are ſucceeded by roundiſh fruit almoſt the ſize of ſmall Peaſe, opening in three cells; in each is incloſed one ſhining black ſeed, This is propagated by ſeeds, which ſhould be ſown in the ſpring, in ſmall pots filled with light earth, and plunged into a hot-bed; theſe ſeeds lie generally two months in the ground before the plants make their appearance, during which time the pots ſhould be duly watered, and air admitted when the weather is warm. When the plants come up and are fit to remove, they ſhould be carefully ſeparated, planting each in a ſmall pot filled with light earth, watering the earth to ſettle it about their roots; then plunge them into the tan-bed again, ſhading the plants from the ſun till they have taken new root; afterward they may be treated in the ſame manner as other tender plants from the ſame countries. When the plants have obtained ſtrength, they may be preſerved in winter in a dry ſtove, but theſe will not make ſuch progreſs as thoſe in the tan-ſtove.

CECROPIA. Yaruma Oviedi. Sloan. Hiſt. Jam. The Trumpet-tree, or Snakewood.

The Characters are,

It hath male and female flowers in different plants. The male flower hath an oval acute ſpatha, which burſts and contains a tale compoſed of many katkins, which are taper and bundled together; theſe are imbricated, and have many turbinated ſcales, which are four-cornered, obtuſe, and compreſſed. The flower hath no corolla, but a ſcaly nectarium, with two ſhort hair-like ſtamina, crowned by four-cornered oblong ſummits. The female flowers have a ſpatha, with four taper imbricated germen; they have no corolla, but the compreſſed imbricated germen ſupport one ſhort ſtyle, crowned by a headed torn ſtigma. The empalement afterward turns to a berry with one cell, containing one oblong compreſſed ſeed.

This tree is ranged in the ſecond order of Linnæus's twenty-ſecond claſs, intitled Diœcia Diandria, the male flowers growing upon ſeparate plants from the female, and have each two ſtamina.

It grows naturally in moſt of the woody parts of the iſland of Jamaica, where it riſes to the height of thirty-five or forty feet: the trunk and branches are hollow, and ſtopped at different ſpaces by membranaceous ſeptæ, which have ſo many light annular marks in the ſurface; the leaves are large, divided into many lobes like thoſe of Papaya, but the footſtalk is placed more in the center, ſo as to reſemble a target: they are downy on their under ſide. The flowers are incloſed in a conical ſpatha or ſheath, the male growing upon ſeparate plants from thoſe which have the female; they are produced upon imbricated katkins, compoſed of ſeveral turbinated ſcales, having no corolla, each having a ſcaly nectarium, with two ſhort hair-like ſtamina, crowned with four-cornered oblong ſummits. The female flowers are incloſed in a conical ſpatha or ſheath; theſe have no corolla, but have four imbricated germen, ſupporting one ſhort ſtyle, crowned by a headed torn ſtigma. The empalement afterward turns to an oblong cylindrical berry, compoſed of many ſmall acini like the Strawberry, and much reſemble it in flavour when ripe.

This tree is very rare at preſent in Europe; the fruit being ſmall are generally devoured by birds, ſo are not much obſerved by the European inhabitants, but the negroes are fond of it; they alſo make uſe of the ſmall branches of the tree to obtain fire, by rubbing them againſt each other; by this attrition they ſoon emit ſparks of fire, ſo that it is a uſeful tree in that country.

I received ſpecimens of this tree from the late Dr. Houſtoun, who found it growing naturally at La Vera Cruz, in New Spain, but without flowers; nor had the Doctor leiſure to examine the characters of it, ſo that at preſent we are not ſufficiently acquainted with them.

It may be propagated by ſeeds (when procured from the places where it naturally grows.) Theſe ſhould be brought over in ſand; for as the fruit are compoſed of ſeveral acini like thoſe of Strawberries, ſo if they are put up moiſt in papers, they will be apt to grow mouldy, and thereby ſpoil the ſeeds: but when they are put up in light ſand, it will prevent that inconveniency. The ſeeds ſhould be ſown in ſmall pots filled with light earth, and plunged into a moderate hot-bed of tanners bark, obſerving to water the pots duly, and to admit freſh air whenever the weather is favourable. When the plants come up and are fit to tranſplant, they ſhould be carefully taken up, and each planted in a ſeparate ſmall pot filled with the like light earth, and plunged into the hot-bed again, being careful to water them to ſettle the earth to their roots, and alſo to ſcreen them from the ſun till they have taken new root: after which they ſhould be conſtantly kept plunged into the bark-bed in the ſtove, and treated in the ſame manner as other plants from the ſame country.

CEDRUS. The Cedar-tree of Barbadoes, and the Mahogany, &c.

The Characters are,

It hath a tubulous bell-ſhaped empalement of one leaf, indented in five parts. The flower is of one leaf, divided at the top into five parts; it hath five ſhort ſtamina, which adhere at bottom to the germen, and are terminated by roundiſh ſummits; in the center is ſituated the roundiſh germen, ſupporting a thick ſtigma; the germen afterward becomes an oval pod, having five cells, opening from the bottom upward with five valves, having a double cover; the outer being thick and woody, the inner very thin, which immediately ſurrounds the ſeeds. In the center is fixed a five-cornered column the length of the pod, whoſe angles are oppoſite to the fiſſures of the pod, to which the ſeeds adhere, placed over each other like the ſcales of fiſh; theſe are thick at their baſe, but upward are flat and thin, like the wings adhering to the ſeeds of Firs and Pines.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one germen.

As the Cedar of Libanus is by Tournefort very properly referred to the genus of Larix, and all the berry-bearing Cedars are joined to the Junipers, I have given the title of Cedrus to this genus, as they were mentioned by imperfect titles by moſt of the authors who have treated of them; and as the firſt ſort has been generally known by the appellation of Cedar in the countries where it naturally grows, the applying the ſame name to thoſe plants which agree in their eſſential characters with it, will join them properly together.

The Species are,

1. Cedrus (*Odorata*) foliis pinnatis, foliolis multijugatis obtuſis, fructu ovali glabro. *Cedar-tree with winged leaves, compoſed of many pair of ſmall leaves or lobes, which are obtuſe, and an oval ſmooth fruit.* Cedrus Barbadenſium, alatis fraxini foliis non crenatis, fructu ſingulari, quinis involucris craſſis validis cochleato cavis, totidem ſemina membranis adaucta & columnæ canaliculatæ pentagonæ prægrandi adnata, occludentibus ornato. Pluk. Phyt. tab. 157. f. 1. *The Barbadoes Cedar-tree.*
2. Cedrus (*Mahogani*) foliis pinnatis, foliolis oppoſitis, glabris, floribus racemoſis ſparſis. *Cedar with winged leaves, whoſe lobes are ſmooth and ſtand oppoſite, and flowers growing in looſe bunches.* Arbor foliis pinnatis, nullo impari alam claudente, nervo ad latus unum excurrente fructu anguloſo magno, ſemine alato inſtar Pinûs. Cateſb. Hiſt. Carol. Vol. II. p. 181. *The Mahogany-tree.*
3. Cedrus (*Alternifolius*) foliis alternis ſimplicibus, cordato-ovatis acutis, fructu pentagono mucronato. *Cedar with ſingle leaves placed alternately, which are oval, heart-ſhaped, and acute, having a five-cornered pointed fruit.* Arbor excelſa Coryli folio ampliore. Houſt. MSS.

The firſt ſort is commonly known under the title of Cedar in the Britiſh iſlands of America, where this tree grows naturally, and is one of the largeſt trees of that country. The trunks of theſe trees are ſo large, that the inhabitants hollow them, and form them into the ſhape of boats, and periaguas, for which purpoſe they are extremely well adapted; the wood being ſoft, it may be cut out with great facility, and being light, it will carry a great weight on the water. There are canoes in the Weſt Indies, which have been formed out of theſe trunks, which are forty feet long and ſix broad; the wood is light, of a brown colour, and has a fragrant odour, from whence the title of Cedar has been given to it. This wood is frequently cut into ſhingles for covering of houſes, and is found very durable; but as the worms are apt to eat this wood, it is not proper for building of ſhips, though it is often uſed for that purpoſe, as alſo for ſheathing of ſhips. It is often uſed for wainſcoting of rooms, and to make cheſts, becauſe vermin do not ſo frequently breed in it, as in many other ſorts of wood, this having a very bitter taſte, which is communicated to whatever is put into the cheſts, eſpecially when the wood is freſh; for which reaſon it is never made into caſks, becauſe ſpirituous liquors will diſſolve part of the reſin, and thereby acquire a very bitter taſte.

This tree riſes with a ſtrait ſtem to the height of ſeventy or eighty feet, while young the bark is ſmooth, and of an Aſh-colour; but as they advance, the bark becomes rough and of a darker colour. Toward the top it ſhoots out many ſide branches, garniſhed with winged leaves, compoſed of ſixteen or eighteen pair of lobes (or ſmall leaves) ſo that they are ſometimes near three feet long; the lobes are broad at their baſe, and are near two inches long, blunt at their ends, and of a pale colour; theſe emit a very rank odour in the ſummer ſeaſon, ſo as to be very offenſive. As I have not ſeen any of theſe flowers upon the trees, I can give no deſcription of them. The fruit is oval, about the ſize of a partridge's egg, ſmooth, of a very dark colour, and opens in five parts, having a five-cornered column ſtanding in the middle, between the angles of which the winged ſeeds are cloſely placed, lapping over each other like the ſcales of fiſh.

There are ſome plants of this ſort in England, which are preſerved in the gardens of thoſe who are curious in collecting exotic plants; theſe have been raiſed from the ſeeds which have been brought from Barbadoes, but they are too tender to live in the open air in England; therefore theſe plants ſhould be treated in the ſame manner as the Mahogony next mentioned, but they are of much quicker growth; for in four years from the ſeed, I have had the plants upward of ten feet high.

I have received plants of this kind from Paris, by the title of Semiruba; but whether the root of this tree is what they uſe in medicine under that appellation, I cannot ſay. The ſeeds of this have alſo been ſent me from the French iſlands in America, by the title of Acajou Cedre.

It is propagated by ſeeds, which may be eaſily procured from the American iſlands, which muſt be ſown upon a hot-bed in the ſpring, and the plants treated in the ſame manner as the next.

The ſecond ſort is the Mahogony, whoſe wood is now well known in England.

This tree is a native of the warmeſt parts of America, growing plentifully in the iſlands of Cuba, Jamaica, and Hiſpaniola; there are alſo many of them on the Bahama Iſlands, but I have not heard of their being found in any of the Leeward Iſlands. In Cuba and Jamaica there are trees of a very large ſize, ſo as to cut into planks of ſix feet breadth; but thoſe on the Bahama Iſlands are not ſo large, though they are frequently four feet diameter, and riſe to a great height, notwithſtanding they are generally found growing upon the ſolid rocks, where there is ſcarce any earth for their nouriſhment. The wood which has been brought from the Bahama Iſlands has uſually paſſed under the appellation of Madeira wood, but there is no doubt of its being the ſame as the Mahogony. The Spaniards make great uſe of this wood for building of ſhips; for which purpoſe it is better adapted, than any other ſort of wood yet known, being very durable, reſiſting gun ſhots, and burying the ſhot without ſplintering; nor is the worm ſo apt to eat this wood as that of the Oak, ſo that for the Weſt Indies the ſhips built of Mahogony are preferable to any other.

The excellency of this wood for all domeſtic uſes, is now ſufficiently known in England; and it is matter of ſurpriſe, that the tree ſhould not have been taken notice of by any hiſtorian or traveller to this time; the only author who has mentioned this tree, is Mr. Cateſby, in his Natural Hiſtory of Carolina, and the Bahama Iſlands, before whom I believe neither the tree or the wood was taken notice of by any writer on natural hiſtory, although the wood has been many years brought to England in great quantities.

In the Weſt Indies theſe trees are of ſo quick growth, as to arrive to a large ſize in a few years; the manner of their propagation in the Bahama Iſlands, as it is deſcribed by Mr. Cateſby, is as follows: when the fruit is ripe, the outer hard ſhell or covering ſeparates at the bottom, next the foot-ſtalk, thereby expoſing the ſeeds, which are faſtened to a hard five-cornered column, ſtanding in the middle; theſe ſeeds being broad and light, are diſperſed on the ſurface of the ground, which is very rocky. Such of the ſeeds as happen to fall into the fiſſures of the rock, very ſoon ſend forth roots; and if theſe tender fibres meet with reſiſtance from the hardneſs of the rock, they creep out on the ſurface of it, and ſeek another fiſſure, into which they creep, and ſwell to ſuch a ſize and ſtrength, as to break the rock, and thereby make way for the root's deeper penetration; and by this nouriſhment from the rock, the trees grow to a large ſize in a few years.

The leaves of this tree are winged like thoſe of the Aſh, having commonly ſix or eight pair of pinnæ (or lobes) which are ſhorter and broader at their baſe than thoſe of the Aſh, where they adhere to the midrib by very ſhort foot-ſtalks; theſe lobes are very ſmooth, having but one vein running through each, which is always on one ſide, ſo as to divide them unequally. We have no perfect account of the flower of this tree; thoſe which are exhibited in Mr. Cateſby's Natural Hiſtory, were drawn from a withered imperfect fragment, which were the only remains of the flowers which could be found at the time when he was there; but the fruit he has delineated very exactly, as I have had opportunity of comparing it with ſome which have been brought to England. The entire fruit, before it opens, is of a brown colour; theſe fruit grow erect, upon foot-ſtalks, which cloſely adhere to the five-cornered column, running through the middle of the fruit, and to which the ſeeds are faſtened, lying imbricatim like ſlates on a houſe, over each other; ſo that when the fruit is ripe, the outer cover divides at the bottom into five equal parts, and when theſe fall off, and the ſeeds are diſperſed, the foot-ſtalk and the column remain ſome months after on the tree.

It is propagated by ſeeds, which may be eaſily procured from the Bahama Iſlands, from whence moſt of the good ſeeds which have come to England were brought; for moſt of theſe which have been ſent from Jamaica, although brought in their pods, have not ſucceeded; whereas, thoſe from the Bahama Iſlands, have grown as well as if they were immediately taken from the trees. The ſeeds ſhould be ſown in ſmall pots filled with light ſandy earth, and plunged into a hot-bed of tanners bark, giving them a gentle watering once a week: if the ſeeds are good, the plants will appear in five or ſix weeks; and when they are two inches high, a ſufficient number of ſmall pots ſhould be filled with light earth, and plunged into the tan-bed a day or two, that the earth may be warmed before the plants are put into the pots; then the young plants ſhould be ſhaken out of the pots, and carefully ſeparated, ſo as not to tear their roots, and each planted in a ſingle pot, being careful to ſhade them till they have taken freſh root; after which they muſt be treated in the ſame manner as other tender plants from the ſame climate, being careful not to give them much water, eſpecially in winter; as alſo when they are ſhifted, to preſerve the earth about their roots, otherwiſe they are very ſubject to periſh; for in the country where they grow naturally, they ſay it is not poſſible to remove theſe trees ſo as to live; if the plants are properly managed, they will make conſiderable progreſs. I have ſome plants now in the Chelſea garden, more than twelve feet high, which are but of eight years growth from ſeeds.

As the wood of this tree is now ſo generally uſed in England, ſo it might ſurely be worthy of the care of the planters in America, many of whom are poſſeſſed of barren rocky lands, which at preſent produce no profit; but if the ſeeds of this tree were ſown there, might turn out greatly to the advantage of their ſucceſſors, though the preſent poſſeſſors ſhould not live to enjoy the profit; but I fear there are few of the gentlemen in thoſe iſlands, who extend their thoughts ſo far, as to make proviſion for the riſing generation.

The third ſort was diſcovered by the late Dr. Houſtoun at Campeachy, from whence he ſent the ſeeds to England, which ſucceeded in ſeveral gardens; when the doctor firſt obſerved theſe trees, they were deſtitute of leaves, but were loaded with ripe fruit; and on his ſecond viſit to the place, he found the trees in full verdure, but no appearance of flowers, ſo he was at a loſs to know what genus it belonged to; but as the fruit of the trees agree exactly with thoſe of the two former ſpecies, ſo I have ventured to join it to them.

Theſe trees uſually riſe to the height of eighty feet, or upward, and divide into many large branches toward the top; garniſhed with leaves, ſomewhat reſembling thoſe of the Witch Hazel, but are broader at their baſe, and cut angular at their top; theſe are of an Aſh-colour underneath, and are ſet on the branches without any order; the fruit of this tree is much larger than that of the Barbadoes Cedar, being broad at the baſe, and diminiſhing gradually to the top, where it terminates in a point, being upwards of two inches long; this has alſo a column, or woody core, running lengthways through the fruit, to which the winged ſeeds adhere as in the two former; but as both their fruit are ſmooth on the outſide, this differs from them, in having five angles running from the baſe upward; at each angle the fruit, when ripe, ſeparates, and expoſes the winged ſeeds, which are diſperſed by the winds.

We have no account of the wood of this tree, whether it is ever uſed in buildings, or other purpoſes, as there have been few perſons of any curioſity in that country, the cutters of Logwood being the chief people who inhabit there, from whom there can be little known of the produce. The plants which have been raiſed from the ſeeds in England, have made great progreſs for the two firſt years, but afterward were but ſlow of growth; for, in ſix years more, they did not ſhoot ſo much as in the firſt year from the ſeed, when they grew more than three feet high. I made ſeveral trials to propagate the trees by cuttings and layers, but without ſucceſs; ſo that by ſeeds, ſeems to be the only method of having them; theſe may be raiſed and managed in the ſame manner as the two foregoing ſorts, and with them conſtantly kept in the bark-ſtove.

CEDAR of BERMUDAS. }
CEDAR of CAROLINA. } See Juniperus.
CEDAR of JAMAICA. See Theobroma.
CEDAR of LIBANUS. See Larix.
CEDAR of LYCIA. }
CEDAR of PHŒNICIA. } See Juniperus.
CEDAR of VIRGINIA. }
CEIBA. See Bombax.

CELASTRUS. Lin. Gen. Plant. 392. Euonymoides. Iſnard. Ac. R. Sc. 1716. The Staff-tree.

The Characters are,

The flower hath a ſmall one leaved empalement, cut into five unequal blunt parts. The flower hath five oval petals, which are equal, and ſpread open. It hath five ſtamina as long as the petals, terminated by ſmall ſummits, and a ſmall germen with a large receptacle, marked with ten deep channels, ſupporting a ſhort ſtyle crowned with an obtuſe trifid ſtigma. The germen afterward becomes an oval, blunt, three-cornered capſule, opening in three cells, each containing an oval ſmooth ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, from the flower having five ſtamina and one ſtyle.

The Species are,

1. Celastrus (*Bullatus*) inermis, foliis ovatis integerrimis. Lin. Sp. Plant. 196 *Smooth Staff-tree with oval entire leaves.* Euonymus Virginianus, rotundifolius capſulis Coccineis eleganter bullatis. Pluk. Alm. 139.
2. Celastrus (*Scandens*) inermis, caule volubili foliis ſerrulatis. Lin. Sp. Plant. 285. *Smooth Staff-tree with a twining ſtalk, whoſe leaves are ſlightly ſawed.* Euonymoides Canadenſis ſcandens foliis ſerratis. Iſnard. Ac. Reg. 1716.
3. Celastrus (*Pyracanthus*) ſpinis nudis, ramis teretibus, foliis acutis. Hort. Cliff. 72. *Staff-tree with naked ſpines, taper branches, and pointed leaves.* Lycium Æthiopicum pyracanthæ foliis. Hort. Amſt. 1. p. 163.
4. Celastrus (*Buxifolius*) ſpinis folioſis, ramis angulatis, foliis obtuſis. Hort. Cliff. 73. *Staff-tree with leaves on the ſpines, angular branches, and obtuſe leaves.* Lycium Portoricenſe, Buxi foliis anguſtioribus. Pluk. Alm. 234. tab. 202. f. 3.
5. Celastrus (*Myrtifolius*) inermis, foliis ovatis ſerrulatis, floribus racemoſis caule erecto. Hort. Cliff. 72. *Staff-tree without ſpines, oval ſawed leaves, flowers in long bunches, and an erect ſtalk.* Myrtifolia arbor, foliis latis ſubrotundis, flore albo. Sloan. Hiſt. Jam. 2. p. 79. tab. 193.

The firſt ſort grows naturally in Virginia, and many other parts of North America, where it riſes to the height of eight or ten feet; but in England there are few of them much more than half that height. It generally puts out two or three ſtems from the root, which divide upward into ſeveral branches, covered with a brown bark, garniſhed with leaves near three inches long, and two broad, which are placed alternately on the branches; the flowers come out in looſe ſpikes at the end of the branches; theſe are white, made up of five oval petals, with a germen in the center, attended by five ſtamina: when the flowers fall off, the germen ſwells to a three-cornered capſule, of a ſcarlet colour, ſet full of ſmall protuberances; this opens in three cells, each containing a hard oval ſeed, covered with a thin red pulp. This ſhrub flowers in July, but rarely produces good ſeeds in England.

It is propagated here by layers, which will take root in one year; the young branches only are proper for this purpoſe, ſo that where there is not any of theſe near the ground, the main ſtalks ſhould be drawn down, and faſtened with pegs to prevent their riſing, and the young ſhoots from them ſhould be laid. The beſt time for doing this is in autumn, when they begin to caſt their leaves, and by that time twelvemonth they will be ſufficiently rooted, when they ſhould be cut from the old plant, and planted in a nurſery for two or three years to get ſtrength; after which they muſt be removed to the places where they are to remain. This ſhrub grows naturally in moiſt places, ſo will not thrive well in a dry ſoil. It is very hardy, and bears the cold of our winters very well. It is alſo propagated by ſeeds, which are frequently brought from America; but as theſe rarely arrive here time enough to ſow before the ſpring, ſo the plants never come up the firſt year; therefore the ſeeds may be ſown either in pots, or in a bed of loamy earth, keeping them clean from weeds during the ſummer; and thoſe in the pots ſhould be placed in the ſhade till the autumn, when the pots ſhould be either plunged into the ground in a warm ſituation, or placed under a common frame, to prevent the froſt from penetrating through the ſide of the pots; and if the ſurface of thoſe which are plunged in the ground, and alſo the bed where the ſeeds are ſown are lightly covered with ſome old tan from a decayed hot-bed, it will ſecure the ſeeds from being hurt by ſevere froſts. In the ſpring the plants will come up, which muſt be kept clean from weeds, and, if the ſeaſon proves dry, they ſhould have water now and then, which will greatly forward their growth. If the plants make good progreſs the firſt ſummer, they may be tranſplanted into a nurſery in autumn, otherwiſe they ſhould remain in the ſeed-bed till the ſecond year, when they may be treated in the ſame manner as the layers.

The ſecond ſort ſends out ſeveral ligneous ſtalks from the root, which are flexible, and twiſt themſelves about whatever trees and ſhrubs grow near them, or when they are at a diſtance from ſuch ſupport, they twine about each other, and riſe to the height of twelve or fourteen feet; but when they faſten themſelves about trees they will grow much taller, but wherever this happens, their branches girt the trees ſo cloſely, as in a few years will deſtroy them. Theſe are garniſhed with leaves about three inches long, and near two broad, which are ſawed on their edges, and placed alternately on the branches; they are of a lively green above, and paler on their under ſide, having ſeveral tranſverſe nerves from the middle to the ſide. The flowers are produced in ſmall bunches toward the end of the branches, which are of an herbaceous colour, compoſed of five roundiſh petals; theſe are ſucceeded by roundiſh three-cornered capſules, which are red when ripe, ſpread open in three cells, diſcloſing the ſeeds in the ſame manner as our common Spindle-tree. This flowers about the beginning of June, and the ſeeds ripen in autumn. The ſeeds of this ſort generally ripen well in England, and the plants may be propagated from the ſeeds, or by layers, in the ſame manner as the former ſort; it delights in a ſtrong loamy ſoil, rather moiſt than dry, and will grow in woods among other trees and ſhrubs, where, when the fruit is ripe, they make a pretty appearance. It grows naturally all over North America, and is extremely hardy.

The third ſort is a native of Ethiopia, from whence the ſeeds were firſt brought to the gardens in Holland, where the plants were propagated, and have been ſince communicated to moſt of the curious gardens in Europe. This riſes with an irregular ſtalk about three or four feet high, ſending out ſeveral ſide branches, covered with brown bark, garniſhed with leaves about two inches long, and more than half an inch broad, ſome of which are pointed, and others are obtuſe; they are ſtiff, of a lucid green, and come out irregular from the branches; theſe continue green through the year. The flowers are produced from the ſides of the branches in looſe tufts, many of them ariſing from one point, ſtanding upon long footſtalks; they are of an herbaceous white colour, compoſed of five petals, which ſpread open, and five ſpreading ſtamina, which ſurround a ſwelling germen, ſupporting a tapering ſtyle, crowned by an obtuſe trifid ſtigma; the germen afterward becomes an oval fruit, of a fine red colour, which opens in three cells, containing one oblong hard ſeed, the other two cells being generally empty.

This plant is commonly propagated by cuttings in Europe, which is more expeditious than raiſing them from ſeeds, becauſe the ſeeds rarely come up the firſt year. The cuttings may be planted any time in ſummer; but thoſe which are planted early, will have more time to get ſtrength before winter. They ſhould be planted in ſmall pots, which will contain four cuttings in each; the earth of a kitchen garden, which is well cultivated, is as good as any for this purpoſe. The pots ſhould be then plunged into a moderate hot-bed, and ſhaded from the ſun every day, and gently refreſhed with water now and then; when they have taken root they muſt be gradually expoſed to the open air, and then placed in a ſheltered ſituation till they have obtained ſtrength, when they ſhould be ſeparated, and planted each in a ſmall pot filled with the ſame earth, then placed in the ſhade till they have taken freſh root; after which they may be placed with other exotic plants in a ſheltered ſituation till autumn, when they muſt be houſed with Myrtles, and other hardy green-houſe plants, and will require the ſame treatment.

This plant has been titled African Barberry by ſome ignorant perſons, I ſuppoſe from the reſemblance of its fruit to that of the Barberry.

The fourth ſort grows naturally at the Cape of Good Hope, from whence I received the ſeeds. This riſes with a ſlender ligneous ſtalk to the height of ten or twelve feet, covered with a light Aſh-coloured bark, and full of joints, which are armed with long ſpines, upon which grow many ſmall leaves; the branches are ſlender, and armed with the ſame ſpines at every joint, but the whole plant is ſo weak, as to require ſome ſupport, without which they would fall to the ground. The leaves come out in cluſters without any order, which are ſhaped ſomewhat like thoſe of the narrow-leaved Box-tree, but are longer, and of a looſe texture; the branches are angular, and when young their bark is whitiſh. As I have not ſeen the flowers of this ſhrub, I can give no farther deſcription of it.

This riſes very eaſily from ſeeds, and the plants make great progreſs; for I have raiſed them four feet high in two years from ſeeds, without any artificial heat; and ſome of the plants have lived thro' two winters againſt a ſouth-eaſt wall, but theſe have ſhed their leaves in winter, whereas thoſe which were removed into the green-houſe have retained their verdure through the year.

It may be propagated by cuttings, which ſhould be planted in the ſpring, and treated in the ſame manner as hath been directed for the former ſort; or if the young ſhoots are laid, they will take root in one year, and may then be tranſplanted either into pots, or againſt a good aſpected wall, where I find they will endure our ordinary winters without any protection; and if they are covered in ſevere froſts, they may be brought, when old, to live abroad without protection. Thoſe in pots will require a little ſhelter in winter, but ſhould not be tenderly treated, for that will cauſe them to have weak branches, nor will the leaves have ſo much verdure, as when they are expoſed to the open air in mild weather.

The fifth ſort grows naturally in Jamaica, and alſo in ſome of the other iſlands in the Weſt Indies, where it riſes to the height of eighteen or twenty feet, ſending out many ſide branches, garniſhed with leaves ſomewhat like thoſe of the broad-leaved Myrtle, which are ſlightly ſawed on their edges; the flowers come out from the ſide of the branches in long bunches; they are white, and compoſed of five petals, having five ſtamina placed oppoſite to them, and a germen in the center which is channelled; this afterward becomes a fruit, having five cells, each incloſing an oblong ſeed.

This plant is at preſent rare in England, for the ſeeds ſeldom grow the firſt year; therefore when the ſeeds arrive here, they ſhould be ſown in ſmall pots filled with light earth, and plunged into a tan-bed, where they ſhould remain till the following ſpring, when they ſhould be plunged into a freſh hot-bed of tanners bark; and if the pots are duly watered, the plants will appear in about a month after; when theſe are fit to remove, they ſhould be planted into ſeparate ſmall pots, and plunged again into the tan-bed, being careful to water and ſhade them till they have taken new root, after which they ſhould be treated in the ſame manner as other tender plants from the ſame countries.

CELERY or **SALARY**. See APIUM.

CELLS of plants [of Cellæ, *Lat.*] are thoſe partitions or hollow places in the huſks or pods of plants, in which the ſeed is contained.

CELOSIA. Lin. Gen. Plant. 255. Amaranthus. Tourn. Inſt. R. H. 234. tab. 118. Amaranth.

The Characters are,

The empalement is permanent, and compoſed of three dry coloured leaves. The flower hath five erect ſharp-pointed petals, which are permanent, ſtiff, and ſhaped like a flower-cup. It hath a ſmall nectarium joined to the border of the germen, to which adhere the five ſtamina, which are terminated by turning ſummits. The globular germen ſupports an upright ſtyle, which is as long as the ſtamina, crowned with a ſingle ſtigma. The empalement afterward becomes a globular capſule with one cell opening horizontally, containing roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Celosia (*Margaritacea*) foliis ovatis ſtipulis falcatis, pedunculis angulatis, ſpicis ſcarioſis. Lin. Sp. Plant. 297. *Celoſia with oval leaves, a faulchion-ſhaped ſtipula, and a rough ſpike.* Amaranthus ſpicâ albeſcente habitiore. Martyn. Cent. 1. p. 7.
2. Celosia (*Criſtata*) foliis lanceolato-ovatis recurvis ſubundatis pedunculis angulatis, ſpicis oblongis criſtatis. Lin. Sp. 297. *Celoſia with oval ſpear-ſhaped leaves, angular foot-ſtalks, and oblong creſted ſpikes of flowers.* Amaranthus criſtatus. Camer. Epit. 792. *Creſted Amaranth, commonly called Cockſcomb.*
3. Celosia (*Paniculata*) foliis lanceolato-ovatis, paniculâ diffuſâ filiformi. Flor. Virg. 144. *Celoſia with oval ſpear-ſhaped leaves, and a ſlender diffuſed panicle.* Amaranthus paniculâ flavicante gracili holoſericeâ. Sloan. Hiſt. 1. p. 142. tab. 90.
4. Celosia (*Coccinea*) foliis ovatis ſtrictis inauriculatis, caule ſulcato, ſpicis multiplicibus criſtatis. Lin. Sp. 297. *Celoſia with oval leaves, a furrowed ſtalk, and many creſted ſpikes of flowers.* Amaranthus panicula ſpecioſa criſtata. C. B. P. 121.
5. Celosia (*Caſtrenſis*) foliis lanceolato-ovatis lineatis acuminatiſſimis, ſtipulis falcatis, ſpicis criſtatis. Lin. Sp. 297. *Celoſia with oval, linear, ſpear-ſhaped, acute-pointed leaves, and creſted ſpikes of flowers.* Amaranthus vulgaris. Rumph. Amb. 5. p. 236.
6. Celosia (*Lanata*) foliis lanceolatis tomentoſis obtuſis, ſpicis confertis, ſtaminibus lanatis. Flor. Zeyl. 102. *Celoſia with ſpear-ſhaped, obtuſe, woolly leaves, and many ſpikes of flowers having downy ſtamina.*

The firſt ſort here mentioned, grows naturally in America, from whence I have frequently received the ſeeds. This riſes with an upright ſtalk about two feet high, garniſhed with oval leaves ending in points, of a pale colour; thoſe on the lower part being four or five inches long, and one and a half broad in the middle, but they diminiſh gradually in their ſize upward. Toward the upper part of the ſtalk, there are a few ſide branches ſent out which ſtand erect; each of which is terminated by a ſlender ſpike of flowers, and the principal ſtalk is terminated by one which is much larger; this is two or three inches long, and about as thick as a man's middle finger, the whole ſpike being of a ſilvery colour. But there is a variety of this with ſlender pyramidal ſpikes, intermixed with red toward the top, the ſeeds of which I received from Dr. Linnæus, by the above title; but I am inclinable to think it is different from that which was figured by Dr. Martyn in his Decades of rare plants, which I have cultivated many years in the Chelſea garden, and have never found it to vary. The ſpike of this is much thicker than that of Linnæus's, and of equal ſize the whole length; whereas his diminiſhes almoſt to a point at the top, and the colours of both are very different. This ſort is annual like the other Amaranths, and requires the ſame culture.

The ſecond ſort is well known by its common appellation of Cockſcomb, which was given to it from the form of its creſted head of flowers reſembling a Cockſcomb; of this there are many varieties, which differ in their form, magnitude, and colours; but as they vary from ſeeds, they are not enumerated as diſtinct ſpecies. I have raiſed great varieties of theſe from ſeeds which came from China, and other countries, but have generally found them alter in a few years, notwithſtanding great care has been taken in the ſaving of their ſeeds: the principal colours of their heads are red, purple, yellow, and white; but I have had ſome, whoſe heads have been variegated with two or three colours. I alſo raiſed ſome from ſeeds which I received from Perſia, whoſe heads were divided like a plume of feathers, which were of a beautiful ſcarlet colour, but theſe in a few years degenerated: therefore I ſhall include all the different varieties of Cockſcomb, under this general title.

The ſeeds of the third ſort were ſent me from Jamaica by the late Dr. Houſtoun. This grows naturally in moſt of the Sugar Iſlands. It riſes with a weak ſtalk near four feet high, garniſhed with oblong pointed leaves, which ſtand oppoſite at each joint. The flowers come out in looſe panicles from the ſide of the ſtalks, and alſo at the end of the branches: theſe are divided into a great number of very ſlender ſpikes, which are of a pale yellow, ſhining with a gloſs like ſilk. The plants of this periſhed in the autumn, without perfecting their ſeeds.

The fourth ſort I received from China; this hath a furrowed ſtalk, which riſes three or four feet high, garniſhed with oval leaves which are not eared at their baſe; the ſtalk is terminated by ſeveral ſpikes of flowers which are variouſly formed, ſome being creſted, others are plumed like feathers, of a bright ſcarlet colour, ſo make a good appearance; but the ſeeds of this when carefully ſaved, are apt to degenerate.

The fifth ſort is of humbler growth, the leaves are oval, ſpear-ſhaped, ending in very acute points; the branches proceed from the wings of the leaves, almoſt the length of the ſtalk, and are terminated by ſlender ſpikes of flowers of no great beauty, therefore the plant is preſerved as a variety in the botanic gardens.

The ſixth ſort grows naturally in Ceylon; it riſes with a very white woolly ſtalk from two to three feet high, garniſhed with obtuſe, ſpear-ſhaped, woolly leaves; from the upper part of the ſtalk come out two or three ſlender ſide branches, which (as alſo the principal ſtalk) are terminated by woolly ſpikes of flowers: theſe flowers are ſo cloſely wrapped up in their woolly empalements, as to be ſcarce viſible to the naked eye, ſo they make no appearance; but the extreme whiteneſs of the ſtalk, leaves, and ſpikes, make a pretty variety among other tender plants during their continuance.

This plant is tender; the ſeeds ſhould be ſown in the ſpring upon a hot-bed, and the plants ſhould be treated in the ſame way as is directed for the Cockſcombs; but when the plants are fully grown, they ſhould be removed into an airy glaſs-caſe, where they may be ſcreened from cold and wet, but have free air admitted to them in warm weather, otherwiſe they will not perfect their ſeeds in this country.

In order to have large fine Amaranths, great care ſhould be taken in the choice of the ſeeds; for if they are not carefully collected, the whole expence and trouble of raiſing them will be loſt. When you are provided with good ſeeds, they muſt be ſown on a hot-bed (which ſhould have been prepared a few days before, that the violent heat may be abated) about the beginning of March; and in about a fortnight's time (if the bed is in good temper) the plants will riſe; but as they are tender when they firſt appear, they require great care for a few days till they get ſtrength; firſt, in giving them a due proportion of air, to prevent their drawing up weak; and next to keep them from too great moiſture, for a ſmall ſhare of moiſture will cauſe their tender ſtems to rot: in ſowing the ſeeds, there ſhould be care taken not to put them too cloſe, for when the plants come up in cluſters, they frequently ſpoil each other for want of room to grow: in a fortnight or three weeks time the plants will be fit to remove, when you muſt prepare another hot-bed, covered with good rich light earth, about four inches thick; which ſhould be made a few days, that it may have a proper temperature of heat; then raiſe up the young plants with your finger, ſo as not to break off the tender roots, and prick them into the new hot-bed about four inches diſtance every way, giving them a gentle watering to ſettle the earth to their roots: but in doing this, be very cautious not to bear the young plants down to the ground by haſty watering, which rarely riſe again, or at leaſt ſo as to recover their former ſtrength in a long time, but very often rot in the ſtems, and die quite away.

After the plants are thus planted, they muſt be ſcreened from the ſun till they have taken freſh root; but as there is generally a great ſteam riſing from the fermentation of the dung, which condenſes to wet againſt the glaſſes, and this dropping upon the plants, very frequently deſtroys them; ſo the glaſſes ſhould be frequently turned in the day-time, whenever the weather will permit; but if the weather happens to prove bad, that you cannot turn your glaſſes, it will be of great ſervice to your plants, to wipe off all the moiſture two or three times a day with a woollen cloth, to prevent its dropping upon the plants. When your plants are firmly rooted, and begin to grow, you muſt obſerve to give them air every day (more or leſs, as the weather is cold or hot) to prevent their drawing up too faſt, which greatly weakens their ſtems.

In about a month or five weeks theſe plants will have grown ſo as to meet; therefore ſhould have another hot-bed, which ſhould be of a moderate temper, and covered with the ſame rich earth about ſix inches thick, in which they ſhould be planted (obſerving to take them up with as much earth about their roots as poſſible) at ſeven or eight inches diſtance every way, giving them ſome water to ſettle the earth about their roots; but be very careful not to water them heavily, ſo as to bear down the plants, (as was before directed) and keep them ſhaded in the heat of the day, until they have taken freſh root; and be ſure to refreſh them often (but gently) with water, and give them air in proportion to the heat of the weather, covering the glaſſes with mats every night, leſt the cold chill your beds, and ſtop the growth of the plants.

In the middle of May you muſt provide another hot-bed, which ſhould be covered with a deep frame, that your plants may have room to grow: upon this hot-bed, you muſt ſet as many three-penny pots as can ſtand within the compaſs of the frame; theſe pots muſt be filled with good rich earth, and the cavities between each pot filled up with any common earth, to prevent the heat of the bed from evaporating, and filling the frame with noxious ſteams; then, with a trowel, or ſome ſuch inſtrument, take up your plants (from the former hot-bed) with as much earth as poſſible to the roots, and place each ſingle plant in the middle of one of the pots, filling the pot up with the earth before deſcribed, and ſettle it cloſe to the root of the plant with your hands; water them gently, as before, and ſhade them in the heat of the day from the violence of the ſun, by covering the glaſſes with mats; refreſh them often with water, and give them a good quantity of air in the day-time.

In about three weeks more, theſe plants will have grown to a conſiderable ſize and ſtrength, ſo that you muſt now raiſe the glaſſes very much in the day-time; and when the air is ſoft and the ſun is clouded, draw off the glaſſes, and expoſe them to the open air, and repeat this as often as the weather will permit; which will harden them by degrees, to be removed abroad into the places where they are to remain the whole ſeaſon: but it is not adviſable to ſet theſe plants out until a week in July, obſerving to do it when the air is perfectly ſoft, and if poſſible, in a gentle ſhower of rain. Let them at firſt be ſet near the ſhelter of a hedge for two or three days, where they may be ſcreened from the violence of the ſun, and ſtrong winds, to which they muſt be inured by degrees: theſe plants, when grown to a good ſtature, perſpire very freely, and muſt be every day refreſhed with water, if the weather proves hot and dry; otherwiſe they will ſtunt, and never produce their plumes ſo fine as they would do if taken care of.

This is the proper management, in order to have fine Amaranths; which, if rightly followed, and the kinds are good, in a favourable ſeaſon, will produce wonderful large fine heads, and are the greateſt ornament to a good garden for upwards of two months: by this method, I have had plants five or ſix feet high, with creſts near a foot in breadth; and I am perſuaded, if the kind is good, (and there is no want of dung, or conveniencies) in a kindly ſeaſon, they will grow much larger.

By the middle or latter end of September, the Amaranths will have perfected their ſeeds, ſo that you muſt make choice of the largeſt, moſt beautiful, and leaſt branching plants of each kind for ſeed; which you ſhould remove under ſhelter, (eſpecially if the weather proves wet, or the nights froſty) that the ſeeds may be perfectly ripened; in the choice thereof, be ſure never to take any ſeeds from ſide branches, nor from the neck of the plume, but ſuch only as are produced in the middle thereof, which in many plants, perhaps, may be but a ſmall quantity; but I do aſſure you, it is thoſe only you can depend upon, to have your kinds good the ſucceeding year.

CELSIA. Lin. Gen. Plant. 675. The name was given to this plant in honour of Dr. Olaus Celſius, profeſſor of philoſophy and theology in the univerſity of Upſal, in Sweden, by Dr. Linnæus. We have no Engliſh name for it.

The CHARACTERS are,

It hath an obtuſe permanent empalement, which is as long as the petal, divided at the top into five parts. The flower is of one leaf, with a very ſhort tube, ſpread open above, and cut into five unequal parts; the two upper being ſmall, and the under larger. It hath four hairy ſtamina, which incline toward the upper ſegments of the petal, two of which are longer than the petal, and two are of the ſame length, terminated by ſmall roundiſh ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſlender ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a roundiſh capſule compreſſed at the top, ſitting upon the empalement, having two cells which are filled with ſmall angular ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhort ſtamina, and the ſeeds being included in a capſule.

There is but one SPECIES of this genus at preſent known, which is,

CELSIA (*Orientalis*) foliis duplicato-pinnatis. Hort. Cliff. 321. *Celſia with double winged leaves.* Verbaſcum orientale Sophiæ folio. Tourn. Cor. 8. *Eaſtern Mullein with a Flixweed leaf.*

This plant grows naturally in Armenia, from whence Dr. Tournefort ſent the ſeeds to the royal garden at Paris, where they ſucceeded, and have been ſince communicated to moſt parts of Europe. In its natural place of growth, this is an annual; but in England it will rarely ripen its ſeeds, unleſs the plants come up in the autumn and live through the winter.

It ſends out many oblong leaves, which are finely divided almoſt to the mid-rib on both ſides; theſe lie flat on the ſurface of the ground, and from the center ariſes a roundiſh herbaceous ſtalk near two feet high, garniſhed the whole length with leaves of the ſame ſhape, but diminiſhing in their ſize gradually to the top: theſe are placed alternately, and at the foot-ſtalk of each come out the flowers, more than half the length of the ſtalk, which are of an iron colour on their outſide, but pale yellow within, ſpreading

ing open like thoſe of the common Mullein, but are not ſo regular; the ſhort tube being turned downward, and the lower ſegments being larger than the upper, and the ſtamina being unequal, have occaſioned Linnæus to remove it to his ringent flowers. The ſeed-veſſel is round, compreſſed, and hath two cells filled with ſmall ſeeds. It flowers in June, and the ſeeds ripen in September: if the ſeeds of this plant are ſown upon a warm dry border as ſoon as they are ripe, the plants will often come up and live through the winter, provided the ſoil is poor; for in rich ground they are apt to grow rank, and then they are generally deſtroyed by the early froſts, or will rot with much wet; but if the plants ſhould not riſe the ſame autumn, there will be little hazard of their growing the following ſpring. When the plants come up, they will require no other care but to keep them clean from weeds, and thin them if they are too cloſe; for they do not bear removing well, ſo ſhould be ſown where they are intended to remain.

I have ſometimes, when the ſeaſons have proved warm, had ripe ſeeds from plants ſown in the ſpring; but this cannot be depended on, therefore it is much better to ſow the ſeeds in autumn.

CELTIS. Tourn. Inſt. R. H. 612. tab. 383. Lin. Gen. Plant. 1012. The Lote or Nettle-tree, in French Micocoulier.

The CHARACTERS are,

It hath male and hermaphrodite flowers on the ſame tree: the hermaphrodite flowers are ſingle, and ſituated above the male. The empalement of the hermaphrodite flower is divided into five parts, in which there are no petals, but five ſhort ſtamina terminated by thick quadrangular ſummits, which have four furrows. In the center is ſituated an oval germen, ſupporting two reflexed ſtyles crowned by a ſingle ſtigma. The germen afterward becomes a round berry with one cell, incloſing a roundiſh nut. The male flowers have their empalements divided into ſix parts, and have no germen or ſtyle, but in other parts like the hermaphrodite.

This genus of plants is ranged in the firſt ſection of Linnæus's twenty-third claſs, intitled Polygamia Monœcia, from the ſame tree having male and hermaphrodite flowers.

The SPECIES are,

1. CELTIS (*Auſtralis*) foliis lanceolatis acuminatis, ſerratis, nervoſis. *Nettle-tree with ſpear-ſhaped pointed leaves, which are veined and ſawed on their edges.* Celtis fructu nigricante. Tourn. Inſt. 612. *Lote-tree with a black fruit.*
2. CELTIS (*Occidentalis*) foliis obliquè-ovatis, ſerratis, acuminatis. Lin. Sp. Plant. 1044. *Nettle-tree with oblique, oval, pointed leaves, which are ſawed on their edges.* Celtis fructu obſcurè purpuraſcente. Inſt. R. H. 612. *Lote-tree with a dark purple fruit.*
3. CELTIS (*Orientalis*) foliis ovato-cordatis, denticulatis, petiolis brevibus. *Nettle-tree with oval heart-ſhaped leaves, ſlightly indented, and ſhort foot-ſtalks.* Celtis orientalis minor, foliis minoribus & craſſioribus, fructu flavo. Inſt. Cor. 42. *Smaller Eaſtern Lote-tree with ſmaller and thicker leaves, and a yellow fruit.*
4. CELTIS (*Americana*) foliis oblongo-ovatis, obtuſis, nervoſis, ſupernè glabris, ſubtus aureis. *Nettle-tree with oblong, obtuſe, nervous leaves, which are ſmooth on their upper ſurface, and of a gold colour beneath.* Celtis foliis citrii ſubtus aureo, fructu rubro. Plum. Cat. 18. *Lote-tree with Citron leaves, of a gold colour on their under ſide, and a red fruit.*

The firſt ſort grows naturally in the ſouth of France, in Spain and Italy, where it is one of the largeſt trees of thoſe countries: yet this is not ſo plenty in England as the ſecond, nor do I remember to have ſeen but two large trees of this ſort in the Engliſh gardens; one of which was formerly growing in the Biſhop of London's garden at Fulham, but was cut down ſome years paſt, with many other curious exotic trees, which were there growing in great perfection: the other was in the garden of Dr. Uvedale at Enfield, which was there ſtanding a few years ago, when I paid a viſit to that place, which had frequently produced fruit, but was never propagated in this country; nor were there any young plants of this kind in the garden, till about fourteen years ago, when I procured a good quantity of the fruit from Italy, which I communicated to ſeveral of my friends.

This tree riſes with an upright ſtem to the height of forty or fifty feet, ſending out many ſlender branches upward, which have a ſmooth dark coloured bark, with ſome ſpots of gray; theſe are garniſhed with leaves placed alternately, which are near four inches long, and about two broad in the middle, ending in long ſharp points, and deeply ſawed on their edges, having ſeveral tranſverſe veins which are prominent on their under ſide. The flowers come out from the wings of the leaves all along the branches; they have a male and an hermaphrodite flower generally at the ſame place, the male flowers being ſituated above the others: theſe have no petals but a green herbaceous empalement, ſo make no figure; they come out in the ſpring, at the ſame time when the leaves make their firſt appearance, and generally decay before the leaves have grown to half their magnitude. After the flowers are paſt, the germen of the hermaphrodite flowers become a round berry about the ſize of a large Pea, which, when ripe, is black.

The ſecond ſort grows naturally in North America; it delights in moiſt rich ſoil, in which it becomes a very large tree. This riſes with a ſtrait ſtem, which in young trees is ſmooth and of a dark colour, but as they advance, it becomes rougher and of a lighter green. The branches are much diffuſed on every ſide, and are garniſhed with oblique oval leaves, ending in points, ſawed on their edges; they are placed alternately on the branches, with pretty long foot-ſtalks. The flowers come out oppoſite to the leaves, upon pretty long foot-ſtalks; the male flowers ſtanding above the hermaphrodite as in the other ſpecies; after theſe decay, the hermaphrodite flowers are ſucceeded by roundiſh berries, which are ſmaller than thoſe of the firſt ſort, and when ripe, are of a dark purple colour. This tree flowers in May, and the ſeeds ripen in October. Of this ſort there are ſeveral pretty large trees in the Engliſh gardens, ſome of which produce great quantities of fruit annually, which in favourable ſeaſons come to maturity, ſo that from theſe ſeeds there have been plants raiſed; and there are few years, in which there is not fruit of this ſort ſent from America, whereby it is now become pretty common in the Engliſh nurſeries.

This tree is late in coming out in the ſpring, but in recompenſe for that, it continues as long in beauty in the autumn, for it is the lateſt in fading of any of the deciduous trees; nor do the leaves alter their colour long before they fall, but continue in full verdure till within a few days of their dropping off; and, ſo ſoon as they begin to fall, the trees will in a few days be quite deſtitute of leaves, ſo that the litter which their falling leaves occaſion, may be ſooner cleared away, than that of any other deciduous tree. There is little beauty in the flowers or fruit of this tree; but, as the branches are well clothed with leaves, which are of a fine green colour, the trees, when mixed with others in wilderneſſes, make a pleaſing variety during the ſummer ſeaſon. The wood of this tree being tough and pliable, is eſteemed by coachmakers for the frames of their carriages.

The third ſort was diſcovered by Dr. Tournefort in Armenia, from whence he ſent the fruit to the royal garden at Paris, where they ſucceeded, and the trees, which were there raiſed, have produced fruit for ſeveral years, ſo that moſt of the curious gardens in Europe have been furniſhed with it from thence.

It riſes with a ſtem about ten or twelve feet high, dividing into many branches, which ſpread horizontally on every ſide, having a ſmooth greeniſh bark, garniſhed with leaves about an inch and a half long, and near an inch broad, inclining to a heart-ſhape, but are oblique, one of the ears of the baſe being ſmaller and lower than the other; they are of a thicker texture than thoſe of the common ſort, and of a paler green, placed alternate on the branches, and have ſhort foot-ſtalks. The flowers come out from the foot-ſtalks of the leaves, in the ſame manner as the former, and are ſucceeded by oval yellow berries, which, when fully ripe, turn of a darker colour. The wood of this tree is very white.

Theſe trees are all propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, when they can be procured at that ſeaſon, for theſe frequently come up the following ſpring; whereas, thoſe which are ſown in the ſpring, will not come up till a twelvemonth after: therefore it is the beſt way to ſow them in pots or tubs, that they may be eaſily removed, for thoſe which are ſown in the ſpring ſhould be placed in a ſhady ſituation in ſummer, and conſtantly kept clean from weeds; but in autumn they ſhould be placed in a warm ſituation, plunging the pots into the ground; and if they are covered over with a little tan from a decayed hot-bed, it will prevent the froſt from penetrating the earth to injure the ſeeds; and if theſe pots are placed on a gentle hot-bed in the ſpring, it will greatly forward the vegetation of the ſeeds, whereby the plants will have more time to get ſtrength before the winter: but when the plants appear above ground they muſt have a large ſhare of air admitted to them, otherwiſe they will draw up weak; and as ſoon as the weather is warm, they muſt be expoſed to the open air, and in ſummer they muſt be conſtantly kept clean from weeds; if the ſeaſon proves dry, they will require water two or three times a week. In autumn it will be proper to remove the pots, and place them under a hot-bed frame, to ſhelter them in winter from ſevere froſt; or where there is not that conveniency, the pots ſhould be plunged into the ground near a wall or hedge; and as the plants, when young, are full of ſap, and tender, the early froſts in autumn frequently kill the upper part of the ſhoots; therefore the plants ſhould be either covered with mats, or a little ſtraw or Peaſe-haulm laid over them to protect them.

In the following ſpring the plants ſhould be taken out of the ſeed-pots, and planted in the full ground: this ſhould be done about the middle or latter end of March, when the danger of the froſt is over; therefore a bed or two ſhould be prepared (according to the number of plants raiſed) in a ſheltered ſituation, and, if poſſible, in a gentle loamy ſoil. The ground muſt be well trenched, and cleared from the roots of bad weeds, and when levelled, ſhould be marked out in lines at one foot diſtance; then the plants ſhould be carefully turned out of the pots and ſeparated, ſo as not to tear their roots, and planted in the lines at ſix inches aſunder, preſſing the earth down cloſe to the roots. If the ground is very dry when they are planted, and there is no appearance of rain ſoon, it will be proper to water the beds, to ſettle the ground to the roots of the plants; and after this, if the ſurface of the ground is covered with ſome old tan or rotten dung, it will keep it moiſt, and prevent the drying winds from penetrating to the roots of the plants.

The following ſummer, the neceſſary care muſt be to keep them conſtantly clean from weeds; but after the plants are pretty well eſtabliſhed in the ground, they will not require any water, eſpecially toward the latter end of ſummer, for that will occaſion their late growth, whereby they will be in great danger of ſuffering by the autumn froſts; for the more any of theſe young trees are ſtopped in their growth by drought towards autumn, the firmer will be their texture, ſo better able to bear the cold.

The plants may remain in theſe nurſery-beds two years, by which time they will have obtained ſufficient ſtrength to be tranſplanted where they are deſigned to remain for good, becauſe theſe plants extend their roots wide every way; ſo that if they ſtand long in the nurſery, their roots will be cut in removing, which will be a great prejudice to their future growth.

Theſe ſorts are hardy enough to thrive in the open air in England, after they are become ſtrong; but for the two firſt winters after they come up from ſeeds, they require a little protection, eſpecially the third ſort, which is tenderer than either of the former. The young plants of this ſort frequently have variegated leaves, but thoſe are more impatient of cold than the plain leaved.

The fourth ſort was firſt diſcovered by father Plumier, in the French iſlands of America; and it was found growing in Jamaica, by Dr. Houſtoun, who ſent the ſeeds to England. This riſes with a ſtrait trunk near twenty feet high, covered with a gray bark, divided into many branches upward, garniſhed with leaves near four inches long, and two and a half broad, rounded at their extremity, of a thick texture, very ſmooth on their upper ſurface, and on their under ſide are of a lucid gold colour, placed alternately on the branches. The fruit is round and red, but the flowers I have not ſeen.

The ſeeds of this ſort rarely come up the firſt year, ſo they may be ſowed in pots, and plunged into the tan-bed in the ſtove, where they ſhould remain till the plants come up. Theſe plants muſt be conſtantly kept in the bark-ſtove, and treated in the ſame manner as other tender exotics.

CENTAUREA. Lin. Gen. Plant. 880. Centaurium majus. Tourn. Inſt. R. H. 449. tab. 256. Jacea. Tourn. 443. Cyanus. Tourn. 445. Greater Centaury, Knapweed, Blue Blottle, &c.

The Characters are,

It hath a compound flower, whoſe diſk is compoſed of many hermaphrodite florets, and the borders or rays of female florets, which are larger and looſer; theſe are included in a common, roundiſh, ſcaly empalement; the hermaphrodite florets have narrow tubes, ſwelling at the top, and cut into five parts; theſe have five ſhort hairy ſtamina, terminated by cylindrical ſummits: the germen is ſituated under the petal, ſupporting a ſlender ſtyle, crowned with an obtuſe ſtigma. The germen afterward becomes a ſingle ſeed ſhut up in the empalement. The female florets have a ſlender tube, but expands above, where it is enlarged, and cut into five unequal parts; theſe are barren.

This genus of plants is ranged in the third ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Fruſtanea; the flowers of this ſection have their diſk and middle compoſed of hermaphrodite florets, which are fruitful, and their borders of female abortive florets.

The Species are,

1. Centaurea (*Alpina*) calycibus inermibus, ſquamis ovatis obtuſis, foliis pinnatis glabris integerrimis impari ſerrato. Hort. Cliff. 421. *Centaury with an empalement without ſpines, oval obtuſe ſcales, and ſmooth winged leaves, which are entire.* Centaurium alpinum luteum. C. B. P. 117. *Yellow Alpine Centaury.*
2. Centaurea (*Centaurium*) calycibus inermibus, ſquamis ovatis, foliis pinnatis, foliolis ſerratis decurrentibus. Hort. Cliff. 421. *Centaury with an empalement without ſpines, oval ſcales, and winged leaves, whoſe lobes are ſawed, and run along the midrib.* Centaurium majus, folio in lacinias plures diviſo. C. B. P. 117. *Greater Centaury with a leaf divided into many parts.*
3. Centaurea (*Glaſtifolia*) calycibus ſcarioſis foliis indiviſis integerrimis decurrentibus. Hort. Cliff. 421. *Centaury with a ſcaly empalement, and undivided entire leaves running along the ſtalks.* Centaurium majus orientale erectum, glaſti folio, flore luteo. Tourn. Cor. 32. Com. Rar. Plant. 39. *Upright, eaſtern, greater Centaury, with a Woad leaf and a yellow flower.*
4. Centaurea (*Stæbe*) calycibus ciliatis oblongis, foliis pinnatifidis linearibus integerrimis. Prod. Leyd. 140. *Centaury with oblong hairy empalements, and winged pointed leaves, which are very narrow and entire.* Stæbe incana, cyano ſimilis tenuifolia. C. B. P. *Hoary Stæbe with the appearance of Blue Bottle, and a narrow leaf.*

5. Centaurea (*Conifera*) calycibus ſcarioſis, foliis tomentoſis, radicalibus lanceolatis, caulinis pinnatifidis caule ſimplici. Prod. Leyd. 142. *Centaury with a ſcaly empalement, woolly leaves, thoſe near the root being ſpear-ſhaped, thoſe on the ſtalk pointed, and a ſingle ſtalk.* Centaureum majus incanum, humile, capite pini. Tourn. Inſt. R. H. 469. *Dwarf, hoary, greater Centaury, with a head like a Pine cone.*

6. Centaurea (*Montana*) calycibus ſerratis, foliis lanceolatis decurrentibus, caule ſimpliciſſimo. Hort. Cliff. 422. *Centaury with ſawed empalements, ſpear-ſhaped running leaves, and a ſingle ſtalk.* Cyanus montanus latifolius. ſc. Verbaſculum Cyanoides. C. B. P. 273. *Greater Mountain Blue Bottle with broad leaves.*

7. Centaurea (*Anguſtifolia*) calycibus ſerratis, foliis lineari-lanceolatis decurrentibus, caule ſimplici. *Centaury with ſawed empalements, very narrow, ſpear-ſhaped, running leaves, and a ſingle foot-ſtalk.* Cyanus anguſtiore folio & longiore Belgicus. H. R. Par. *Narrower and longer leaved Belgick Blue Bottle.*

8. Centaurea (*Moſchata*) calycibus inermibus, ſubrotundis glabris, ſquamis ovatis, foliis lyrato-dentatis. Hort. Cliff. 421. *Centaury with unarmed, roundiſh, ſmooth empalements, oval ſcales, and ſinuated leaves.* Cyanus floridus odoratus, Turcicus ſive orientalis major. Park. Theat. 421. *Sweet oriental Cyanus, commonly called Sweet Sultan.*

9. Centaurea (*Amberboi*) calycibus inermibus, ſubrotundis, glabris, ſquamis ovatis obtuſis, foliis laciniatis ſerratis. *Centaury with roundiſh, ſmooth, unarmed empalements, oval obtuſe ſcales, and cut leaves, which are ſawed on their edges.* Cyanus orientalis flore luteo fiſtuloſo. Ac. R. Par. 75. *Eaſtern Cyanus with a yellow fiſtular flower, commonly called yellow Sweet Sultan.*

10. Centaurea (*Cyanus*) calycibus ſerratis, foliis linearibus integerrimis, infimis dentatis. Hort. Cliff. 422. *Centaury with ſawed empalements, very narrow entire leaves indented below.* Cyanus ſegetum. C. B. P. 273. *Corn Blue Bottle.*

11. Centaurea (*Lippii*) calycibus inermibus, ſquamis mucronatis, foliis pinnatifidis obtuſis decurrentibus. Lin. Sp. Plant. 910. *Centaury with unarmed empalements, having pointed ſcales, and winged pointed leaves, which are obtuſe, running along the ſtalk.* Cyanus Ægypticus flore parvo purpureo, caule alato. D. Lipp. *Egyptian Cyanus with a ſmall purple flower, and a winged ſtalk.*

12. Centaurea (*Cineraria*) calycibus ciliatis terminali-ſeſſilibus, foliis tomentoſis pinnatifidis, lobis acutis. Hort. Cliff. 422. *Centaury with hairy empalements cloſely terminating the ſtalks, woolly leaves with winged points, and the ſegments very narrow.* Jacea montana candidiſſima, Stæbes foliis. C. B. P. 273. *White Mountain Knapweed with a Stæbe leaf.*

13. Centaurea (*Raguſina*) calycibus ciliatis, foliis tomentoſis pinnatifidis, foliolis obtuſis ovatis integerrimis exterioribus majoribus. Hort. Cliff. 422. *Centaury with hairy empalements, woolly leaves with winged points, the ſmall leaves oval and obtuſe, the outer larger.* Jacea arborea argentea Raguſina. Zan. Hiſt. 107. *Silvery-tree Knapweed of Raguſa.*

14. Centaurea (*Napifolia*) calycibus palmato-ſpinoſis, foliis decurrentibus radicalibus lyratis. Prod. Leyd. 141. *Centaury with palmated ſpinous empalements, and ſinuated prickly leaves running along the ſtalks.* Jacea cyanoides altera, alato caule. Herm. Par. 189. *Another Knapweed like Cyanus, with a winged ſtalk.*

15. Centaurea (*Rhapontica*) calycibus ſcarioſis, foliis ovato-oblongis denticulatis integris petiolatis, ſubtus tomentoſis. Hort. Cliff. 421. *Centaury with ſcaly empalements, oval, oblong, indented, entire leaves, having foot-ſtalks, woolly underneath.* Centaurium majus, folio helenii incano. Tourn. Inſt. 449. *Greater Centaury with a white Elecampane leaf.*

16. Centaurea (*Peregrina*) calycibus ſetaceo-ſpinoſis, foliis lanceolatis petiolatis, infernè dentatis. Hort. Cliff. 423. *Centaury with briſtly prickly empalements, ſpear-ſhaped leaves, with foot-ſtalks indented beneath.* Centaurium majus folio molli acuto laciniato, flore aureo magno, calyce ſpinoſo. Boerh. Ind. alt, 1. p. 144. *Greater Centaury with a ſoft, pointed, cut leaf, and a large golden flower, with a prickly empalement.*

17. Centaurea (*Orientalis*) calycibus ſquamato-ciliatis, foliis pinnatifidis, pinnis lanceolatis. Lin. Sp. Plant. 913. *Centaury with hairy ſcales to the empalement, wing-pointed leaves, whoſe lobes are ſpear-ſhaped.* Cyanus foliis radicalibus partim integris, partim pinnatis, bracteâ calycis ovali, flore ſulphureo. Hall. Act. Phil. 1745.

18. Centaurea (*Argentea*) calycibus ſerratis, foliis tomentoſis, radicalibus pinnatis, foliolis uniauritis. Lin. Sp. 1290. *Centaury with ſawed empalements, woolly leaves, thoſe near the root winged, and the lobes eared.* Jacea Cretica laciniata argentea, flore parvo flaveſcente. Tourn. Cor. 31.

19. Centaurea (*Sempervirens*) calycibus ciliatis, foliis lanceolatis ſerratis, inferioribus haſtatis. Lin. Sp. 1291. *Centaury with a hairy empalement, ſpear-ſhaped ſawed leaves, and thoſe near the root halbert-ſhaped.* Jacea Luſitanica ſempervirens.

20. Centaurea (*Splendens*) calycibus ſcarioſis obtuſis, foliis radicalibus pinnatifidis, caulinis pinnatis dentibus lanceolatis. Prod. Leyd. 142. *Centaury with a rough obtuſe empalement, the radical leaves wing-pointed, and thoſe on the ſtalk winged, ſpear-ſhaped, and indented.* Jacea caliculis argenteis major. Inſt. R. H. 444.

21. Centaurea (*Romana*) calycibus palmato-ſpinoſis, foliis decurrentibus inermibus, radicalibus pinnatifidis, impari maximo. Hort. Cliff. 423. *Centaury with a palmated ſpiny empalement, ſmooth running leaves, thoſe near the root wing-pointed, and a large terminating lobe.* Jacea ſpinoſa Cretica. Zan. Hiſt. 141.

22. Centaurea (*Sphærocephala*) calycibus palmato-ſpinoſis, foliis ovato-lanceolatis petiolatis dentatis. Hort. Cliff. 423. *Centaury with a palmated prickly empalement, and oval, ſpear-ſhaped, indented leaves, having foot-ſtalks.* Jacea ſphærocephala ſpinoſa Tingitana. H. L. 332.

23. Centaurea (*Eriophora*) calycibus duplicato-ſpinoſis lanatis, foliis ſemidecurrentibus integris ſinuatiſque caule prolifero. Hort. Upſal. 272. *Centaury whoſe empalement is downy and doubly armed with ſpines, running leaves, ſome entire, others ſinuated, and a childing ſtalk.*

24. Centaurea (*Benedicta*) calycibus duplicato-ſpinoſis lanatis involucratis, foliis ſemidecurrentibus denticulato-ſpinoſis. Lin. Sp. 1296. *Centaury whoſe empalement is downy and doubly armed with ſpines, running leaves with indentures, terminating in ſpines.* Carduus Benedictus. Camer. Epit. 562. *Bleſſed Thiſtle.*

There are many other ſpecies of this genus, which are preſerved in botanic gardens for the ſake of variety; ſome of which grow naturally in England, and are often troubleſome weeds in the fields, ſo do not deſerve a place in gardens; therefore I choſe not to trouble the reader with mentioning their titles, but have here ſelected thoſe ſpecies which have ſome beauty to recommend them.

The firſt ſort grows naturally upon the Alps. This hath a perennial root, which ſtrikes deep into the ground, ſending out a great number of long, winged, ſmooth leaves, of a glaucous colour; the ſtalks riſe near four feet high, and divide upward into many branches, garniſhed with ſmall leaves of the ſame form as the lower; each of theſe ſtalks is terminated by a ſingle head of yellow flowers, compoſed of many florets; thoſe which occupy the diſk are hermaphrodite, but thoſe of the ray are female. This flowers in June and July, and, in dry ſeaſons, will perfect their ſeeds in autumn. It may be propagated either by ſeeds, or by parting their roots in the autumn, being careful not to divide the roots too ſmall. The ſeeds ſhould be ſown in the ſpring on a bed of light earth; and when the plants are fit to remove, they ſhould be tranſplanted into a bed of freſh earth ſix inches aſunder, in which place they ſhould remain till autumn, when they ſhould be planted where they are deſigned to remain.

The ſecond ſort ſtands in the liſt of medicinal plants of the college, but is very rarely uſed; the root is reckoned to be binding, and good for all kinds of fluxes, and of great uſe to heal wounds. This grows naturally on the mountains of Italy and Spain; it hath a ſtrong perennial root like the former ſort, from which come out a great number of long winged leaves, which ſpread wide on every ſide, of a lucid green, and ſawed on their edges; the flower-ſtalks are ſlender, but very ſtiff, and divide upward into many ſmaller foot-ſtalks; theſe, together with the other ſtalks, riſe five or ſix feet high, having at each joint one ſmall winged leaf of the ſame form with the other: each of theſe foot-ſtalks is terminated by a ſingle head of purpliſh flowers, which are conſiderably longer than the empalement. This ſort flowers in July, and in very warm dry ſeaſons will produce ripe ſeeds in England. It may be propagated by parting of the roots in the ſame manner as the former ſort, and the plants muſt be treated in the ſame way, but ſhould have more room to grow, therefore it is not proper for ſmall gardens; but in large open borders, or to intermix in open quarters with other tall growing plants, this will make a variety.

The third ſort was diſcovered by Dr. Tournefort in the Levant, who ſent the ſeeds to the royal garden at Paris, and from thence it hath ſince been communicated to moſt of the curious gardens in Europe. This hath a perennial root, which ſtrikes deep into the ground, from which ſprings up a great tuft of long entire leaves, ſhaped like thoſe of Woad, growing upright, with many upright ſtalks, which grow near five feet high, garniſhed with leaves coming out ſingle at each joint, of the ſame ſhape as the under, but are leſs, and have a border or wing running along the ſtalk. The upper part of the ſtalk divides into two or three ſmaller, each of which is terminated by a ſingle head of yellow flowers, included in a ſilvery ſcaly empalement. This flowers in July, but rarely produces good ſeeds in England. It may be propagated by parting the roots in the ſame manner as the former, and the plants may be treated in the ſame way, being equally hardy; and as this doth not ſpread ſo much as the laſt, it may be allowed a place in ſmaller gardens.

The fourth ſort grows naturally in Auſtria. This hath a perennial root as the former, from which come out many winged leaves, which are hoary, the ſegments narrow and entire; the ſtalks riſe near three feet high, dividing into ſeveral branches, which have a ſingle winged leaf at each joint, of the ſame ſhape with the other; at the end of each ſtalk is one head of purple flowers, incloſed in an oblong ſcaly empalement, each ſcale being bordered with ſmall hairs like an eye-brow. The flowers appear in June, and the ſeeds ripen in Auguſt. This is propagated by ſeeds, which may be ſown in a bed of common earth, in a nurſery; and when the plants come up they muſt be thinned, and kept clean from weeds, and the following autumn the plants may be tranſplanted where they are deſigned to remain; after which they will require no further care. Two or three of theſe plants may be allowed a place in gardens where there is room, for the ſake of variety.

The fifth ſort grows naturally in the ſouth of France, and in Italy: I received the ſeeds of this from Verona. It hath a perennial root, which doth not divide and ſpread as the former, but grows ſingle, ſending out in the ſpring ſeveral entire ſpear-ſhaped leaves, and afterward a ſingle ſtalk, more than a foot high, garniſhed at each joint with one divided hoary leaf; and at the top comes out a ſingle, large, ſcaly head, ſhaped like a cone of the Pine-tree, very taper at the top, where it cloſely ſurrounds the florets, whoſe tops juſt peep out of the empalement: they are of a bright purple colour, and appear in June, but are not ſucceeded by ſeeds in England, ſo cannot be propagated unleſs the ſeeds are procured from abroad. Theſe ſeeds may be ſown, and the plants afterward treated in the ſame manner as the laſt.

The ſixth ſort is the common perennial Blue Bottle, which by ſome is titled Batchelors Button. This is ſo well known as to need no deſcription; the roots of this ſort creep under ground to a great diſtance, whereby the plant propagates too faſt, and often becomes troubleſome in gardens. It flowers in May and June, and will grow in any ſoil and ſituation.

The ſeventh ſort differs from the eighth, in having much longer and narrower leaves, which are not ſo white, the heads of flowers are alſo ſmaller; but whether this is only a variety from the other, I cannot determine, having never raiſed either from ſeeds; for theſe plants ſpread very much by their creeping roots, which renders them barren, as is frequently the caſe with many other creeping rooted plants, few of which produce ſeeds: however, this plant has always retained its difference from the year 1727, when I firſt brought it to England; and as it propagates ſo faſt, it is now become almoſt as plenty in the gardens, as the common broad leaved ſort. This is equally hardy, and may be planted in any ſoil or ſituation, where many other ſorts will not thrive, and during its continuance in flower will make a variety in the garden.

The eighth ſort is annual, ſo is only propagated by ſeeds. This has been many years propagated in the Engliſh gardens, under the title of Sultan Flower, or Sweet Sultan. It was brought from the Levant, where it grows naturally in arable land among the corn. This ſends up a round channelled ſtalk near three feet high, which divides into many branches, garniſhed with jagged leaves, of a pale green, ſmooth, and ſtand cloſe to the branches; from the ſide of the branches come out long naked foot-ſtalks, each ſuſtaining a ſingle head of flowers ſhaped like thoſe of the other ſpecies, which have a very ſtrong odour, ſo as to be offenſive to many people, but to others is very grateful. The empalement of theſe is ſcaly, round, and without ſpines; the flowers are in ſome purple, and others white, and likewiſe a fleſh colour between them hath come from the ſame ſeeds. There is alſo a variety of this with fiſtular flowers, and another with fringed flowers, commonly called Amberboi or Emberboi: but theſe have degenerated to the common ſort in a few years, although I have ſaved the ſeeds with great care, ſo I ſuppoſe they are only varieties. Theſe ſeeds are commonly ſown upon a hot-bed in the ſpring, to bring the plants forward, and in May they are tranſplanted into the borders of the flower-garden; but if the ſeeds are ſown in a warm border in autumn, they will live through the winter; and theſe plants may be removed in the ſpring into the flower-garden, which will be ſtronger, and come earlier to flower than thoſe which are raiſed in the ſpring. The ſeeds may alſo be ſown in the ſpring on a common warm border, where the plants will riſe very well, but theſe will be later in flowering than either of the other. The autumnal plants will begin to flower the middle of June, and will continue flowering till September; and the ſpring plants will flower a month later, and continue till the froſt ſtops them. Their ſeeds ripen in autumn.

The ninth ſort has been ſuppoſed to be only a variety of the former, which is a great miſtake; for although there is a great ſimilitude in their appearance, yet they are ſpecifically different, ſo never alter. I have cultivated this ſort upward of forty years, and have never obſerved the leaſt variation in it. This is much tenderer than the former, ſo the ſeeds muſt be ſown upon a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be tranſplanted on a freſh hot-bed to bring them forward: when they have taken root in this bed, they muſt have air admitted to them every day, to prevent their drawing up weak, and refreſhed with water ſparingly, becauſe they are very apt to rot with much wet. When the plants have obtained ſtrength, they muſt be carefully taken up, and planted in ſeparate pots filled with light earth, and ſome of them placed in the ſhade till they have taken root; then they may be placed with other annual plants in the pleaſure-garden, where they will continue long in beauty. But as theſe plants which are placed in the open air rarely produce good ſeeds, there ſhould be two or three plants kept in a moderate hot-bed under a deep frame, where they will come earlier to flower; and being protected from wet and cold, they will ripen their ſeeds every year, which is the ſureſt method to preſerve the ſort.

This ſort differs from the common, in its leaves being ſawed on their edges; the flowers are fiſtular, of a bright colour, and have a very agreeable ſoft odour. It flowers in July and Auguſt, and the ſeeds ripen in October.

The tenth ſort is the common Blue Bottle, which grows naturally amongſt the corn in moſt parts of England: this ſtands in the liſt of medicinal plants. There is a diſtilled water of the flowers, which is eſteemed good for the eyes. There are great varieties of colours in theſe flowers, ſome of which are finely variegated: the ſeeds of theſe are ſold by ſeedſmen, by the title of Bottles of all Colours. Theſe are annual plants, which will riſe in any common border, and require no other care but to keep them clean from weeds, and thinned where they are too cloſe, for they do not thrive well when they are tranſplanted. If the ſeeds are ſown in autumn, they will ſucceed better, and the plants will flower ſtronger than thoſe which are ſown in the ſpring.

The ſeeds of the eleventh ſort were ſent me by Dr. Juſſieu, from Paris, who received them from Dr. Lippi, at Grand Cairo. This is an annual plant, which riſes near two feet high, ſending out two or three branches toward the top; the leaves are divided into many obtuſe ſegments, and have a border running along the ſtalk; the flowers are ſmall, of a bright purple, and have a ſcaly empalement. If the ſeeds are ſown in the ſpring upon a border of light earth, where the plants are to remain, they will require no farther care but to keep them clean from weeds. It flowers in July, and the ſeeds ripen in autumn.

The twelfth ſort is a perennial plant, which retains its leaves through the year. This grows naturally in Italy, on the borders of the fields. The leaves are hoary, and divided into many narrow ſegments; the ſtalks riſe near three feet high, branching upward into many diviſions, each being terminated by a head of purple flowers; theſe come out in June, and in favourable ſeaſons will perfect their ſeeds in autumn. This ſort will live abroad in moderate winters, if it has a warm ſituation and a dry ſoil; but in ſevere winters the plants are commonly killed, ſo one or two of them may be ſheltered under a common frame in winter to preſerve the kind. It may be eaſily propagated by ſeeds in the ſame manner as the fourth ſort; or if the young branches, which do not ſhoot up to flower, are cut off, and planted in a ſhady border any time in ſummer, they will take root, and in autumn may be removed to warm borders, or put into pots to be ſheltered in winter.

The thirteenth ſort grows naturally in Mauritania, and in ſeveral other places on the borders of the Mediterranean Sea. This ſeldom riſes more than three feet high in this country; it hath a perennial ſtalk, which divides into many branches, garniſhed with very white woolly leaves, divided into many obtuſe entire lobes, the ſmall leaves or lobes on the exterior part of the leaf being the largeſt. The flowers are produced from the ſide branches upon ſhort foot-ſtalks, which are of a bright yellow, and are included in a fine hairy empalement. Theſe appear in June and July, but ſcarce ever are ſucceeded by ſeeds in England. It is propagated by planting of the young ſhoots in the ſame manner as the laſt, and the plants require protection from hard froſt. But if they are planted in dry lime-rubbiſh, where they will not grow luxuriant, they will reſiſt the cold of our ordinary winters in the open air. As this plant retains its leaves all the year, which are extremely white, it makes a pretty variety in a garden.

The fourteenth ſort is annual. This grows naturally in the Archipelago. It riſes with a branching ſtalk about three feet high; the lower leaves are not much unlike thoſe of the Turnep, being rounded at their ends, and their baſe is cut into many ſegments; thoſe upon the ſtalks and branches are nearly of the ſame form, but diminiſh gradually in their ſize to the top; theſe have a border or wing running along the ſtalks, which connect them together; the flowers are produced at the end of the branches, which have prickly empalements; the ſpines come out from the border of the ſcales, divided like the fingers of a hand. The flowers are of a bright purple, ſo make a pretty appearance. This ſort may be treated in the ſame manner as the Corn Bottle, by ſowing the ſeeds in autumn, and keeping the plants clean from weeds. The plants will flower in June, and the ſeeds will ripen in Auguſt. If ſome ſeeds are alſo ſown in the ſpring, the plants will come to flower a month after the others, and will continue flowering till the froſt ſtops them. But theſe plants do not always perfect ſeeds, ſo that from the autumnal plants the ſeeds will more certainly be procured.

The fifteenth ſort grows naturally upon the Helvetian, and ſome of the Italian mountains. I received the ſeeds of this ſort from Verona: it hath a perennial root and an annual ſtalk; the leaves are oblong, ſlightly indented on their edges, and woolly on their under ſide; theſe have much the reſemblance of thoſe of Elecampane, generally ſtanding upright; the ſtalks riſe little more than a foot high, and are terminated by large ſingle heads of purple flowers, incloſed in ſcaly empalements; theſe appear in July, but unleſs the ſeaſon proves very dry and warm they have no ſeeds ſucceed them in this country; ſo that this, like the fifth ſort, is very difficult to propagate in England, unleſs good ſeeds can be procured from the countries where they naturally grow. This is very hardy, ſo may be treated in the ſame manner as any of the former perennial ſorts, but will require a little more room than the fifth.

The ſixteenth ſort grows naturally in Auſtria and Hungary, from both which countries I have received the ſeeds. The lower leaves of this plant ſpread flat on the ground; they are ſoft, hairy, and end in ſharp points, but toward their baſe are cut into ſeveral narrow ſegments; the ſtalks riſe near three feet high, garniſhed at each joint by ſpear-ſhaped entire leaves, and are terminated by ſingle large heads of flowers, of a gold colour, incloſed in a prickly ſcaly empalement. This flowers in July and Auguſt, but never produces ſeeds in this country. It hath a perennial root, which ſends out offſets; theſe may be taken from the old plants in autumn, whereby it may be eaſily propagated. It is very hardy in reſpect to cold, but ſhould have a dry ſoil, the roots being very apt to rot in winter with much wet.

The ſeventeenth ſort grows naturally in Siberia. The ſeeds of this were ſent me from Peterſburgh. This ſends out many long winged leaves from the root, which are divided into ſeveral ſpear-ſhaped lobes; the ſtalks riſe near five feet high, and divide upward into many ſmaller branches, garniſhed with leaves of the ſame form as the lower, but much ſmaller, and the ſegments very narrow; each of the ſtalks is terminated by a head of yellow flowers, incloſed in a ſcaly empalement; the borders of the ſcales are ſet with fine hairs like an eye-brow. It flowers in June, July, and Auguſt, and the ſeeds ripen in autumn. This hath a perennial root and an annual ſtalk, which, with the leaves, decay in autumn, and ariſe new from the root in the ſpring. It may be propagated either by ſeeds or parting of the roots, in the ſame manner as the fifth ſort, and the plants require a large ſhare of room, ſo ſhould not be planted too near other plants; therefore it is not proper furniture for ſmall gardens.

The eighteenth ſort grows naturally in Crete. This hath a perennial root; the lower leaves are winged and very woolly, thoſe on the flower-ſtalks are ſingle, wedge-ſhaped, and indented; the ſtalks are terminated by heads of yellow flowers, compoſed of as many florets as the other ſorts. This flowers in July, but rarely produces ripe ſeeds in this country, ſo is propagated by ſlips as the fifth ſort; and as the plants which are expoſed to the open air in winter are frequently deſtroyed, it will be proper to place one or two of them under a common frame to preſerve the ſpecies.

The nineteenth ſort grows naturally in Portugal: the ſtalks of this are perennial; the leaves continue in verdure through the year, for which it is chiefly valued, for the flower has little more beauty than the common Knapweed. It flowers in June and July, and in warm ſeaſons the ſeeds ripen in September. It is propagated by ſeeds, which, if ſown in April in a bed of light earth, the plants will riſe eaſily. Theſe plants, in a dry ſoil and a ſheltered ſituation, will live in the open air in mild winters; but as they are frequently killed when the froſts are ſevere, it will be proper to ſhelter a plant or two under a common frame in winter to preſerve the ſpecies.

The twentieth ſort grows naturally in Spain, and upon the Helvetian mountains. This rarely continues longer than two or three years: the lower leaves are doubly wing-pointed, thoſe on the ſtalks are ſpear-ſhaped, winged, and indented; the ſtalks riſe three feet high, and are terminated by flowers like thoſe of the common Knapweed, having ſilvery empalements. It flowers in July, and the ſeeds ripen in September. If theſe are ſown in April on a bed of light earth, the plants will come up, and will live through the winter in the open air.

The twenty-firſt ſort grows naturally in the Campania of Rome. This is a biennial plant in England; thoſe plants which ariſe from ſeeds in the ſpring ſeldom flower till the following year, and when they perfect their ſeeds they die. The ſtalks of this ſort riſe three feet high; the lower leaves are wing-pointed, without ſpines; thoſe on the ſtalks run along the ſtalks like wings; the flowers are large, red, and their empalements are ſtrongly armed with ſpines. This flowers in July, and the ſeeds ripen in September. It may be propagated by ſeeds as the former.

The ſecond ſort grows naturally in Spain and Mauritania. This is an annual plant, which rarely ripens its ſeeds in England; the leaves of this are ſpear-ſhaped, indented, and woolly; the ſtalk riſes two feet high, dividing upward into three or four branches, which are terminated by pretty large heads of flowers, whoſe empalements are woolly, and ſtrongly armed with ſpines. This flowers in July, and in warm ſeaſons the ſeeds ripen in September. It is propagated by ſeeds as the two former ſorts.

The twenty-third ſort grows naturally in Portugal. The ſtalk of this riſes two feet high, garniſhed with woolly leaves; ſome of which are entire, others are ſinuated on their borders; the ſtalks are terminated by woolly heads of flowers, ſtrongly armed with double ſpines on the empalement, which almoſt incloſes the florets. It flowers in July, and in warm ſeaſons the ſeeds ripen in September. It is propagated by ſeeds as the former.

The twenty-fourth ſort is the Carduus Benedictus, or Bleſſed Thiſtle, which is frequently uſed as an emitic. It grows naturally in Spain and the Levant; in England it is propagated in gardens for medicinal uſe. It is an annual plant, which periſhes ſoon after the ſeeds are ripe. The ſureſt method of cultivating this plant, is to ſow the ſeeds in autumn; and when the plants come up, to hoe the ground, to cut up the weeds, and thin the plants; and in the following ſpring to hoe it a ſecond time, leaving the plants a foot aſunder, which will ripen their ſeeds in autumn, and ſoon after decay.

CENTAURIUM MINUS. See GENTIANA.

CENTINODIUM, Knot Graſs. See POLYGONUM.

CEPA, the Onion.

The botanical characters of this genus are the ſame with thoſe of Allium, to which it is now joined by the late ſyſtem; but as this work is intended for the inſtruction of ſuch as are not well acquainted with the ſcience of botany, or who may have no inclination to ſtudy it, and yet may want information how to cultivate the plants which are uſeful in the kitchen, I have choſen to treat of theſe under their former appellation. Mr. Ray and Tournefort admit of the fiſtular leaves and ſwelling ſtalks, as characters to diſtinguiſh the plants of this genus from Porrum and Allium.

The VARIETIES of the common Onion are,

The Straſburgh. Cepa oblong. C. B. P. 71.

The Spaniſh Onion. Cepa vulgaris, floribus & tunicis purpuraſcentibus. C. B. P. 71.

The white Egyptian Onion. Cepa floribus & tunicis candidis. C. B. P. 71.

All theſe vary from ſeeds, ſo that there are ſeveral intermediate differences which are not worth enumerating.

Theſe three varieties are propagated by ſeeds, which ſhould be ſown at the latter end of February or the beginning of March, on good, rich, light ground, which ſhould be well dug and levelled, and cleared from the roots of all bad weeds; then the ſeeds ſhould be ſown in a dry time, when the ſurface of the ground is not moiſt; and where they are intended for a winter crop, they muſt not be ſown too thick. The common allowance of ſeed is ſix pounds to an acre of land; but the generality of gardeners ſow more, becauſe many of them allow for a crop to draw out, which they call cullings; theſe are all ſuch as want to be removed from others, ſo are thinned out when young, and tied in bunches for the market; but thoſe who have regard to their principal crop, never practiſe this; therefore ſow no more ſeeds than is ſufficient, which is the quantity before-mentioned, for when the plants come up too cloſe, they draw each other weak; and when this happens, their roots never grow ſo large as thoſe which are thin: beſides, there is a greater trouble in hoeing them; and when they are thinned for the market, the ground is trodden over, and the Onions which are to ſtand have their leaves bruiſed, whereby they are greatly injured; ſo that where young Onions are wanted, it is a much better way to ſow ſome ſeparate beds for this purpoſe, than to injure the future crop.

In about ſix or ſeven weeks after ſowing, the Onions will be up forward enough to hoe; at which time (chooſing dry weather) you ſhould, with a ſmall hoe about two inches and a half broad, cut up lightly all the weeds from amongſt the Onions; and alſo cut out the Onions where they grow too cloſe in bunches, leaving them at this firſt hoeing at leaſt two inches apart. This, if well performed, and in a dry ſeaſon, will preſerve the ground clear of weeds at leaſt a month or five weeks; when you muſt hoe them over a ſecond time, cutting up all the weeds as before, and alſo cut out the Onions to a larger diſtance, leaving them this time three or four inches aſunder. This alſo, if well performed, will preſerve the ground clean a month or ſix weeks longer, when you muſt hoe them over the third and laſt time.

Now you muſt carefully cut up all weeds, and ſingle out the Onions to near ſix inches ſquare; by which means they will grow much larger, than if left too cloſe. This time of hoeing, if the weather proves dry and it is well performed, will keep the ground clean until the Onions are fit to pull up; but if the weather ſhould prove moiſt, and any of the weeds ſhould take root again, you ſhould, about a fortnight or three weeks after, go over the ground and draw out all the large weeds with your hands; for the Onions having now begun to bulb, they ſhould not be diſturbed with a hoe.

Toward the middle of Auguſt your Onions will have arrived to their full growth, which may be known by their blades falling to the ground and ſhrinking; you ſhould therefore, before their necks or blades are withered off, draw them out of the ground, cropping off the extreme part of the blade, and lay them abroad upon a dry ſpot of ground to dry, obſerving to turn them over every other day at leaſt, to prevent their ſtriking freſh root into the ground; which they will ſuddenly do, eſpecially in moiſt weather.

In about a fortnight's time your Onions will be dry enough to houſe, which muſt be performed in perfect dry weather; in doing of this, you muſt carefully rub off all the earth from the roots, and be ſure to mix no faulty ones amongſt them, which will in a ſhort time decay, and ſpoil all thoſe that lie near them; nor ſhould you lay them too thick in the houſe, which would occaſion their ſweating, and thereby rot them; nor ſhould they be put in a lower room, or ground floor, but in a loft or garret; and the cloſer they are kept from the air, the better they will keep. You ſhould, at leaſt, once a month, look over them to ſee if any of them are decayed; which if you find, muſt be immediately taken away, otherwiſe they will infect all that lie near them.

But notwithſtanding all the care you can poſſibly take in the drying and houſing of your Onions, many of them will grow in the loft, eſpecially in mild winters, which are generally moiſt; therefore thoſe who would preſerve them late in the ſeaſon, ſhould ſelect a parcel of the firmeſt and moſt likely to keep from the others, and with a hot iron ſlightly ſinge their beards, or roots, which will effectually prevent their ſprouting; but in doing of this there muſt be great caution uſed not to ſcorch the pulp of the Onions, for that will cauſe them to periſh ſoon after.

The beſt Onions for keeping are the Straſburgh kind, which is an oval-ſhaped bulb; but this ſeldom grows ſo large as the Spaniſh, which is flatter; the white ſort is eſteemed the ſweeteſt; but theſe varieties are not laſting; for if you ſave ſeeds of white Onions only, you will have a mixture of the red ones amongſt them; nor will the Straſburgh Onion keep long to its kind, but will by degrees grow flatter, as do the large Portugal Onions, when planted in our climate, which in a year or two will be ſo far degenerated, as not to be known they were from that race.

But in order to ſave ſeeds, you muſt in the ſpring make choice of ſome of the firmeſt, largeſt, and beſt ſhaped Onions (in quantity proportionable to the ſeed you intend to ſave;) and having prepared a piece of good ground (which ſhould be well dug, and laid out in beds about three feet wide,) in the beginning or middle of March you muſt plant your Onions in the following manner. Having ſtrained a line about four inches within the ſide of the bed, you muſt, with a ſpade, throw out an opening about ſix inches deep, the length of the bed, into which you ſhould place the Onions, with their roots downward, at about nine inches diſtance from each other; then with a rake draw the earth into the opening again to cover the bulbs; then proceed to remove the line again about a foot farther back, where you muſt make an opening as before, and ſo again till the whole is finiſhed; ſo that you will have four rows in each bed, between which you muſt allow a ſpace of two feet for an alley to go among them to clear them from weeds, &c. In a month's time their leaves will appear above ground, and many of the roots will produce three or four ſtalks each; you muſt therefore keep them diligently cleared from weeds, and about the beginning of June, when the heads of the flowers begin to appear upon the tops of the ſtalks, you muſt provide a parcel of ſtakes about four feet long, which ſhould be driven into the ground, in the rows of Onions, at about ſix or eight feet apart; to which you ſhould faſten ſome packthread, rope yarn, or ſmall cord, which ſhould be run on each ſide the ſtems of the Onions, a little below their heads, to ſupport them from breaking down with the wind and rain; for when the ſeeds are formed, the heads will be heavy, and ſo are very often broken down by their own weight, where they are not well ſecured; and if the ſtalks are broken before the ſeeds have arrived to maturity, they will not be near ſo good, nor keep ſo long as thoſe which are perfectly ripened.

About the end of Auguſt the Onion ſeed will be ripe, which may be known by its changing brown, and the cells in which the ſeeds are contained opening; ſo that if it be not cut in a ſhort time, the ſeeds will fall to the ground: when you cut off the heads, they ſhould be ſpread abroad upon coarſe cloths in the ſun, obſerving to keep it under ſhelter in the night, as alſo in wet weather; and when the heads are quite dry, you muſt beat out the ſeeds, which are very eaſily diſcharged from their cells; then having cleared it from all the huſk, &c. after having expoſed it one day to the ſun to dry, you muſt put it up in bags to preſerve it for uſe.

The directions here given is for the general crop of winter Onions; but there are two other crops of this common ſort of Onion, cultivated in the gardens about London to ſupply the market, one of which is commonly called Michaelmas Onions. Theſe are ſown in beds pretty cloſe, the middle of Auguſt, and muſt be well weeded when they come up. In the ſpring of the year, after the winter Onions are over, they are tied up in bunches to ſupply the markets; but from the thinning of theſe they carry to market young green Onions in March, for ſallads, &c.

And in the ſpring they ſow more beds in the ſame manner, to draw up young for ſallads, after the Michaelmas Onions are grown too large for that purpoſe; and where a ſupply of theſe are required, there may be three different ſowings, at about three weeks diſtance from each other, which will be ſufficient for the ſeaſon.

There are alſo the following ſorts of Onions cultivated in the kitchen-gardens.

The Shallot, or Eſchalottes, which is the Cepa Aſcalonica. Matth. 556.

The Ciboule, or Cepa fiſſilis. Matth. Lugd. 1539.

The Cives, or Cepa ſectilis juncifolia perennis. Mor. Hiſt. 2. 383.

The Welch Onion I ſuppoſe to be the ſame with the Ciboule, although they paſs under different appellations; for I have ſeveral times received the Ciboule from abroad, which, when planted, prove to be what is generally known here by the title of Welch Onions. There is alſo a great affinity between the Eſchalottes and theſe, ſo that they are not well diſtinguiſhed yet; for although they are generally cultivated in the gardens, yet they are not well known to the botaniſts, ſome of whom have ſuppoſed a greater variety than is in nature; while others have joined them together, making but two ſpecies.

The Scallion, or Eſcallion, is a ſort of Onion which never forms any bulbs at the roots, and is chiefly uſed in the ſpring for green Onions, before the other ſorts, ſown in July, are big enough; but this ſort of Onion, how much ſoever in uſe formerly, is now ſo ſcarce as to be known to few people, and is rarely to be met with, except in curious botanic gardens: the gardeners near London ſubſtitute another ſort for this, which are thoſe Onions which decay and ſprout in the houſe: theſe they plant in a bed early in the ſpring, which in a ſhort time will grow large enough for uſe; when they draw them up, and after pulling off all the outer coat of the root, they tie them up in bunches, and ſell them in the market for Scallions.

The true Scallion is eaſily propagated by parting the roots, either in ſpring or autumn; but the latter ſeaſon is preferable, becauſe of their being rendered more fit for uſe in the ſpring: theſe roots ſhould be planted three or four in a hole, at about ſix inches diſtance every way, in beds or borders three feet wide, which in a ſhort time will multiply exceedingly, and will grow upon almoſt any ſoil and in any ſituation; and their being ſo hardy as to reſiſt the ſevereſt of our winters, and being green, and fit for uſe ſo early in the ſpring, renders them worthy of a place in all good kitchen-gardens.

The Cives are a very ſmall ſort of Onion, which never produce any bulbs, and ſeldom grow above ſix inches high in the blade, which is alſo very ſmall and ſlender, and are in round bunches like the former;

this was formerly in great requeſt for ſallads in the ſpring, as being milder than thoſe Onions which had ſtood through the winter; theſe are propagated by parting their roots like the former, and are alſo very hardy, and will be fit for uſe early in the ſpring.

The Welch Onions are only propagated for ſpring uſe alſo; theſe never make any bulb, and are therefore only fit to be uſed green for ſallads, &c. They are ſown about the end of July, in beds of about three feet and a half wide, leaving alleys of two feet broad to go between the beds to clean them, and in a fortnight's time they will appear above ground, when they muſt be carefully cleared from weeds; towards the middle of October their blades will die away, ſo that the whole ſpot will ſeem to be naked, which hath led many people to dig up the ground again, ſuppoſing the crop totally loſt; whereas, if they ſtand undiſturbed, they will come up again very ſtrong in January, and from that time grow very vigorouſly, reſiſting all weathers; and by March will be fit to draw for young Onions, and are, in the markets, more valued than any other ſort at that ſeaſon; for they are extremely green and fine, though they are much ſtronger than the common Onion in taſte, approaching nearer to Garlick, which hath occaſioned their being leſs eſteemed for the table: but as no winter, however hard, will hurt them, it is proper to have a few of them to ſupply the table, in caſe the common ſort ſhould be deſtroyed by froſts.

The roots of theſe Onions, if planted out at ſix or eight inches diſtance, in March, will produce ripe ſeeds in autumn, but it will be in ſmall quantities the firſt year; therefore the ſame roots ſhould remain unremoved, which the ſecond and third year will produce many ſtems, and afford a good ſupply of ſeeds; theſe roots will abide many years good, but ſhould be tranſplanted and parted every ſecond or third year, which will cauſe them to produce ſtrong ſeeds.

CEPHALANTHUS. Lin. Gen. Plant. 105. Platanocephalus. Vaill. Acad. R. Scien. 1722. Button Wood.

The CHARACTERS are,

It hath a number of ſmall flowers, which are collected into a ſpherical head; theſe have no common empalement, but each particular flower hath a funnel-ſhaped empalement, divided into four parts at the top; the flower is funnel-ſhaped, of one petal, divided at the top into four parts, incloſing four ſtamina, which are inſerted in the petal, and are ſhorter than the tube, being terminated by globular ſummits. The germen is ſituated under the flower, ſupporting a ſtyle which is longer than the petal, and is crowned by a globular ſtigma; the germen afterward becomes a globular hairy capſule, incloſing one or two oblong angular ſeeds; theſe are joined to an axis, and form a round head.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and but one ſtyle.

We have but one SPECIES of this plant, viz.

CEPHALANTHUS (*Occidentalis*) foliis oppoſitis terniſque. Flor. Virg. 15. *Button-tree with leaves growing oppoſite, and ſometimes by threes.* Scabioſa dendroides Americana ternis foliis caulem ambientibus, floribus ochroleucis. Pluk. Alm. 336. tab. 77.

This ſhrub grows naturally in North America, from whence the ſeeds are annually ſent to Europe, and of late years great numbers of the plants have been raiſed in the gardens of the curious; but there are no very large plants in the Engliſh gardens; the largeſt I have ſeen are in the curious gardens of his grace the Duke of Argyle, at Whitton, near Hounſlow, where they thrive better than in almoſt any other place where they have been planted, ſo that in a moiſt ſoil they will do the beſt.

This ſeldom riſes higher than ſix or ſeven feet in this country. The branches come out by pairs, oppoſite at each joint; the leaves alſo ſtand oppoſite, ſometimes by pairs, and at other times there are three ariſing at the ſame joint, ſtanding round the branch; theſe are near three inches long, and one and a quarter broad, having a ſtrong vein running longitudinally through the middle, and ſome ſmall tranſverſe veins from that to the borders; they are of a light green, and their foot-ſtalks change to a reddiſh colour next the branches; the ends of the branches are terminated by looſe ſpikes of ſpherical heads, about the ſize of a marble, each of which are compoſed of many ſmall flowers, which are funnel-ſhaped, of a whitiſh yellow colour, faſtened to an axis which ſtands in the middle; theſe appear in July, and, in warm ſeaſons, are ſucceeded by ſeeds, which have ſometimes ripened in England.

Theſe plants are propagated chiefly by ſeeds (though there has been ſome raiſed from cuttings and layers;) theſe ſhould be ſown in pots, for the greater conveniency of removing them either into a ſhady ſituation, or where they may have ſhelter. If the ſeeds can be procured ſo early as to ſow them before Chriſtmas, the plants will come up the following ſummer; but if they are ſown in the ſpring, they generally remain a year in the ground; therefore, in ſuch caſe, the pots ſhould be placed in the ſhade that ſummer, and in the autumn following removed under a common frame to ſhelter them from froſt, and the ſpring following the plants will come up.

The firſt year, when the plants come up, it will be neceſſary to ſhade them in hot dry weather, while they are young, at which time they are often deſtroyed by being too much expoſed; nor ſhould the watering be neglected; for as theſe plants naturally grow on moiſt ground, ſo when they are not duly watered in dry weather, the young plants will languiſh and decay.

The next autumn, when the leaves begin to drop, the young plants may be tranſplanted into nurſery-beds, which ſhould be a little defended from the cold winds; and, if the ſoil is moiſt, they will ſucceed much better than in dry ground; but where it happens otherwiſe, it will be abſolutely neceſſary to water them in dry weather, otherwiſe there will be great danger of the plants dying in the middle of ſummer, which has been the caſe in many gardens where theſe plants were raiſed.

In theſe nurſery-beds the plants may remain a year or two (according to the progreſs they may have made, or the diſtance they were planted;) then they may be taken up in October, and tranſplanted where they are to remain for good. Although I have mentioned but one ſeaſon for tranſplanting them, yet this may alſo be performed in the ſpring, eſpecially if the ground is moiſt into which they are removed, or that the plants are duly watered, if the ſpring ſhould prove dry, otherwiſe there will be more hazard of their growing when removed at this ſeaſon.

Theſe plants make a pretty variety among other hardy trees and ſhrubs, being extreme hardy in reſpect to cold; but they delight in a moiſt light ſoil, where they will grow very faſt, and their leaves will be larger than in dry land.

CERASTIUM. Lin. Gen. Plant. 518. Mouſe-ear, or Mouſe-ear Chickweed; in French, *Oreille de Souris.*

The CHARACTERS are,

It hath a permanent five-leaved empalement, which ſpreads open; the flower hath five obtuſe bifid petals, which are as large as the empalement. It hath ten ſlender ſtamina ſhorter than the petals, terminated by roundiſh ſummits. In the center is ſituated an oval germen, from which ariſe five ſtyles, which are hairy, erect, and crowned with obtuſe ſtigma; the empalement afterward becomes an oval, cylindrical, or globular capſule with one cell, opening at the top, containing many roundiſh ſeeds.

This genus of plants is ranged in the fourth ſection of Linnæus's tenth claſs, intitled Decandria Pentagynia, the flower having ten ſtamina and five ſtyles.

The SPECIES are,

1. CERASTIUM (*Repens*) foliis lancolatis, pedunculis ramoſis, capſulis ſubrotundis. Lin. Sp. Plant. 439. *Ceraſtium with ſpear-ſhaped leaves, branching foot-ſtalks, and roundiſh capſules.* Myoſotis incana repens. Tourn. Inſt. R. H. 245. *Hoary creeping Mouſe-ear, by ſome called Sea Pink.*
2. CERASTIUM (*Tomentoſum*) foliis oblongis, tomentoſis, pedunculis ramoſis, capſulis globoſis. Lin. Sp. Plant. 440. *Ceraſtium with oblong woolly leaves, branching foot-ſtalks, and globular capſules.* Myoſotis tomentoſa, linariæ folio anguſtiore. Tourn. Inſt. R. H. 245. *Woolly Mouſe-ear with a narrow Toad-flax leaf.*
3. CERASTIUM (*Dichotomum*) foliis lanceolatis, caule dichotomo ramoſiſſimo, capſulis erectis. Prod. Leyd. 450. *Ceraſtium with ſpear-ſhaped leaves, a very branching ſtalk divided in forks, and upright capſules.* Myoſotis Hiſpanica ſegetum. Tourn. Inſt. R. H. 545. *Spaniſh Corn Mouſe-ear, or Horned Chickweed.*
4. CERASTIUM (*Pentandrum*) floribus pentandriis, petalis integris. Lin. Sp. Plant. 438. *Ceraſtium with flowers having five ſtamina, and entire petals.*
5. CERASTIUM (*Perfoliatum*) foliis connatis. Hort. Cliff. 173. *Ceraſtium whoſe leaves are joined.* Myoſotis Orientalis perfoliata folio lychnidis. Tourn. Cor. 18. *Eaſtern perfoliated Mouſe-ear with a Lychnis leaf.*

The firſt ſort grows naturally in France and Italy, and was formerly cultivated in the Engliſh gardens under the title of Sea Pink; one of the uſes made of it was to plant it as an edging to keep up the earth of borders; but this was before the Dwarf Box was brought to England, ſince which all thoſe plants which were formerly applied for this purpoſe have been neglected. This plant was by no means fit for this uſe, becauſe its creeping branches would ſpread into the walks where they put out roots into the gravel; ſo that unleſs they are frequently cut off, they cannot be kept within compaſs.

This ſends out many weak ſtalks which trail upon the ground, and put out roots at their joints, whereby it propagates very faſt; the leaves are placed by pairs oppoſite, which are about two inches long, and little more than half an inch broad, very hoary; thoſe next the root are much ſmaller than the upper; the flowers come out from the ſide of the ſtalks upon ſlender foot-ſtalks, which branch out into ſeveral ſmaller, each ſupporting a white flower, compoſed of five petals, which are ſplit at the top. The whole flower has the appearance of Chickweed flowers, but are larger; it flowers in May.

It propagates too faſt by its creeping roots and trailing branches, when it is admitted into gardens, ſo may be planted in any ſoil or ſituation; and is very proper to be planted between ſtones on the ſide of grottos, where it will ſpread, and thrive without care.

The ſeeds of the ſecond ſort I received from Iſtria, where it naturally grows; this is by Parkinſon titled hoary narrow-leaved Pink. The leaves of this ſort are narrower than thoſe of the former, and are much whiter; the ſtalks grow more erect, and the ſeed-veſſels are rounder, in which their chief difference conſiſts. This is a trailing plant, and propagates by ſending out roots at the joints, in the ſame manner as the former, and is equally hardy. It flowers in May and June, and the ſeeds ripen in Auguſt.

The third ſort is annual; this grows naturally on arable land in Spain, from whence the ſeeds were ſent to England, where it is allowed a place in botanic gardens for the ſake of variety, but hath not much beauty; this hath branching ſtalks, which grow about ſix inches high, dividing by pairs in forks, the flowers coming out in the middle of the diviſions, which are ſhaped like thoſe of Chickweed; the whole plant has a clammy moiſture, which ſticks to the fingers of thoſe who handle it. This flowers in May, and the ſeeds ripen in July. If the ſeeds are ſown in autumn, they will ſucceed better than in the ſpring; or if they are permitted to fall, the plants will riſe without care.

The fourth ſort is very like the third in its whole appearance, and differs from it, in having but five ſtamina in the flower, whereas the other hath ten. This was diſcovered by Mr. Lœfling, a pupil of Dr. Linnæus's, in Spain, from whence he ſent the ſeeds to Upſal, part of which were ſent me by the Doctor.

The fifth ſort was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the royal garden at Paris, where they ſucceeded, and have been ſince communicated to moſt of the curious botanic gardens in Europe. This is an annual plant, which riſes with an upright ſtalk a foot high; the lower leaves of this plant have much reſemblance to thoſe of the Lychnis, which is called Lobel's Catchfly, ſo that when the plants are young, it is not eaſy to diſtinguiſh them. The ſtalks are garniſhed with leaves of the ſame ſhape, but ſmaller, placed by pairs, and embrace the ſtalks at their baſe. The flowers come out at the top of the ſtalks, and alſo from the wings of the leaves, on the upper part of the ſtalks, which are white, and ſhaped like thoſe of Chickweed. They appear in May and June, and are ſucceeded by beaked capſules, containing many roundiſh ſeeds.

If the ſeeds of this ſort are ſown in autumn, they will more certainly grow than thoſe which are ſown in the ſpring; or if the ſeeds are permitted to ſcatter, the plants will come up and live through the winter, and will require no other care but to keep them clean from weeds.

There are many other ſpecies of this genus than are here enumerated, which are weeds in many parts of England, ſo are never cultivated in gardens, therefore not worthy of notice here.

CERASUS [κέρασος, *Gr.* ſo called according to Servius, from Ceraſus, a city of Pontus, which Lucullus having deſtroyed, he carried the Cherry-tree from thence to Rome, and called it Ceraſus, after the name of the city; but others will have it that the city took its name from the abundance of thoſe trees which grew there.] The Cherry-tree.

The botanical characters of this genus, according to the ſyſtem of Linnæus, are the ſame with thoſe of Prunus; therefore he has joined the Apricot Cherry, Laurel, and Bird Cherry together, making them only ſpecies of the ſame genus; but thoſe who admit of the fruit, as a character to determine the genus, muſt ſeparate the Cherry from the others, becauſe they differ greatly in the ſhape of their ſtones; but there is a more eſſential difference in nature between them, which is, that the Cherry will not grow upon a Plumb-ſtock, by budding or grafting, nor will the Plumb take upon a Cherry-ſtock; and yet we know of no trees of the ſame genus which do not unite with each other, by budding or grafting.

However, as the joining ſo many genera into one, would occaſion great confuſion among gardeners, who cultivate theſe trees for ſale, therefore if there were no other motive than that, it would be a ſufficient excuſe for not cloſely following that ſyſtem in this work, which is deſigned for the inſtruction of thoſe who have not made botany their ſtudy; ſo I ſhall refer the reader to the article PRUNUS, under which the botanical characters will be inſerted, and proceed to the ſpecies.

I ſhall firſt enumerate the ſorts which are ſpecifically different from each other, and then mention the varieties of theſe fruits, which are cultivated in the Engliſh gardens; many of which ſeem to differ ſo eſſentially from each other, that they may be allowed as ſpecific differences; but as I have not had an opportunity of trying the various ſorts from ſeeds, to ſee if they alter, ſo I choſe to inſert them only as varieties, till further obſervation may better ſettle their boundaries.

The SPECIES are,

1. CERASUS (*Vulgaris*) foliis ovato-lanceolatis, ſerratis. *The common, or Kentiſh Cherry.* Ceraſus ſativa rotunda rubra & acida. C. B. P. 449. *Manured Cherry with round, red, acid fruit.*

2. Cerasus (*Nigra*) foliis ſerratis lanceolatis. *Cherry-tree with ſpear-ſhaped ſawed leaves.* Ceraſus major ac ſylveſtris, fructu ſubdulci nigro colore inficiente. C. B. P. 450. *Greater wild Cherry-tree with a ſweetiſh fruit, whoſe juice affords a black colour.*
3. Cerasus (*Hortenſis*) foliis ovato-lanceolatis, floribus confertis. *Cherry-tree with oval ſpear-ſhaped leaves, and flowers growing in cluſters.* Ceraſus racemoſa hortenſis. C. B. P. 450. *Commonly called the Cluſter Cherry.*
4. Cerasus (*Mahaleb*) floribus corymboſis, foliis ovatis. Lin. Sp. Plant. 474. *Cherry-tree with flowers growing in round bunches, and oval leaves.* Ceraſus ſylveſtris amara, mahaleb putata. J. B. *The Mahaleb or perfumed Cherry.*
5. Cerasus (*Canadenſis*) foliis lanceolatis, glabris, integerrimis, ſubtus, cæſiis, ramis patulis. *Cherry-tree with ſmooth, ſpear-ſhaped, entire leaves, of a bluiſh green on their under ſide, and ſpreading branches.* Ceraſus pumila Canadenſis, oblongo anguſto folio fructu parvo. Du Hamel. *Dwarf Canada Cherry, with oblong narrow leaves, and a ſmall fruit, called Ragouminier, Nega, or Minel in Canada.*

The firſt ſort is the common or Kentiſh Cherry, which is ſo well known in England as to need no deſcription. From this ſort it hath been ſuppoſed many of the varieties which are cultivated in the Engliſh gardens, have been raiſed; but as there are very great differences in the ſize and ſhape of their leaves, as alſo in the ſhoots of the trees from thoſe of this ſort, I think it is very doubtful, where the boundaries of their ſpecific differences terminate: however, I ſhall comply with the generality of modern botaniſts, in ſuppoſing the following ſorts to have been produced from the ſeeds of this, as we have not ſufficient experiments to determine otherwiſe.

The Early May Cherry.
The May Duke Cherry.
The Archduke Cherry.
The Flemiſh Cherry.
The Red Heart.
The White Heart.
The Black Heart.
The Amber Heart.
The Ox Heart.
The Lukeward.
The Carnation.
The Hertfordſhire Heart.
The Morello.
The Bleeding Heart.
Yellow Spaniſh Cherry.

Two ſorts with double flowers, one larger and fuller than the other. Theſe are propagated for ornament.

The ſecond ſort above-mentioned is the Black Cherry, which is ſuppoſed to be a native of England. This grows to be a large tree, fit for timber, and is frequently found growing as ſuch in the woods. From this, the only varieties which I have ever known raiſed by ſeeds, are the Black Coroun, and the ſmall Wild Cherry; of which there are two or three varieties, which differ in the ſize and colour of their fruit.

Theſe Wild Cherries are very proper to plant in parks, becauſe they grow to a large ſize, and make beautiful trees; and in the ſpring, when they are in flower, will be very ornamental. The fruit of them will be good food for birds, and when the trees are cut down, the wood is very uſeful for turners. Theſe trees will thrive in poor land better than moſt other ſorts, ſo there is an advantage in propagating them in thoſe places. The French often plant them for avenues to their houſes, upon ſuch land where they cannot get any other trees to thrive; they alſo cultivate them in their woods to cut for hoops, and greatly eſteem them for this purpoſe.

The ſtones of this ſort are generally ſown for raiſing ſtocks to graft or bud the other ſorts of Cherries upon, being of quicker growth, and of longer duration than either of the other, ſo are very juſtly eſteemed and preferred to them.

The wood of the fourth ſort, is by the French greatly eſteemed for making of cabinets, becauſe it hath an agreeable odour. This, and the wood of the Bird Cherry, are often blended together, and paſs under the appellation of Bois de Sainte Lucie; but the Bird Cherry is the true ſort.

The fifth ſort was brought from Canada, where it grows naturally, to the gardens in France, where it is cultivated as a flowering ſhrub for ornament. The ſtones of this were ſent me by Dr. Bernard de Juſſieu, profeſſor of botany at Paris, which ſucceeded very well in the Chelſea garden; but by comparing this with a ſpecimen of the old Chamæceraſus, or Ceraſus humilis of Gerard, and other old writers, I find it to be the ſame plant, for it alſo agrees exactly with their deſcriptions of it.

This is a low ſhrub, which ſeldom grows more than three or four feet high, ſending out many horizontal branches, which ſpread near the ground on every ſide; and the lower branches are very ſubject to lie in the ground, where they will put out roots, and thereby multiply. The young branches have a very ſmooth bark, inclining toward red; the leaves are long, narrow, very ſmooth, and entire, having the appearance of ſome ſorts of Willow leaves, of a light green on their upper ſide, but of a bluiſh or ſea-green on their under: the flowers come out from the ſide of the branches, two, three, or four ariſing at the ſame joint moſt part of the length of the young ſhoots; theſe are ſhaped like thoſe of the common Cherry, but are ſmaller, ſtanding upon long ſlender foot-ſtalks. The fruit is like thoſe of the ſmall wild Cherry, but hath a bitteriſh flavour. It flowers about the ſame time as the other ſorts of Cherries, and the fruit ripens in July; theſe fruit are good food for birds, and the French plant them among their other ſhrubs, to entice the birds to harbour there.

It is eaſily propagated by laying down the branches early in the ſpring, which will take root by the following autumn, when they may be taken off, and either planted in a nurſery to get ſtrength, or to the places where they are deſigned to remain. It may alſo be propagated by ſowing the ſtones, in the ſame manner as other Cherries.

All the ſorts of Cherries which are uſually cultivated in fruit-gardens, are propagated by budding or grafting the ſeveral kinds into ſtocks of the Black or wild Red Cherries, which are ſtrong ſhooters, and of longer duration than any of the garden kinds. The ſtones of theſe two kinds are ſown in a bed of light ſandy earth in autumn (or are preſerved in ſand till ſpring, and then ſowed.) When theſe ſtocks ariſe they muſt be carefully weeded, and if in dry weather you refreſh them with water, it will greatly promote their growth. Theſe ſtocks ſhould remain in the nurſery-beds till the ſecond autumn after ſowing; at which time you ſhould prepare an open ſpot of good freſh earth, which ſhould be well worked; but if the ſoil is freſh, it will be the better. In this ground, in October, you ſhould plant out the young ſtocks at three feet diſtance row from row, and about a foot aſunder in the rows, being careful in taking them up from their ſeed-beds to looſen their roots well with a ſpade, to prevent their breaking, as alſo to prune their roots; and if they are inclinable to root downwards, you ſhould ſhorten the tap-root to cauſe it to put out lateral roots; but do not prune their tops, for this is what by no means they will endure.

The ſecond year after planting out, if they take to growing well, they will be fit to bud, if they are intended for dwarfs: but if they are for ſtandards, they will not be tall enough until the fourth year; for they ſhould be budded or grafted near ſix feet from the ground, otherwiſe the graft will not advance much in height; ſo that it will be impoſſible to make a good tree from ſuch as are grafted low, unleſs the graft is trained upward.

The uſual way with the nurſery gardeners is to bud their ſtocks in ſummer, and ſuch of them as miſcarry they graft the ſucceeding ſpring (the manner of theſe operations will be deſcribed under their proper heads.) Thoſe trees where the buds have taken, muſt be headed off in the beginning of March about ſix inches above the bud; and when the bud hath ſhot in ſummer, if you fear its being blown out by the winds, you may faſten it up with ſome baſs, or any other ſoft binding, to that part of the ſtock which was left above the bud. The autumn following theſe trees will be fit to remove; but if your ground is not ready to receive them, they may remain two years before they are tranſplanted; in doing which, you muſt obſerve not to head them, as is by many practiſed, for this very often is immediate death to them; but if they ſurvive it, they ſeldom recover this amputation in five or ſix years.

If theſe trees are intended for a wall, I would adviſe the planting dwarfs between the ſtandards; ſo that while the dwarfs are filling the bottom of the walls, the ſtandards will cover the tops, and will produce a great deal of fruit: but theſe, as the dwarfs ariſe to fill the walls, muſt be cut away to make room for them; and when the dwarf trees cover the walls, the ſtandards ſhould be entirely taken away. But I would adviſe, never to plant ſtandard Cherries over other fruits, for there is no other ſort of fruit that will proſper well under the drip of Cherries.

When theſe trees are taken up from the nurſery, their roots muſt be ſhortened, and all the bruiſed parts cut off; and alſo all the ſmall fibres, which would dry, grow mouldy, and be a great prejudice to the new fibres in their coming forth; you muſt alſo cut off the dead part of the ſtock which was left above the bud, cloſe down to the back part of it, that the ſtock may be covered by the bud. If theſe trees are deſigned for a wall, obſerve to place the bud directly from the wall, that the back part of the ſtock that was cut may be hid from ſight. The ſoil that Cherries thrive beſt in, is a freſh hazel loam; but if the ſoil is a dry gravel, they will not live many years, and will be perpetually blighted in the ſpring.

The ſorts commonly planted againſt walls, are the Early May, and May Duke, which ſhould have a ſouth aſpected wall. The Hearts and common Duke will thrive on a weſt wall; and in order to continue this ſort later in the ſeaſon, they are frequently planted againſt north and north-weſt aſpected walls, where they ſucceed very well; and the Morello on a north wall, which laſt is chiefly planted for preſerving. The Hearts are all of them ill bearers, for which reaſon they are ſeldom planted againſt walls: but I am apt to believe, if they were grafted upon the Bird Cherry, and managed properly, that defect might be remedied; for this ſtock (as I am informed) will render Cherries very fruitful; and having the ſame effect on Cherries, as the Paradiſe ſtock hath on Apples, they may be kept in leſs compaſs, which is an experiment well worth the trial.

Your trees, if planted againſt a wall, ſhould be placed at leaſt twenty or twenty-four feet aſunder, with a ſtandard tree between each dwarf: this will be found a reaſonable diſtance, when we conſider, that Cherry-trees will extend themſelves full as far as Apricots, and many other ſorts of fruit.

In pruning theſe ſorts of fruit, you ſhould never ſhorten their ſhoots; for the moſt part of them produce their fruit buds at the extremities, which, when ſhortened, are cut off, and this often occaſions the death of the ſhoot, at leaſt a good part of its length: their branches ſhould be therefore trained in at full length horizontally, obſerving in May, where there is a vacancy in the wall, to ſtop ſome ſtrong adjoining branches, which will occaſion their putting out two or more ſhoots; by which means, at that ſeaſon of the year, you may always get a ſupply of wood for covering the wall; and at the ſame time, ſhould all foreright ſhoots be diſplaced by the hand; for if they are ſuffered to grow till winter, they will not only deprive the bearing branches of their proper ſupply of nouriſhment, but when they are cut out, it occaſions the tree to gum in that part (for Cherries bear the knife the worſt of any ſort of fruit trees;) but be careful not to rub off the ſides or ſpurs, which are produced upon the two and three years old wood; for it is upon theſe that the greateſt part of the fruit are produced, which ſides will continue fruitful for ſeveral years. And it is for want of duly obſerving this caution, that Cherry-trees are often ſeen ſo unfruitful, eſpecially the Morello, which the more it is cut the weaker it ſhoots; and, at laſt, by frequent pruning, I have known a whole wall of them deſtroyed; which, if they had been ſuffered to grow without any pruning, might probably have lived many years, and produced large quantities of fruit.

Cherry-trees are alſo planted for orchards in many parts of England, particularly in Kent, where there are large plantations of theſe trees. The uſual diſtance allowed for their ſtanding is forty feet ſquare, at which ſpace they are leſs ſubject to blight than when they are cloſer planted; and the ground may be tilled between them almoſt as well as if it were entirely clear, eſpecially while the trees are young; and often ſtirring the ground, provided you do not diſturb their roots, will greatly help the trees; but when they are grown ſo big as to over-ſhadow the ground, the drip of their leaves will ſuffer very few things to thrive under them. Theſe ſtandard trees ſhould be planted in a ſituation defended as much as poſſible from the ſtrong weſterly winds, which are very apt to break their tender branches; this occaſions their gumming, and is very prejudicial to them.

The ſorts beſt approved for an orchard, are the common Red, or Kentiſh Cherry, the Duke, and Lukeward; all which are plentiful bearers. But orchards of theſe trees are now ſcarcely worth planting, except where land is very cheap; for the uncertainty of their bearing, with the trouble in gathering the fruit, together with the ſmall price it commonly yields, hath occaſioned the deſtroying many orchards of this fruit in Kent within a few years paſt.

This fruit was brought out of Pontus, at the time of the Mithridatic victory, by Lucullus, in the year of the city 680, and were brought into Britain about 120 years afterward, which was An. Dom. 55; and were ſoon after ſpread through moſt parts of Europe, it being generally eſteemed for its earlineſs, as being one of the firſt of the tree fruit that appears to welcome in the approaching fruit ſeaſon.

This ſort of fruit hath been by many people grafted upon the Laurel, to which it is a congener; but the effect it hath in the growth of the tree, as alſo in its fruit, will not recommend it to practice, the trees being of ſhort duration, and ſeldom produce much fruit; though this practice is as old as Pliny, who ſays it gives the fruit a pleaſant bitterneſs: but there is little to be depended upon in the writings of the ancients, with reſpect to the ſeveral ſorts of trees being grafted upon each other; very few of thoſe which we find mentioned by them to have been frequently practiſed, will not ſucceed with us. Nor is it owing to the difference of climate, as ſome have ſuppoſed, who are inclinable to believe whatever they find related in thoſe books, eſpecially in the buſineſs of huſbandry and gardening; whereas many of the rules for the practical part of huſbandry, are not founded on experiments, but are mere theory; for from many repeated trials which have been made with the utmoſt care, by perſons of the beſt ſkill, it appears, that no two ſorts of trees, which are of different claſſes, will take upon each other. However, the Laurel and the Cherry being of the ſame genus, or ſo near of kin to be ranked together by moſt botaniſts, will take upon each other by grafting. But I have not yet ſeen any of the trees ſo grafted, which have lived to be of any conſiderable ſize; though I have ſeen many trees ſo grafted, which have lived a few years, but have made very poor progreſs; nor do I remember to have ſeen any fruit upon the Cherry-trees which were grafted on the Laurels, therefore cannot determine what effect this has on the flavour of the fruit.

There are ſome perſons who graft the Duke, and other ſorts of Cherries, upon the Morello Cherry, which is but a weak ſhooter, in order to check the luxuriant growth of their trees, which will ſucceed for three or four years: but they are not of long duration, nor have I ever ſeen one tree ſo grafted, which had made ſhoots above ſix or eight inches long, but they were cloſely covered with bloſſoms, ſo may produce

duce ſome fruit in a ſmall compaſs; but theſe are experiments unfit to be carried into general uſe, and only proper to ſatisfy curioſity; for is it not much better to allow the trees a greater ſhare of room againſt the walls, when one tree ſo planted and properly managed, will produce more fruit than twenty of theſe trees, or twice that number, when they are planted too cloſe, though they are grafted upon the Black Cherry or any other free ſtock.

The Early or May Cherry is the firſt ripe, ſo one or two trees of this ſort may be allowed a place in a garden, where there is room for variety. The next ripe is the May Duke, which is a larger fruit than the other, and is more valuable. After this comes the Archduke, which, if permitted to hang upon the tree till the fruit is quite ripe, is an excellent Cherry; but few perſons have patience to let them hang their full time, ſo rarely have them in perfection, for theſe ſhould not be gathered before July; and if they hang a fortnight longer they will be better. This is to be underſtood of the ſituation near London, where they ripen a fortnight earlier than in places forty miles diſtant, unleſs they have a very warm ſheltered ſituation. When this ſort is planted againſt north walls, the fruit may be continued till the middle of Auguſt; but theſe muſt be protected from the birds, otherwiſe they will deſtroy them.

The Hertfordſhire Cherry, which is a ſort of Heart Cherry, but a firmer and better flavoured fruit, will not ripen earlier than the end of July, or the beginning of Auguſt, which makes it the more valuable for its coming when the other ſorts of Cherries are gone. This is now pretty common in the nurſeries; but as it is one of the beſt kind of Cherries, it is well worthy of being propagated in the nurſeries.

The Morello Cherry, which is generally planted againſt walls to a north aſpect, and the fruit commonly uſed for preſerving; yet where they are planted to a better aſpect, and ſuffered to hang upon the trees until they are thoroughly ripe, is a very good fruit for the table; therefore ſome of the trees of this ſort ſhould have place where there is plenty of walling, upon a ſouth-weſt wall, where they will ripen perfectly by the middle or end of Auguſt, at which time they will be an acceptable fruit.

The Carnation Cherry is alſo valuable for coming late in the ſeaſon; this has a very firm fleſhy fruit, but is not the beſt bearer. This ſort will ſome ſeaſons ripen very well on eſpaliers, and by this means the fruit may be continued longer in the ſeaſon.

The large Spaniſh Cherry is nearly allied to the Duke Cherry, from which it ſeems to be only a variety accidentally obtained; this ripens ſoon after the common Duke Cherry, and very often paſſes for it.

The yellow Spaniſh Cherry is of an oval ſhape and of an amber colour; this ripens late, and is a ſweet Cherry, but not of a rich flavour; and being but a middling bearer, is not often admitted into curious gardens, unleſs where variety is chiefly conſidered.

The Corone, or Coroun Cherry, is ſomewhat like the Black Heart, but a little rounder; this is a very good bearer and an excellent fruit, ſo ſhould have a place in every good fruit-garden. This ripens the middle of July.

The Lukeward ripens ſoon after the Corone Cherry; this is a good bearer, and a very good fruit; it is of a dark colour, not ſo black as the Corone; this will do well in ſtandards.

The Black Cherry is ſeldom grafted or budded, but is generally ſown for ſtocks to graft the other kinds of Cherries upon; but where perſons are curious to have the beſt flavoured of this ſort of fruit, they ſhould be propagated by grafting from ſuch trees as produce the beſt fruit. This ſort of Cherry is frequently planted in wilderneſſes, where it will grow to a large ſize, and, at the time of its flowering, will make a variety, and the fruit will be food for the birds.

The double-flowering Cherry is alſo propagated for the beauty of the flowers, which are extremely fine, the flowers being as double and large as a Cinnamon Roſe; and theſe being produced in large bunches on every part of the tree, render it one of the moſt beautiful trees of the ſpring. Some of the flowers which are leſs double, will often produce ſome fruit, which the very double flowers will not; but this defect is ſufficiently recompenſed in the beauty of its flowers. This is propagated by budding or grafting on the Black or Wild Cherry ſtock, and the trees are very proper to intermix with the ſecond growth of flowering trees.

CERASUS RACEMOSA. See Padus.

CERATONIA. Lin. Gen. Plant. 983. Siliqua. Tourn. Inſt. R. H. 578. tab. 344. The Carob, or St. John's Bread, in French *Carouge*.

The Characters are,

It is male and female in diſtinct trees. The male flowers have large empalements, divided into five parts; they have no petals, but have five long ſtamina, terminated by large ſummits. The female flowers have empalements of one leaf, divided by five tubercles; they have no petals, but a fleſhy germen ſituated within the receptacle, ſupporting a ſlender ſtyle, crowned by a ſtigma in form of a head. The germen afterward becomes a long, fleſhy, compreſſed pod, divided by tranſverſe partitions, each having one large, roundiſh, compreſſed ſeed.

This genus of plants is ranged in the third ſection of Linnæus's twenty-third claſs, intitled Polygamia Triœcia. The plants of this claſs have male, female, and hermaphrodite flowers on diſtinct plants.

We have but one Species of this genus, viz.

Ceratonia (*Siliqua*.) H. L. The Carob-tree, or St. John's Bread. Siliqua edulis of Caſpar Bauhin, and the Caroba of Dale.

This tree is very common in Spain, and in ſome parts of Italy, as alſo in the Levant, where it grows in the hedges, and produces a great quantity of long, flat, brown-coloured pods, which are thick, meally, and of a ſweetiſh taſte. Theſe pods are many times eaten by the poorer ſort of inhabitants when they have a ſcarcity of other food, but they are apt to looſen the belly, and cauſe gripings of the bowels. The pods are directed by the College of Phyſicians to enter ſome medicinal preparations, for which purpoſe they are often brought from abroad.

In England the tree is preſerved by ſuch as delight in exotic plants, as a curioſity; the leaves always continue green, and being different in ſhape from moſt other plants, afford an agreeable variety when intermixed with Oranges, Myrtles, &c. in the green-houſe.

Theſe plants are propagated from ſeeds, which, when brought over freſh in the pods, will grow very well, if they are ſown in the ſpring upon a moderate hot-bed; and when the plants are come up they ſhould be carefully tranſplanted each into a ſeparate ſmall pot filled with light rich earth, and plunged into another moderate hot-bed, obſerving to water and ſhade them until they have taken root; after which you muſt let them have air, in proportion to the heat of the weather. In June you muſt inure them to the open air by degrees; and in July they ſhould be removed out of the hot-bed, and placed in a warm ſituation, where they may remain until the beginning of October, when they ſhould be removed into the green-houſe, placing them where they may have free air in mild weather; for they are pretty hardy, and require only to be ſheltered from hard froſts. When the plants have remained in the pots three or four years, and have gotten ſtrength, ſome of them may be turned out of the pots in the ſpring, and planted into the full ground, in a warm ſituation, near a ſouth wall, where they will endure the cold of our ordinary winters very well, but muſt have ſome ſhelter in very hard weather.

I have not as yet ſeen any of theſe trees produce flowers, though from ſome which have been planted ſome time againſt walls, it is probable there may be flowers and fruit in a few years; though it cannot be expected that the fruit will ever ripen in this country.

CERBERA. Lin. Gen. Plant. 260. Thevetia. Lin. Hort. Cliff. 76. Prod. Leyd. 413. Ahouai. Tourn. Inſt. R. H. 657. tab. 434.

The Characters are,

The empalement is compoſed of five ſharp-pointed leaves, which ſpread open and fall away. The flower is of one leaf, funnel-ſhaped, having a long tube ſpread open at the top, where it is divided into five large obtuſe ſegments, ſtanding oblique to the mouth of the tube; it hath five ſtamina ſituated in the middle of the tube, which are terminated by erect ſummits; theſe ſtand cloſe together. In the center is ſituated a roundiſh germen, ſupporting a ſhort ſtyle, crowned by a ſtigma in form of a head. The germen afterward becomes a large, fleſhy, roundiſh berry, with a longitudinal furrow on the ſide, dividing it into two cells, each containing a ſingle, large, compreſſed nut.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Cerbera (*Ahouai*) foliis ovatis. Lin. Sp. Plant. 208. *Cerbera with oval leaves.* Ahouai. Thevet. Antarct. 66. Tourn. Inſt. 658. *The Ahouai.*
2. Cerbera (*Thevetia*) foliis linearibus, longiſſimis, confertis. Lin. Sp. Plant. 209. *Cerbera with very long narrow leaves growing in cluſters.* Ahouai Nerii folio, flore luteo. Plum. Cat. 20. *Ahouai with a Roſe-bay leaf, and a yellow flower.*
3. Cerbera (*Manghas*) foliis lanceolatis, nervis tranſverſalibus. Flor. Zeyl. 106. *Cerbera with ſpear-ſhaped leaves and tranſverſe nerves.* Manghas lacteſcens, foliis Nerii craſſis venoſis, Jaſmini flore, fructu Perſici ſimili venenato. Burm. Zeyl. 150. tab. 70.

The firſt ſort grows naturally in the Brazils, and alſo in the Spaniſh Weſt Indies in plenty; and there are ſome of the trees growing in the Britiſh iſlands of America; this riſes with an irregular ſtem to the height of eight or ten feet, ſending out many crooked diffuſed branches, which toward their tops are garniſhed with thick ſucculent leaves about three inches long, and near two broad, of a lucid green, ſmooth, and very full of a milky juice, as is every part of the ſhrubs. The flowers come out in looſe bunches at the end of the branches, of a cream colour, having long narrow tubes at the top cut into five obtuſe ſegments, which ſeem twiſted, ſo as to ſtand oblique to the tube; theſe ſpread open, and have the appearance of the flowers of Oleander. It flowers in July and Auguſt, but never produces fruit in England. The wood of this tree ſtinks moſt abominably, and the kernels of the nuts are a moſt deadly poiſon; ſo that the Indians always caution their children againſt eating them, for they know of no antidote to expel this poiſon; nor will any of them uſe the wood of this tree for fuel, but they take the kernels out of the ſhells, into which they put ſmall ſtones, then bore a hole through each ſhell, and ſtring them; theſe they tie about their legs to dance with, as the morris-dancers uſe bells.

The ſecond ſort grows naturally in the Spaniſh Weſt Indies, and alſo in ſome of the French iſlands in America, and hath lately been introduced into the Britiſh iſlands, from whence I received the ſeeds by the title of French Phyſic Nut; but how it came by that appellation, I cannot imagine, becauſe there is another plant which grows common there, and has paſſed under that title many years.

This riſes with a round ſtalk about the ſame height as the former, dividing upward into many branches. Theſe, when young, are covered with a green ſmooth bark, but as they grow older, the bark becomes rough, but changes to a gray or Aſh-colour. The leaves are four or five inches long, and half an inch broad in the middle, ending in ſharp points, of a lucid green, and come out in cluſters without order, and are full of a milky juice, which flows out when they are broken. The flowers come out from the ſide of the branches upon long foot-ſtalks, each ſupporting two or three yellow flowers with long tubes, ſpreading open in the ſame manner as the former. It flowers about the ſame time as the former, but never produces fruit in England.

The third ſort grows naturally in India, and alſo in ſome parts of the Spaniſh Weſt Indies, from whence I received the ſeeds; this riſes with a woody ſtem to the height of twenty feet, ſending out many branches toward the top, garniſhed with long ſpear-ſhaped leaves, which are rounded at their ends; they are thick, ſucculent, and, on their upper ſide, of a lucid green, having ſeveral tranſverſe nerves from the midrib to the ſide; on their under ſide they are of a paler green. The flowers are produced at the end of the branches, ſtanding on long foot-ſtalks, each ſuſtaining two or three flowers ſhaped like thoſe of the other ſpecies.

Theſe plants may be propagated from their nuts, which muſt be procured from the countries where they grow naturally; theſe ſhould be put into ſmall pots filled with light earth, and plunged into a hot-bed of tanners bark in the ſpring, and treated in the ſame manner as other tender exotic ſeeds, giving them now and then a little water to promote their vegetation. When the plants are come up about two inches high, they ſhould be tranſplanted each into a ſeparate pot, filled with light ſandy earth, and plunged again into a hot-bed of tanners bark, obſerving to ſhade the glaſſes in the heat of the day, until the plants have taken new root; they muſt alſo be frequently refreſhed with water, but it muſt not be given in too large quantities. As the ſummer advances, theſe plants ſhould have air admitted to them in proportion to the warmth of the ſeaſon; and when they have filled theſe ſmall pots with their roots, they ſhould be turned out and tranſplanted into other pots of a larger ſize, but they muſt not be too large; for the roots of theſe plants ſhould be confined, nor ſhould the earth in which they are planted be rich, but a light ſandy ſoil is beſt for them; after they are new potted they ſhould be plunged into the hot-bed again, obſerving to water them now and then, as alſo to admit air under the glaſſes every day in proportion to the warmth of the ſeaſon. When the plants are grown about a foot high, they ſhould have a larger ſhare of air, in order to harden them before the winter, but they ſhould not be wholly expoſed to the open air. In the winter theſe plants ſhould be placed in a warm ſtove, and during that ſeaſon they ſhould have very little water given to them, eſpecially in cold weather, leſt it ſhould rot their roots. In the following ſpring theſe plants ſhould be ſhifted again into other pots, at which time you ſhould take away as much as you conveniently can of the old earth from their roots, and afterwards cut off the decayed fibres; then put them into pots filled with the ſame light ſandy earth, and plunge them into the bark-bed again, for theſe plants will not thrive well unleſs they are conſtantly kept in tan: and as they abound with milky juice, they ſhould be ſparingly watered, for they are impatient of moiſture, eſpecially during the winter ſeaſon.

When by any accident the tops of theſe plants are injured, they frequently put out ſhoots from their roots, which, if carefully taken up and potted, will make good plants, ſo that they may be this way propagated.

CERCIS. Lin. Gen. Plant. 458. Siliquaſtrum. Tourn. Inſt. R. H. 646. tab. 414. The Judas-tree, in French *Guainier.*

The Characters are,

It hath a ſhort bell-ſhaped empalement of one leaf, which is convex at the bottom, and full of honey liquor; at the top it is indented in five parts. The flower hath five petals, which are inſerted in the empalement, and greatly reſembles a papilionaceous flower. The two wings riſe above the ſtandard, and are reflexed; the ſtandard is of one roundiſh petal, and the keel is compoſed of two petals, in form of a heart, which incloſe the parts of generation. It hath ten diſtinct ſtamina, which decline, four of which are longer than the reſt, and are terminated by oblong incumbent ſummits. It hath a long ſlender germen,

men, ſitting upon a ſlender ſtyle, crowned by an obtuſe ſtigma; the germen afterward becomes an oblong pod with an oblique point, having one cell, incloſing ſeveral roundiſh compreſſed ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, the flower having ten ſtamina and one ſtyle. This genus is by all the writers placed with the papilionaceous flowers, before Linnæus's Syſtem, which ſeparates it from them, becauſe the ſtamina in theſe flowers are all diſtinct; whereas the papilionaceous flowers have nine ſtamina joined together, and one ſeparate.

The Species are,

1. Cercis (*Siliquaſtrum*) foliis cordato-orbiculatis glabris. Hort. Cliff. 156. *Cercis with round, heart-ſhaped, ſmooth leaves.* Siliquaſtrum. Caſt. Duran. 415. and the Arbor Judæ. Dod. Pemp. 786. *The common Judas-tree.*
2. Cercis (*Canadenſis*) foliis cordatis pubeſcentibus. Hort. Cliff. 156. *Cercis with downy heart-ſhaped leaves.* Siliquaſtrum Canadenſe. Tourn. Inſt. R. H. 647. *Canada Arbor Judæ, or Red Bud-tree.*

The firſt ſort grows naturally in the ſouth of France, Spain, and Italy, and is by the Spaniards and Portugueſe, titled the Tree of Love: this riſes with an upright trunk to the height of twenty feet, covered with a dark brown bark, dividing upward into many irregular branches, garniſhed with round, heart-ſhaped, ſmooth leaves, placed irregularly on the branches, having long foot-ſtalks; they are of a pale green on their upper, and of a grayiſh colour on their under ſide, and fall off in autumn. The flowers come out on every ſide the branches, and many times from the ſtem of the tree in large cluſters, ariſing from the ſame point, having ſhort foot-ſtalks; they are of a very bright purple colour, ſo make a fine appearance, eſpecially when the branches are covered pretty thick with them: for they come out in the ſpring with the leaves, ſo are in full beauty before the leaves have obtained to half their ſize. The ſhape of the flower is the ſame as other papilionaceous (or butterfly) flowers; theſe have an agreeable poignancy, ſo are frequently eaten in ſallads. When the flowers fall off, the germen becomes a long flat pod with one cell, containing one row of roundiſh ſeeds, a little compreſſed; but theſe do not often ſucceed the flowers in this country upon ſtandard trees, for the birds pick off the flowers when fully open; but where they have been planted againſt good aſpected walls, I have ſeen great plenty of the pods, which, in warm ſeaſons, have ripened very well.

Theſe trees are uſually planted with other flowering trees and ſhrubs for ornaments to pleaſure-gardens, and for their ſingular beauty, deſerve a place as well as moſt other ſorts; for when they are arrived to a good ſize, they are productive of flowers, ſo as that the branches are often cloſely covered with them; and the ſingular ſhape of their leaves make a very pretty variety in the ſummer, and are ſeldom damaged by inſects, ſo that they are often entire, when many other trees have their leaves almoſt eaten up. This tree flowers in May, when planted in the full air, but againſt warm walls it is a fortnight or three weeks earlier.

The wood of this tree is very beautifully veined with black and green, and takes a fine poliſh, ſo may be converted to many uſes.

There are two other varieties of this tree, one with a white, and the other hath a fleſh-coloured flower, but theſe have not half the beauty of the firſt. Tournefort alſo mentions one with broader pods and pointed leaves, which I believe is only a variety of this.

The ſecond ſort grows naturally in moſt parts of North America, where it is called Red Bud, I ſuppoſe from the red flower-buds appearing in the ſpring before the leaves come out; this grows to a middling ſtature in the places where it is a native, but in England rarely riſes with a ſtem more than twelve feet high, but branches out near the root. The branches of this are weaker than thoſe of the firſt ſort; the leaves are downy, and terminate in points; whereas thoſe of the firſt are ſmooth, and round at the end where they are indented. The flowers of this are alſo ſmaller, ſo do not make ſo fine appearance as thoſe of the firſt; but the trees are equally hardy, and will thrive in the open air very well.

The flowers of this ſort are frequently put into ſallads by the inhabitants of America; and the French in Canada pickle the flowers, but theſe have little flavour. The wood of this tree is of the ſame colour and texture as that of the firſt.

Theſe plants may be propagated by ſowing their ſeeds upon a bed of light earth, towards the latter end of March, or the beginning of April (and if you put a little hot dung under the bed, it will greatly facilitate the growth of the ſeeds;) when the ſeeds are ſown, ſift the earth over them about half an inch thick; and, if the ſeaſon prove wet, it will be proper to cover the bed with mats, to preſerve it from great rains, which will ſometimes burſt the ſeeds, and cauſe them to rot; the ſeeds will often remain till the ſpring following before they come up, ſo the ground muſt not be diſturbed till you are convinced that the plants are all come up; for ſome few may riſe the firſt year, and a greater number the ſecond.

When the plants are come up they ſhould be carefully cleared from weeds, and in very dry weather muſt be now and then refreſhed with water, which will greatly promote their growth. The winter following, if the weather is very cold, it will be proper to ſhelter the plants, by covering them either with mats or dry ſtraw in hard froſts, but they ſhould conſtantly be opened in mild weather, otherwiſe they will grow mouldy and decay.

About the beginning of April, you ſhould prepare a ſpot of good freſh ground, to tranſplant theſe out (for the beſt ſeaſon to remove them is juſt before they begin to ſhoot;) then you ſhould carefully take up the plants, being careful not to break their roots, and plant them as ſoon as poſſible, becauſe if their roots are dried by the air, it will greatly prejudice them.

The diſtance theſe ſhould be planted, muſt be proportionable to the time they are to remain before they are again tranſplanted; but commonly they are planted two feet row from row, and a foot aſunder in the rows, which is full room enough for them to grow two or three years, by which time they ſhould be tranſplanted where they are deſigned to remain; for if they are too old when removed, they ſeldom ſucceed ſo well as younger plants.

The ground between the plants ſhould be carefully kept clean from weeds in ſummer, and in the ſpring ſhould be well dug to looſen the earth, that their roots may extend themſelves every way; at that ſeaſon prune off all ſtrong ſide branches (eſpecially if you intend to train them up for ſtandard trees,) that their top branches may not be checked by their ſide ſhoots, which often attract the greateſt part of the nouriſhment from the roots; and if their ſtems are crooked, you muſt place a ſtrong ſtake down by the ſide of each plant, and faſten the ſtem to it in ſeveral places, ſo as to bring it ſtrait, which direction it will ſoon take as it grows larger, and thereby the plants will be rendered beautiful.

When they have remained in this nurſery two or three years, they ſhould be tranſplanted in the ſpring where they are deſigned to remain, which may be in wilderneſs quarters among other flowering trees, obſerving to place them with trees of the ſame growth, ſo as they may not be overhung, which is a great prejudice to moſt plants.

CEREFOLIUM. See Chærefolium.

CEREUS. Par. Bat. 122. Boerh. Ind. alt. 1. 292. Juſſ. Act. R. Par. 1716. Cactus. Lin. Gen. Plant. 539. The Torch Thiſtle.

The Characters are,

It hath an oblong ſcaly empalement, which is covered with ſpines, and ſits upon the germen. The flower is compoſed *of a great number of narrow pointed petals, which ſpread open like the ſun's rays. It hath a great number of declining ſtamina, which are inſerted to the baſe of the petals, and are terminated by oblong ſummits. The germen, which is ſituated under the empalement, ſupports a long cylindrical ſtyle, crowned with a multifid ſtigma, in form of a head. The germen afterward becomes an oblong ſucculent fruit, with a prickly ſkin, full of ſmall ſeeds incloſed in the pulp.*

Dr. Linnæus has joined the plants of this genus, and alſo thoſe of Opuntia to the Cactus, making them only ſpecies of the ſame genus; but as the flowers of theſe plants differ greatly in their form from thoſe of the Cactus, they ſhould be ſeparated; and by preſerving the title to this genus, by which it has been long known, it will prevent confuſion; and by increaſing the number of genera, the ſpecific differences may be better aſcertained. Linnæus places the genus of Cactus in his twelfth claſs, intitled Icoſandria, in which he includes thoſe plants, whoſe flowers have from nineteen to thirty ſtamina, which are faſtened to the petals.

The Species are,

1. Cereus (*Hexagonus*) erectis, ſexangularis, longus, angulis diſtantibus. *Upright long Cereus with ſix angles, which are far diſtant.* Cereus erectus altiſſimis Surinamenſis. Par. Bat. 116. *Talleſt upright Torch Thiſtle of Surinam.*
2. Cereus (*Tetragonus*) erectis quadrangularis, angulis compreſſis. *Upright Cereus with four compreſſed angles.* Cereus erectus quadrangularis, coſtis alarum inſtar aſſurgentibus. Boerh. Ind. alt. 293. *Four-cornered upright Torch Thiſtle.*
3. Cereus (*Lanuginoſus*) erectus octangularis, angulis obtuſis, ſupernè inermibus. *Upright Cereus with eight obtuſe angles, having no ſpines on the upper part.* Cereus erectus, fructu rubro non ſpinoſo. Par. Bat. 114. *Upright Torch Thiſtle with a red fruit, having no ſpines.*
4. Cereus (*Peruvianus*) erectus octangularis, angulis obtuſis, ſpinis robuſtioribus patulis. *Upright Cereus with eight angles which are obtuſe, and ſtrong ſpreading ſpines.* Cereus erectus maximus fructu ſpinoſo rubro. Dadus. Par. Bat. 113. *Greateſt upright Torch Thiſtle with a red prickly fruit.*
5. Cereus (*Repandus*) erectus novemangularis, obſoletis angulis, ſpinis lanâ brevioribus. *Upright Cereus with nine angles, and ſpines ſhorter than the down.* Cereus Curaſſavicus, erectus, maximus, fructu rubro non ſpinoſo, lanugine flaveſcente. Par. Bat. 115. *Greateſt upright Torch Thiſtle with a red fruit, having no ſpines, and a yellowiſh down.*
6. Cereus (*Heptagonus*) erectus octangularis, ſpinis lanâ longioribus. *Upright Cereus with ſeven or eight angles, and ſpines longer than the down.* Cereus erectus craſſiſſimus maximè anguloſus, ſpinis albis pluribus longiſſimis, lanugine flavâ. Boerh. Ind. alt. 293. *Upright thickeſt Torch Thiſtle, having many angles, ſeveral very long white ſpines, and a yellow down.*
7. Cereus (*Royeni*) erectus novemangularis, ſpinis lanâ æqualibus. *Upright Torch Thiſtle with nine angles, and ſpines of equal length with the down.* Cereus erectus, gracilis, ſpinoſiſſimis, ſpinis flavis, polygonus, lanugine albâ palleſcente. Boerh. Ind. alt. 293. *Upright ſlender Torch Thiſtle, very full of yellowiſh ſpines, many angles, and a pale white down.*
8. Cereus (*Gracilis*) erectus gracilior novemangularis ſpinis brevibus, angulis obtuſis. *Slenderer upright Torch Thiſtle having nine obtuſe angles, and ſhort ſpines.* Cereus altiſſimis, gracilior, fructu extus luteo intus niveo, ſeminibus nigris pleno. *Talleſt ſlender Torch Thiſtle with a fruit yellow without, white within, and full of black ſeeds.*
9. Cereus (*Triangularis*) repens triangularis, fructu maximo rotundo, rubro, eſculento. *Creeping triangular Torch Thiſtle, with very large, round, red, eatable fruit.* Cereus ſcandens minor trigonus articulatis fructu ſuaviſſimo. Par. Bat. Prod. 118. *Leſſer, creeping, three-cornered, jointed Torch Thiſtle, with a very ſweet fruit, commonly called in the Weſt Indies, the true prickly Pear, and by the Spaniards Pithatiaya.*
10. Cereus (*Compreſſis*) repens triangularis, angulis compreſſis. *Creeping triangular Torch Thiſtle, with compreſſed angles.* Ficoides Americanum, ſ. Cereus erectus, criſtatus, foliis triangularibus profundè canaliculatis. Pluk. Phyt. tab. 29. f. 3. *Creſted American Torch Thiſtle, with three angles deeply channelled.*
11. Cereus (*Grandiflorus*) repens ſubquinquangularibus. *Creeping Torch Thiſtle with five angles.* Cereus ſcandens minor polygonus articulatis. Par. Bat. 120. *Leſſer jointed climbing Torch Thiſtle with many angles.*
12. Cereus (*Flagelliformis*) repens decemangularis. *Creeping Cereus with ten angles.* Cereus minor ſcandens, polygonus, ſpinoſiſſimis, flore purpureo. Ed. Prior. *Leſſer climbing Torch Thiſtle, with many ſpinous angles and a purple flower.*

The firſt ſort has been the moſt common in the Engliſh gardens. This grows naturally in Surinam, from whence it was brought to the gardens in Holland, where it produced flowers in the year 1681, and from the Dutch gardens, moſt parts of Europe have been ſupplied with this plant.

This riſes with an upright ſtalk, having ſix large angles, which are far aſunder, armed with ſharp ſpines, which come out in cluſters at certain diſtances, ariſing from a point, but ſpread open every way like a ſtar; the outer ſubſtance of the plant is ſoft, herbaceous, and full of juice, but in the center there is a ſtrong fibrous circle running the whole length, which ſecures the ſtem from being broke by winds. Theſe will riſe to the height of thirty or forty feet, provided their tops are not injured, if they have room to grow; but ſome of them have grown too tall to be kept in the ſtoves, ſo have either been cut off, or the plants laid down at length in winter; but whenever the ſtems are cut, or otherwiſe injured, they put out one, two, or ſometimes three ſhoots, from the angles, immediately under the wounded part, and frequently one or two lower down. Theſe ſhoots, if they are not cut off, form ſo many diſtinct ſtems, and grow upright; but theſe ſeldom are ſo large as the principal ſtem, eſpecially if more than one is left on the ſame plant. The flowers come out from the angles on the ſide of the ſtem; theſe have a thick, fleſhy, ſcaly foot-ſtalk, round, channelled, and hairy, ſupporting a ſwelling germen, upon the top of which ſits the ſcaly prickly empalement, cloſely ſurrounding the petals of the flowers, till a little time before they expand, which in moſt of the ſorts is in the evening, and their duration is very ſhort, for before the next morning they wither and decay. The flower of this ſort is compoſed of many concave petals, which, when fully expanded, are as large as thoſe of the Hollyhock; the inner petals are white, and crenated at their extremity. The empalement is green, with ſome purple ſtripes; the middle of the flower is occupied by a great number of ſtamina, which decline, and riſe at their extremities, having roundiſh ſummits. The flowers of this kind are never ſucceeded by fruit in this country, nor do the plants often produce their flowers here; but when they do, there are generally ſeveral on the ſame plant. I have ſome years had more than a dozen upon a ſingle plant, which have all flowered within a few days of each other. The uſual time of its flowering is in July.

This ſort is not ſo tender as the others, ſo may be preſerved in a warm green-houſe, without any artificial heat; but the plants ſhould have no water given them in winter, when they are thus ſituated; for unleſs they are placed in a ſtove, where the moiſture is ſoon evaporated, the wet will occaſion them to rot.

Theſe plants naturally grow upon very dry rocky places, where their roots are confined, ſo they muſt not be planted in large pots, nor ſhould they be planted in rich ſoil; the beſt compoſt for them is one third light earth from a common, a third of ſea ſand, and the other part ſifted lime-rubbiſh; if theſe are well mixed together, and often turned over before the plants are put into it, they will thrive the better. The farther directions for their management, will be hereafter exhibited.

The ſecond ſort riſes with an upright ſtem like the firſt, but it hath only four angles, which are compreſſed, and ſtand far aſunder. This is very ſubject to put out many ſhoots from the ſides, which ſtops its upright growth, ſo that the plants rarely riſe more than four or five feet high. This hath not flowerd in England, ſo far as I have been able to learn.

The third, fourth, fifth, ſixth, ſeventh and eighth ſorts grow naturally in the Britiſh iſlands of America, from whence I received them in the year 1728. Theſe have the ſame form as the firſt, but differ in the ſize of their ſtems, the number of angles, and the length of their ſpines, as is before expreſſed in their titles; but, except the eighth ſort, not any of them have flowered in England as yet, though there are many of the plants which are more than twelve or fourteen feet high: the eighth ſort hath the ſmalleſt ſtem of any of the upright ſorts which I have yet ſeen; this hath generally nine obtuſe angles, which are armed with ſhort ſpines, placed at farther diſtances than thoſe of the other ſorts, nor are the channels between the angles near ſo deep. The flowers of this are produced from the angels, in the ſame manner as the firſt, but they are ſmaller, and the empalement is of a light green, without any mixture of colour. The fruit is about the ſize and ſhape of a middling Bergamot Pear, having many ſoft ſpines on the ſkin; the outſide is a pale yellow, the inſide very white, full of pulp, having a great number of ſmall black ſeeds lodged in it. This ſort frequently flowers in July, and in warm ſeaſons will perfect its fruit, which hath very little flavour in this country.

Theſe ſorts are more impatient of cold than the firſt, ſo require a ſtove to preſerve them in winter; nor ſhould they be expoſed abroad in ſummer, but kept conſtantly in the houſe, giving them a large ſhare of air in warm weather.

The twelfth ſort grows naturally in Peru, from whence it was ſent to the royal garden at Paris; and in the year 1734, I was favoured with ſome cuttings of it by Dr. Bernard de Juſſieu, demonſtrator of the plants in that garden. Theſe ſucceeded in the Chelſea garden, and have ſince been communicated to moſt of the curious gardens in England. This is not ſo tender as the other ſorts, ſo may be preſerved in a good green-houſe, or placed under a hot-bed frame in winter, and in ſummer ſhould be expoſed to the open air, which will prevent the ſhoots from drawing weak, and thereby a greater number of flowers will be produced; but during the time they remain in the open air, they ſhould have little water; and if the ſeaſon ſhould prove wet, the plants ſhould be ſcreened from it, otherwiſe it will cauſe them to rot the following winter. This ſort produces its flowers in May, and ſometimes earlier, when the ſeaſon is warm.

The ninth ſort is, by the inhabitants of Barbadoes, trained up againſt their houſes for the ſake of its fruit, which is about the bigneſs of a Bergamot Pear, and of a moſt delicious flavour. This, and alſo the tenth, eleventh, and twelfth ſorts, are tender, ſo require a warm ſtove to preſerve them. Theſe ſhould be placed againſt the walls of the ſtove, into which they will inſinuate their roots, and extend themſelves to a great length; and with a little help, in faſtening them to the wall in a few places, may be led up about the cieling of the houſe, where they will appear very handſome. And the eleventh ſort, when arrived to a ſufficient ſtrength, will produce many exceeding large, beautiful, ſweet-ſcented flowers; but they are (like moſt of the flowers of theſe kinds) of very ſhort duration, ſcarcely continuing full blown ſix hours; nor do the ſame flowers ever open again, when once cloſed: they begin to open in the evening between ſeven and eight of the clock, are fully blown by eleven, and by three or four the next morning fade, and hang down quite decayed; but, during their continuance, there is ſcarce any flower of greater beauty, or that makes a more magnificent appearance; for the calyx of the flower, when open, is near a foot diameter; the inſide of which, being of a ſplendid yellow colour, appears like the rays of a bright ſtar, the outſide of a dark brown; and the petals of the flowers being of a pure white, adds to the luſtre; and the vaſt number of recurved ſtamina, ſurrounding the ſtyle in the center of the flower, make a fine appearance; and add to this the fine ſcent of the flower, which perfumes the air to a conſiderable diſtance: there is ſcarce any plant which deſerves a place in the hot-houſe ſo much as this, eſpecially as it is to be trained againſt the wall, where it will not take up room. The uſual ſeaſon of its flowering is in July, and when the plants are large, they will produce a great number of flowers, ſo that there will be a ſucceſſion of them for ſeveral nights, and many of them will open the ſame night. I have frequently had ſix, eight, or ten flowers open at the ſame time upon one plant, which have made a moſt magnificent appearance by candle-light, but none of them have been ſucceeded by any appearance of fruit.

The tenth ſort produces a flower little inferior to the former, as I have been informed by perſons who have ſeen them; but I never had the good fortune to have any of theſe plants which have been under my care flower; nor have I heard of more than two gardens where they have as yet flowered in England; the firſt of them was many years ſince in the royal gardens at Hampton Court, when there was a curious collection of exotic plants kept in good order in thoſe gardens, which have ſince been greatly neglected; the other was produced in the gardens of the right honourable the Marquis of Rockingham, at Wentworth-Hall, in Yorkſhire. Theſe are the only gardens in this country where I have heard of this ſort having produced flowers; although there are many of theſe plants in ſeveral gardens, which are of a conſiderable age, and extend their branches to a very great diſtance.

The ninth ſort has never produced any flowers as yet in England, nor have we any good figure of the flower in any of the botanic books; but I have been informed by ſome curious perſons who have reſided in America, that the flowers are not near ſo beautiful as thoſe of the tenth and eleventh, but the fruit is greatly eſteemed by all the inhabitants.

The twelfth ſort produces a greater number of flowers than either of the other; theſe are of a fine Pink colour, both within and without; the petals are not ſo numerous, and the tube of the flower is longer than thoſe of the other ſpecies; and, contrary to all the other ſorts, keep open three or four days, provided the weather is not too hot, or the place where they ſtand kept too warm. During the continuance of theſe flowers, they make a fine appearance. This ſort has very ſlender trailing branches, which require to be ſupported; but theſe do not extend ſo far as thoſe of the other ſort, nor are their branches jointed as thoſe are, ſo they cannot be trained ſo far againſt the walls of the houſe; but as it produces ſuch beautiful flowers, and in ſo great plenty, it may be placed among the firſt claſs of exotic plants. This plant has produced fruit in the garden at Chelſea, but it hath not as yet ripened.

Theſe plants are all propagated by cuttings, ſo that if you intend to increaſe the number of them, you muſt cut off the ſtems of the upright ſorts at what length you pleaſe; theſe ſhould be laid in a dry place to heal the part cut, at leaſt a fortnight or three weeks before they are planted; but if they lie a month it is much the better, and they will be in leſs danger of rotting, eſpecially thoſe ſorts which are the moſt ſucculent.

Theſe cuttings ſhould be planted in pots filled with the mixture of earth before directed, laying ſome ſtones in the bottom of the pots to drain off the moiſture; then place the pots into a gentle hot-bed of tanners bark, to facilitate their rooting, giving them once a week a gentle watering.

The beſt ſeaſon for this work is in June, or the beginning of July, that they may have time to root before winter; towards the middle of Auguſt you muſt begin to give them air by degrees, to harden them againſt winter, but they ſhould not be wholly expoſed to the open air or ſun; at the end of September they muſt be removed into the ſtove, or green-houſe, where they are to abide the winter, during which ſeaſon you muſt be very careful not to let them have much water; and always obſerve to place the young plants, for the firſt winter, in a little warmer ſituation than the older plants, as being ſomewhat tenderer.

Theſe plants ſhould always have a dry ſituation in winter, for as they imbibe the greateſt part of their nouriſhment from the circumambient air, ſo if this be too replete with moiſt particles, it will occaſion their rotting; therefore they ſhould not be expoſed abroad, not even in the midſt of ſummer, unleſs they are under ſhelter; for great rains, which often happen at that ſeaſon, are very injurious to them; the firſt eight ſorts ſhould be therefore placed ſo as to enjoy a free air in the ſummer, but, at the ſame time, ſcreened from rains and great dews; it will therefore be much the better method to ſet them in an open glaſs ſtove, where the windows may be ſet open in good weather, and ſhut in cold or wet. The other four ſorts muſt not be expoſed too much to the open air, even in the hotteſt ſeaſon, eſpecially if you deſign to have them flower; and in winter they ſhould be kept very warm, and have no water given them.

When you have once cut off the tops of any of theſe plants, in order to increaſe them, the lower parts will put forth freſh ſhoots from their angles, which, when grown to be eight or nine inches long, may alſo be taken off to make freſh plants; and, by this means, the old plants will continually afford a ſupply, ſo that you never need cut off above one plant of a ſort, which you ſhould preſerve for a breeder.

Theſe plants being ſucculent, they will bear to be a long time out of the ground; therefore whoever hath a mind to get any of them from the Weſt Indies, need give no other inſtructions to their friends, but to cut them off, and let them lie two or three days to dry; then put them up in a box with dry hay, or ſtraw, to keep them from wounding each other with their ſpines, and if they are two or three months on their paſſage, they will keep very well, provided no wet get to them.

CERINTHE. Lin. Gen. Plant. 171. Tourn. Inſt. R. H. 79. tab. 16. Honeywort; in French, *Melinet*.

The CHARACTERS are,

It hath an oblong permanent empalement, cut into five equal parts. The flower hath one petal, having a thick ſhort tube, which ſwells upward much thicker, and at the brim is quinquefid; the chaps are naked and pervious; it hath five ſhort ſtamina, terminated by pointed upright ſummits. In the bottom are ſituated four germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an obtuſe ſtigma; two of the germen afterward becomes ſo many ſeeds, which are hard, ſmooth, plain on one ſide, but convex on the other, and are incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The SPECIES are,

1. CERINTHE (*Major*) foliis ovato-oblongis, aſperis, amplexicaulibus, corollis obtuſiuſculis, patulis. *Honeywort with oval, oblong, rough leaves, embracing the ſtalk, and ſpreading blunt petals.* Cerinthe quorundam major, ſpinoſo folio, flavo flore. J. B. 3. 602. *Greater Honeywort with a prickly leaf, and a yellow flower.*
2. CERINTHE (*Glabris*) foliis oblongo-ovatis, glabris, amplexicaulibus, corollis obtuſiuſculis, patulis. *Honeywort with oblong, oval, ſmooth leaves, embracing the ſtalks, and a ſpreading blunt petal.* Cerinthe flore rubro purpuraſcente. C. B. P. 258. *Honeywort with a purpliſh red flower.*
3. CERINTHE (*Minor*) foliis amplexicaulibus, integris, fructibus geminis, corollis acutis, clauſis. Lin. Sp. Plant. 137. *Honeywort with entire leaves, embracing the ſtalk, a double fruit, and a pointed cloſed petal.* Cerinthe minor. C. B. P. 258. *Smaller Honeywort.*

The firſt ſort grows naturally in Germany and Italy. This is an annual plant, which riſes with ſmooth branching ſtalks a foot and a half high, garniſhed with oval, oblong, prickly leaves, which are of a ſea-green, ſpotted with white, and embrace the ſtalks with their baſe; the flowers are produced at the end of the branches, ſtanding between the ſmall leaves, which embrace the ſtalks; theſe are long, tubulous, and blunt at the top, where the tube is greatly enlarged; they are yellow, and have a mellous liquor in their tubes, with which the bees are much delighted; and an herbaceous empalement, cut into five parts, which afterward incloſes the ſeeds; theſe flowers have each four embryos, or germen, but only two of them are fruitful The top of the ſtalks are reflexed backward, ſomewhat like thoſe of Turnſole. It flowers in June and July, and the ſeeds ripen in Auguſt and September. If the ſeeds are not taken as ſoon as they change black, they drop out of the empalement in a ſhort time; ſo unleſs they are carefully gathered up, they will vegetate with the firſt moiſt weather.

The ſecond ſort is like the firſt, but the leaves are larger, and ſmooth, having no prickles on them. The flowers of this are of a purpliſh red colour, and the plants grow larger. This grows in Italy, and the ſouth of France; it is alſo an annual plant.

The third ſort grows naturally on the Alps, and other mountainous places; this hath ſlenderer ſtalks than either of the former, which riſe two feet high, and cloſer garniſhed with leaves than either of the others; theſe embrace the ſtalks with their baſe, and are of a bluer green colour. The flowers are ſmall, their upper part is deeply cut into five ſegments, but the mouth of the tube is cloſely ſhut up; the empalement is large, and cloſely ſurrounds the flower. The flowers are yellow, and appear at the ſame time with the other ſorts. If the ſeeds of this are permitted to ſcatter, the plants will come up in autumn, and theſe will grow much taller, and flower earlier than thoſe which are ſown in the ſpring; this hath been ſuppoſed a perennial plant by many, but from many years obſervation, I could never find theſe plants continue after they had flowered and perfected their ſeeds.

The ſpecies of this plant are propagated by ſeeds, which ſhould be ſown ſoon after they are ripe; for, if they are kept till ſpring, the growing quality of them is often loſt; or at leaſt they lie ſome months in the ground before they grow; the plants are hardy, and if the ſeeds are ſown in a warm ſituation, they will endure the winter's cold very well without ſhelter; theſe autumnal plants are alſo much ſurer to produce ripe ſeeds than thoſe which are ſown in the ſpring, which are generally late in the ſeaſon before they flower; and conſequently if the autumn ſhould not prove very warm, their ſeeds would not be perfected.

The plants make a pretty variety for large borders in gardens, where, if they are ſuffered to drop their ſeeds, the plants will ariſe without any farther care; ſo that when a perſon is once furniſhed with the ſeveral varieties, he need be at no more trouble than to allow each of them a reſpective place where it may remain, and ſow itſelf; and with this culture, there is a greater certainty of preſerving the ſorts than in any other management; nor will they perhaps be entirely loſt in this way, if it ſhould happen that the ſeaſon ſhould prevent their ripening ſeed (as it ſometimes proves;) for when great quantities of the ſeeds have ſcattered upon the ground, ſome of them will be buried ſo deep, in ſtirring the earth, as not to grow the firſt year; which, upon being turned up to the air the ſucceeding year, will come up as well as new ſeeds.

CESTRUM. Lin. Gen. Plant. 231. Jaſminoides. Dill. Nov. Gen. 170. Baſtard Jaſmine.

The CHARACTERS are,

It hath a ſhort tubular empalement of one leaf, which is indented at the top into five parts, which are erect. The flower is funnel-ſhaped, of one petal, having a long cylindrical tube, which ſpreads open at the top, where it is cut into five equal ſegments; it hath five ſlender ſtamina the length of the tube, to which they adhere, and are terminated by roundiſh four-cornered ſummits. The oval cylindrical germen is ſituated in the empalement, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an obtuſe thick ſtigma. The germen afterward becomes an oval oblong berry with one cell, incloſing ſeveral roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The SPECIES are,

1. CESTRUM (*Nocturnum*) floribus pedunculatis. Hort. Cliff. 490. *Ceſtrum with flowers ſtanding upon foot-ſtalks.* Jaſminoides foliis Piſhaminis, flore vireſcente noctu odoratiſſimo. Hort. Elth. 183. tab. 153. *Baſtard Jaſmine with leaves of Piſhamin, and a greeniſh flower, ſmelling very ſweetly in the night.*
2. CESTRUM (*Diurnum*) floribus ſeſſilibus. Hort. Cliff. 491. *Ceſtrum with flowers growing to the branches.* Jaſminoides laureolæ folio, flore candido interdiu odorato. Hort. Elth. 186. tab. 154. *Baſtard Jaſmine with a Spurge Laurel leaf, and a white flower, ſmelling in the day.*
3. CESTRUM (*Nervoſum*) foliis lanceolatis oppoſitis nervis tranſverſalibus, pedunculis ramoſis. *Ceſtrum with ſpear-ſhaped leaves growing oppoſite, having tranſverſe veins, and branching foot-ſtalks to the flowers.* Jaſminoides Americanum, lauri folio, flore albo odorato. Houſt. MSS. *Baſtard Jaſmine of America with a Bay leaf, and a white, ſweet, ſmelling flower.*
4. CESTRUM (*Spicatum*) foliis ovato-lanceolatis, floribus ſpicatis, alaribus & terminalibus. *Ceſtrum with oval ſpear-ſhaped leaves, and flowers growing in ſpikes from the ſides and tops of the branches.*
5. CESTRUM (*Confertum*) foliis oblongo-ovatis, obliquis, floribus alaribus confertis, tubo longiſſimo & tenuiſſimo. *Ceſtrum with oblong oval leaves which are oblique, and flowers growing in cluſters from the ſides of the branches, with a very long ſlender tube.*
6. CESTRUM (*Venenatum*) foliis lanceolatis obliquis, floribus alaribus, pedunculis folioſis. *Ceſtrum with oblique ſpear-ſhaped leaves, flowers proceeding from the ſides of the branches, and leafy foot-ſtalks.* Jaſminum laurinis foliis, flore pallidè luteo, fructu atrocæruleo polypyreno venenato. Sloan. Hiſt. Jam. 2. p. 196. *Jaſmine with Bay leaves, a pale yellow flower, and a dark blue fruit with many ſeeds, which are poiſonous.*

The firſt ſort was many years paſt raiſed in the curious gardens of the Ducheſs of Beaufort, at Badmington, in Glouceſterſhire, and was from thence communicated to ſeveral gardens in England and Holland, where in the latter it paſſes under the title of Badmington Jaſmine to this time. This grows naturally in the iſland of Cuba, from whence I received the ſeeds by the title of Dama de Noche, i. e. Lady of the Night; which appellation I ſuppoſe was given it, from the flowers ſending out a ſtrong odour after the ſun is ſet.

It riſes with an upright ſtalk about ſix or ſeven feet high, covered with a grayiſh bark, and divides upward into many ſlender branches, which generally incline to one ſide; and are garniſhed with leaves placed alternate, which are near four inches long, and one and a half broad, ſmooth on their upper ſide, of a pale green, and on their under ſide they have ſeveral tranſverſe veins, and are of a ſea-green colour, having ſhort foot-ſtalks. The flowers are produced at the wings of the leaves, in ſmall cluſters, ſtanding upon ſhort foot-ſtalks, each ſuſtaining four or five flowers, which have very ſhort empalements, with long ſlender tubes, which are enlarged at the top, where they are cut into five parts which are reflexed; theſe are of an herbaceous colour; they appear in Auguſt, but are not ſucceeded by berries in this country; but thoſe which I received from America were ſmall, and of a dark brown colour, incloſing ſeveral ſeeds.

The ſeeds of the ſecond ſort were ſent me from the Havannah, by the title of Dama de Dio, or Lady of the Day; this riſes with an upright ſtalk to the height of ten or twelve feet, covered with a ſmooth light green bark, dividing upward into many ſmaller branches, garniſhed with ſmooth leaves near three inches long, and one and a half broad, of a lively green colour, and the conſiſtence of thoſe of the Spurge Laurel; theſe are ranged alternately on the branches. Toward the upper part of the ſhoots come out the flowers from the wings of the leaves, ſtanding in cluſters cloſe to the branches; they are very white, ſhaped like thoſe of the former ſort, and ſmell ſweet in the day time, from whence it had the appellation of Lady of the Day. The berries of this are ſmaller than thoſe of the firſt ſort. This flowers in September, October and November.

The third ſort was ſent me from Carthagena in New Spain, near which place it grows naturally; this riſes with a ſhrubby ſtalk five or ſix feet high, covered with a brown bark, and divides upward into many ſmall branches, garniſhed with ſpear-ſhaped leaves, about four inches long, and little more than one broad; they are ſmooth, of a light green, and have many horizontal veins running from the midrib to the ſides, and are placed oppoſite. From the wings of the leaves, toward the upper part of the branches, are produced the flowers, ſtanding upon branching foot-ſtalks, each ſuſtaining four or five flowers, whoſe tubes are ſwelling at their baſe, juſt above the empalement, but contract upward to the mouth, where the petal is cut into five broad ſegments which ſpread flat; they are white, but without ſcent.

The fourth ſort was ſent me from Carthagena with the former. This riſes with a ſhrubby ſtalk ten or twelve feet high, covered with a light gray bark, and ſends out many branches the whole length, garniſhed with oval ſpear-ſhaped leaves, ſtanding without order; they are two inches and a half long, and one and a half broad, of a light green, with ſlender foot-ſtalks. The flowers come out in looſe ſpikes from the ſide, and alſo the end of the branches, which are ſhaped like thoſe of the firſt ſort, and are of a whitiſh green colour, without ſcent. Theſe are ſucceeded by roundiſh purple berries, the ſize of large Peaſe, which have a ſoft juicy pulp, filled with flat ſeeds.

The fifth ſort riſes with ſeveral ſhrubby ſtalks eight or ten feet high, covered with a white ſmooth bark, ſending out many irregular branches, garniſhed with oblong oval leaves, which at their baſe are longer on one ſide, ſo that the foot-ſtalk is oblique; they are placed on the branches without order, and are of a pale green. The flowers come out in cluſters from the ſide of the branches, many of them ariſing from the ſame point; theſe have very ſlender long tubes, which are cut at the top into five acute ſegments which are erect. They are of a pale yellow, and without ſcent.

The ſixth ſort grows naturally in Jamaica, from whence it was ſent me by the late Dr. Houſtoun. This riſes with a woody ſtem eight or nine feet high, covered with a ſmooth brown bark, and ſends out many branches on the ſide which grow erect, garniſhed with oval ſpear-ſhaped leaves, whoſe foot-ſtalks are ſhort; they are five inches long, and two broad, ſmooth, of the conſiſtence with Bay leaves, and are placed alternate on the branches. From the wings of the leaves the flowers are produced, moſt part of the length of the branches; the foot-ſtalks of the flowers are garniſhed with ſmall leaves, ſtanding between each flower in a ſingular manner, the flowers riſing one above the other; and between, or oppoſite to each, is one, and ſometimes two leaves, of the ſame form with thoſe on the branches. The flowers are of a pale yellow, and emit a diſagreeable odour. Theſe are ſucceeded by oval berries of a Violet colour, full of juice, each containing ſeveral flat ſeeds; they are reckoned very poiſonous, ſo have the appellation of Poiſon Berries in Jamaica.

This has been, by many of the writers on botany, ſuppoſed to be the ſame with the firſt; but any perſon who has ſeen both ſorts growing, cannot doubt of their being diſtinct ſpecies; the ſhape and ſize of the leaves are very different, as are alſo their flowers and berries. Some have alſo ſuppoſed that the Parqui of Pere Feuillé, is the ſame with this, but that is a great miſtake; for the flowers of this plant are produced in looſe bunches at the extremity of the branches, whereas thoſe of this ſort come out from the ſide, at the foot-ſtalks of the leaves; ſo that this plant is certainly different from either of theſe, but approaches neareſt to the third.

The fifth ſort I take to be the ſame as Pere Plumier's Jaſminum aliud arboreſcens, foliis ſolani, minus; for by an imperfect ſpecimen of his plant which was ſhewn me, the leaves appear the ſame, but as the ſpecimen was without flower or fruit, ſo I could not determine it.

The firſt and ſecond ſorts produce their flowers every year in England, but the others do but ſeldom flower here; but as they retain their leaves all the year, ſo they make a pretty variety in the ſtove, during the winter ſeaſon; and when they flower, the branches are commonly well garniſhed at their joints with bunches of flowers, ſo they make a fine appearance at that time.

All theſe plants grow naturally in very hot countries, ſo cannot be preſerved in England without artificial heat; therefore require to be placed in a warm ſtove, eſpecially in the winter. The two firſt are hardier than the others; theſe I have kept ſeveral years in a dry ſtove, with a moderate ſhare of heat in winter, and in the middle of ſummer have ſet them in the open air, in a warm ſituation. With this management I have found them thrive, and produce flowers much better than when they have been placed in a greater heat; but I have often endeavoured to keep theſe plants through the winter, in a green-houſe, or a glaſs caſe, without fire, but could never ſucceed; for by the end of January, they commonly decayed.

The other ſorts require a larger ſhare of heat, eſpecially when the plants are young; therefore they ſhould be plunged in the tan-bed of the bark-ſtove, otherwiſe they will loſe their leaves in winter, if they are not quite deſtroyed; but after three or four years growth, they will bear to be treated more hardily, provided they are inured to it gradually.

Theſe plants may be propagated from ſeeds, or by cuttings. Thoſe which come from ſeeds are always the moſt vigorous, and ſtraiteſt plants; but as they do not produce ſeeds in England, ſo the other method is generally practiſed, becauſe their ſeeds are rarely brought hither.

The beſt time to plant theſe cuttings is about the end of May, by which time the ſhoots will have had time to recover their ſtrength, after their confinement during the winter ſeaſon. The ſhoots which come out from the lower part of the ſtalks, ſhould always be choſen for this purpoſe. Theſe ſhould be cut about four inches long, and five or ſix of them may be planted in each halfpenny pot; for the cuttings of moſt ſorts of exotic plants, will ſucceed better when they are planted in theſe ſmall pots, than they do in larger, as I have many years experienced. The earth in which theſe are planted, ſhould be freſh and light, but not full of dung: when the cuttings are planted, the earth muſt be preſſed pretty cloſe to them, and then gently watered; after which the pots muſt be plunged into a moderate hot-bed of tanners bark, and every day ſhaded from the ſun. They muſt alſo have freſh air admitted to them in warm weather, and two or three times a week refreſhed with water. With this management the cuttings will put out roots in five or ſix weeks, when they ſhould be gradually expoſed to the ſun; and when they begin to put out ſhoots, they muſt have a greater ſhare of freſh air admitted to them, to prevent their drawing up weak; and their waterings ſhould be oftener repeated, but given in ſmall quantities, for their young tender fibres will not endure much wet. When they have made good roots, they ſhould be carefully ſhaken out of the pots, and each put into a ſeparate ſmall pot, filled with the ſame ſort of earth as before; then give them ſome water, to ſettle the earth to their roots, and plunge them again into the tan-bed; obſerving if any of their leaves hang down, to ſhade them from the ſun in the middle of the day, until they have taken freſh root; after which they ſhould have a large ſhare of air in warm weather, to ſtrengthen them before winter. Their waterings in the ſummer ſhould be frequent; and if they are ſprinkled all over their leaves, it will waſh and cleanſe them from filth, which will greatly promote their growth; but their roots muſt not be kept too moiſt.

In the autumn the plants of the three laſt ſorts muſt be removed into the bark-ſtove, and plunged into the tan-bed, where they muſt be treated in the ſame manner as other tender exotic plants; but the two firſt ſorts may be treated otherwiſe, eſpecially when they have obtained ſtrength, yet the firſt winter they may be managed in the ſame way as the others. There muſt be great care had in watering of theſe plants in winter, for they are all (except the ſecond ſort) very impatient of moiſture; ſo that they are ſoon killed by being over-watered.

If the ſeeds of theſe are procured from the countries where they grow naturally, they ſhould be ſowed in ſmall pots filled with the earth before directed, and plunged into a moderate hot-bed of tanners bark, giving them now and then a little water. Sometimes the ſeeds will come up the ſame year, but they very often lie in the ground till the ſpring following; ſo that if the plants do not appear in ſix or ſeven weeks after the ſeeds are ſown, they will not come up that ſeaſon; in which caſe the pots may be plunged in the tan-bed of the ſtove, between the other plants, where they will be ſhaded from the ſun, and but little water given them; in this ſituation they may remain till the following ſpring, when they ſhould be removed, and plunged into a freſh hot-bed, which will bring up the plants in a ſhort time, provided the ſeeds were good.

When the young plants are fit to remove, they ſhould be carefully ſhaken out of the pots, and each planted into a ſeparate pot filled with the before-mentioned earth, and plunged into the hot-bed again, and afterward treated in the ſame way as hath been directed for the plants raiſed from cuttings.

CETERACH. See ASPLENIUM.

CHÆROPHYLLUM. Lin. Gen. Plant. 320. Tourn. Inſt. R. H. 314. tab. 166. [χαιρόφυλλον, of χαίρω, to rejoice, and φύλλον, *Gr.* a leaf, becauſe the leaves, ſteeped in wine, and drank, will exhilarate and chear melancholy perſons.] Chervil.

The CHARACTERS are,

It is an umbelliferous plant; the principal umbel is ſpreading and hath no involucrum, compoſed of ſeveral ſmall ones, called rays; the ſmall ones have a five-leaved involucrum, which is reflexed; the flowers have five heart-ſhaped inflexed petals, and five ſtamina, which are terminated by roundiſh ſummits: the germen is ſituated below the flower, ſupporting two reflexed ſtyles, crowned with obtuſe ſtigmas. The germen afterward becomes an oblong pointed fruit, dividing in two parts, each having one ſeed, which is convex on one ſide and plain on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The Species are,

1. Chærophyllum (*Sylveſtre*) caule ſtriato geniculis tumidiuſculis. Flor. Suec. 2. N. 257. *Wild Chervil with ſtriated ſtalks, whoſe joints are ſwelling.* Myrrhis ſylveſtris ſeminibus lævibus. C. B. P. 160. *Wild Myrrh with ſmooth ſeeds.*
2. Chærophyllum (*Bulboſum*) caule lævi, geniculis tumidis. Lin. Sp. Plant. 258. *Chervil with a ſmooth ſtalk, and ſwelling joints.* Myrrhis tuberoſa & nodoſa conyophillon. Mor. Umb. 67. *Tuberous and knotted Myrrh with a Hemlock leaf.*
3. Chærophyllum (*Temulum*) caule ſcabro, geniculis tumidis. Lin. Sp. Plant. 258. *Chervil with a rough ſtalk, and ſwelling joints.* Chærophyllum ſylveſtre. C. B. P. 152. *Wild Chervil.*
4. Chærophyllum (*Aureum*) caule æquali, foliolis inciſis acutis. Lin. Sp. Plant. 258. *Chervil with an equal ſtalk, and leaves cut into acute ſegments.* Myrrhis perennis alba minor, foliis hirſutis, ſemine aureo. Mor. Umb. 282.
5. Chærophyllum (*Hirſutum*) caule æquali, foliolis inciſis acutis, ſeminibus ſubulatis. Lin. Sp. Plant. 371. *Wild Chervil with an equal ſtalk, whoſe ſmall leaves are cut acutely, and awl-ſhaped ſeeds.* Myrrhis paluſtris, latifolia rubra. C. B. P. 161.

The firſt ſort grows naturally on the ſide of highways, and the borders of the fields in moſt parts of England, ſo is never cultivated in gardens. It is frequently called Cow Parſley, but for what reaſon I cannot ſay, becauſe there are few animals who care to eat it, except the aſs; for it is reckoned to have ſomething of the quality of Hemlock, but in a leſs degree. It is a weed which ſhould be rooted out from all paſtures in the ſpring, for it is one of the moſt early plants in ſhooting; ſo that by the beginning of April the leaves are near two feet high. The ſeeds of this plant ſpread greatly over the ground, and as the roots are perennial, they are often very troubleſome weeds to deſtroy.

The ſecond ſort grows naturally in Hungary and Iſtria. This plant hath a thick tuberous root, from which come forth ſeveral leaves reſembling thoſe of Wild Chervil, which ſpread horizontally near the ground. The ſtalks riſe ſix or ſeven feet high, which are ſpotted with purple, and garniſhed with leaves of the ſame form as thoſe below. The knots at the joints of the ſtalks ſwell out on every ſide, at which is placed one of theſe divided leaves; the ſtalks are terminated by ſmall umbels of white flowers, which are ſucceeded by long narrow ſeeds. It flowers in June, and the ſeeds ripen in Auguſt. If the ſeeds of this plant are permitted to ſcatter, the plants will come up without any farther care, and only require to be kept clean from weeds.

The third ſort grows naturally on the ſides of footwalks, and on the borders of woods in many parts of England, ſo is not cultivated in gardens.

The fourth ſort grows naturally in the paſtures about Geneva, and in Switzerland; this hath a perennial root, from which come out in the ſpring many leaves, ſhaped like thoſe of the firſt, but narrower, hairy, and more divided. The ſtalks are channelled, and riſe three feet high, garniſhed with the like leaves; theſe are terminated by large umbels, formed of many ſmall ones, which are compoſed of flowers, having five heart-ſhaped petals, which turn inward; theſe are ſucceeded by long pointed ſeeds. The whole plant has an aromatic ſmell and taſte.

The fifth ſort grows naturally on the Alps, and the Helvetian mountains. It is a perennial plant, ſomewhat reſembling the firſt ſort, but their leaves are hairy, and their ſegments are broader; the ſtalk riſes four feet high, terminated by large umbels of flowers, which in ſome plants are red, and in others white; theſe are ſucceeded by long pointed ſeeds, two being joined in the ſame cover.

Theſe plants are preſerved in botanic gardens for variety; but as their uſe either in medicine or the kitchen are not known, they are rarely admitted into other gardens.

CHAMÆCERASUS. See Cerasus and Lonicera.

CHAMÆCISTUS. See Cistus.

CHAMÆCLEMA. See Glechoma.

CHAMÆCYPARISSUS. See Santolina.

CHAMÆDAPHNE. See Ruscus.

CHAMÆDRYS. See Teucrium.

CHAMÆLÆA. See Cneorum.

CHAMÆMELUM. See Anthemis.

CHAMÆMESPILUS. See Mespilus.

CHAMÆMORUS. See Rubus.

CHAMÆNERION. See Epilobium.

CHAMÆPITYS. See Teucrium.

CHAMÆRHODODENDRON. See Azalea and Kalmia.

CHAMÆRIPHES. See Chamærops.

CHAMÆROPS. Lin. Gen. Plant. 1084. Chamæriphes. Pont. 10. Dod. Pempt. 820. Dwarf Palm, or Palmetto.

The Characters are,

It hath male and hermaphrodite flowers in diſtinct plants; the hermaphrodite flowers are all included in one common ſpatha or hood, which is compreſſed and bifid, and the ſpadix or club is branching; each flower hath a ſmall three-pointed empalement; they have one thick upright petal, which is cut into three parts, and turns inward at the top, and five compreſſed ſtamina which join at their baſe, terminated by narrow twin ſummits, joined to the interior part of the ſtamina. They have three roundiſh germen, each having a diſtinct ſtyle, which is permanent, terminated by pointed ſtigma. The three germen afterward become ſo many round berries, having one cell, each containing a ſingle ſeed. The male flowers are like the hermaphrodite, but the ſtamina are not diſtinct, nor have they any germen.

This genus of plants is joined with the other kinds of Palms by Dr. Linnæus, and placed in the appendix to his Genera Plantarum; but ſhould be ranged in his twenty-third claſs, or rather made a diſtinct claſs by themſelves, becauſe their manner of fructification is very different from moſt other plants.

The Species are,

1. Chamærops (*Humilia*) frondibus palmatis, plicatis, ſtipitibus ſpinoſis. Hort. Cliff. 482. *Dwarf Palm with folding palmated leaves, and prickly foot-ſtalks.* Palma humilis, ſc. Chamæriphes. J. B. Hiſt. 1. 368. *Dwarf Palm, or Palmetto.*
2. Chamærops (*Glabra*) foliis flabelliformibus, maximis, ſtipitibus glabris. *Dwarf Palm with very large fan-ſhaped leaves, and ſmooth foot-ſtalks.* Palma non ſpinoſa humilima. *Dwarf Palm without ſpines, commonly called ſmall Palmetto Royal.*

The firſt ſort grows naturally in Spain, particularly in Andaluſia, where, in the ſandy land, the roots ſpread and propagate ſo faſt, as to cover the ground in the ſame manner as the Fern in England. The leaves of theſe plants are tied together to make beſoms for ſweeping.

This never riſes with an upright ſtem, but the foot-ſtalks of the leaves riſe immediately from the head of the root, and are armed on each ſide with ſtrong ſpines; they are flat on their upper ſurface, and convex on their under ſide. The center of the leaves are faſtened to the foot-ſtalk, which ſpread open like a fan, having many foldings, and at the top are deeply divided like the fingers of a hand; when they firſt come out, they are cloſed together like a fan when ſhut, and are faſtened together by ſtrong fibres which run along the borders of the leaves; and when the leaves ſpread open, theſe fibres or ſtrings hang from the ſides and ends; the borders of the leaves are finely ſawed, and have white narrow edgings; they are from nine to eighteen inches long, and near a foot broad in their wideſt part: as the lower leaves of the plants decay, their veſtiges remain, and form a ſhort ſtump above ground, in the ſame manner as our common male Fern does; from between the leaves comes out the ſpadix or club, which ſuſtains the flowers; this is covered with a thin ſpatha or hood, which falls off when the bunches open and divide. As all the plants of this ſort which I have ſeen flower were male, I cannot give any particular deſcription of their fructification.

This plant is commonly propagated here by heads, which ſometimes ſeparate from the main root; if theſe are carefully taken off with fibres and planted, they will grow; but the plants ſo raiſed are not ſo good as thoſe which are produced from ſeeds; ſo that if good ſeeds can be procured, that is by much the better way to propagate them. The ſeeds ſhould be ſown in ſmall pots filled with light ſandy earth, and plunged into a moderate hot-bed of tanners bark; theſe muſt be refreſhed now and then with water. If the ſeeds are freſh, the plants will come up in two months; theſe riſe with a ſingle long-pointed leaf. When they appear they muſt be now and then refreſhed with water, but they muſt not have it in too great plenty. If the plants are not too cloſe to each other in the pots, they will not require to be tranſplanted the firſt year; therefore they ſhould remain in the tan-bed all the ſummer, but in warm weather they muſt have plenty of air admitted to them. In autumn the pots ſhould be removed into the ſtove, and, if they are plunged into the bark-bed the firſt winter, it will greatly forward the growth of the plants. The following ſpring the plants ſhould be carefully turned out of the pots, ſo as to preſerve their roots entire; for all the ſorts of Palms have tender roots, which, if they are cut off or broken, frequently kill the plants: then they ſhould be each planted into a ſeparate ſmall pot filled with light, ſandy, undunged earth, and plunged into a freſh hot-bed to encourage their taking root; the following ſummer they ſhould be gradually hardened, by raiſing the glaſſes pretty high, ſo as to admit a large ſhare of air to them, but they ſhould not yet be wholly expoſed to the open air. The autumn following the plants may be placed in a dry ſtove; but as the plants advance and get ſtrength, they may be treated more hardily, and in ſummer placed in the open air in a warm ſituation, and in winter may be preſerved in a warm green-houſe without artificial heat

As the plants advance in growth, they ſhould be put into larger pots; but when this is done, there muſt be great care taken, that their roots are not cut or broken, nor ſhould they have pots too large. In winter they muſt have but little water, and if they are expoſed to the open air in ſummer, they will not require much, unleſs the ſeaſon proves very warm and dry, in which caſe they may be ſparingly watered two or three times a week.

The ſecond ſort grows naturally in the Weſt Indies, where it never riſes with a ſtem; the foot-ſtalks of the leaves are rounder than thoſe of the former, and have no ſpines on their ſides. When the plants are old their leaves are three or four feet long, and upward of two broad; theſe are folded in the ſame manner as thoſe of the firſt, but the folds are broader, and the leaves are of a darker green; ſome of theſe plants have put out ſlender bunches of male flowers in England, which were too imperfect to form a deſcription.

This ſort riſes freely from ſeeds, which may be eaſily procured from the iſlands in America; theſe muſt be ſown in the ſame manner as the former, and the plants treated in the ſame way; but as they are natives of a warmer climate, they ſhould be conſtantly kept in the bark-ſtove, where, if they are carefully managed, they will make good progreſs.

I have received ſeeds from Carolina of a Dwarf Palm, which is very like this, if not the ſame; but the plants do not make ſo good progreſs here, as thoſe which came from Jamaica; the berries were ſo like, that I could not diſtinguiſh them; but as the plants advance, if they are different, it will appear.

CHAMÆRUBUS. See Rubus.

CHAMÆSYCE. See Euphorbia.

CHEIRANTHUS. Lin. Gen. Plant. 730. Leucojum. Tourn. Inſt. R. H. 220. tab. 107. Stock Gilliſlower and Wall-flower, in French *Giroſflier ou Violier.*

The Characters are,

It hath a four-leaved compreſſed empalement; the two outer leaves are ſwelling at their baſe. The flower hath four petals placed in form of a croſs; theſe are longer than the empalement. It hath ſix parallel ſtamina, which are the length of the empalement, two of which are between the ſwelling leaves of the empalement, the other are a little ſhorter, and are terminated by erect bifid ſummits, which are reflexed at the top. It hath a four-cornered priſmatic germen as long as the ſtamina, ſupporting a very ſhort compreſſed ſtyle, crowned with an oblong divided ſtigma, which is reflexed and permanent. The germen afterward becomes a long compreſſed pod with two cells, opening with two valves, filled with compreſſed ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetrandynamia ſiliquoſa, the flowers having two long and four ſhorter ſtamina, and the ſeeds are lodged in long pods.

The Species are,

1. Cheiranthus (*Eryſimoides*) foliis lineari-lanceolatis dentatis caule recto, ſiliquis tetragonis. *Cheiranthus with narrow, indented, ſpear-ſhaped leaves, an upright ſtalk, and four-cornered pods.* Heſperis leucoii folio ſerrato, ſiliquâ quadrangulâ. Tourn. Inſt. R. H. 223. *Dames Violet with a ſawed Wall-flower leaf, and a quadrangular pod.*
2. Cheiranthus (*Integerrimis*) foliis lanceolatis integerrimis, caule erecto, ſiliquis tetragonis. *Cheiranthus with ſpear-ſhaped entire leaves, an upright ſtalk, and quadrangular pods.* Heſperis leucoii folio non ſerrato, ſiliquâ quadrangulâ. Tourn. Inſt. R. H. 223. *Dames Violet with a Wall-flower leaf not ſawed, and a quadrangular pod.*
3. Cheiranthus (*Cheiri*) foliis lanceolatis, acutis, glabris ramis angulatis. Hort. Cliff. 334. *Cheiranthus with ſpear-ſhaped, pointed, ſmooth leaves.* Leucojum luteum vulgare. C. B. P. *Common yellow Leucojum, or Wall-flower.*
4. Cheiranthus (*Anguſtifolium*) foliis linearibus, unguibus petalorum calyce longioribus. *Cheiranthus with narrow leaves, and the necks of the petals longer than the empalement.* Leucojum anguſtifolium Alpinum flore ſulphureo. H. R. Par. *Narrow-leaved Wall-flower of the Alps, with a ſulphur-coloured flower.*
5. Cheiranthus (*Annuus*) foliis lanceolatis, ſubdentatis, obtuſis, incanis, ſiliquis cylindricis apice acutis, caule herbaceo. Lin. Sp. Plant. 662. *Cheiranthus with ſpear-ſhaped leaves ſomewhat indented, obtuſe, and hoary cylindrical pods, with acute points and an herbaceous ſtalk.* Leucojum incanum minus. C. B. P. 200. *Leſſer hoary Stock Gilliflower, commonly called the Ten Weeks Stock.*
6. Cheiranthus (*Incanus*) foliis lanceolatis, integerrimis, obtuſis, incanis, ſiliquis apice truncatis, compreſſis, caule ſuffruticoſo. Hort. Upſal. 187. *Cheiranthus with very entire ſpear-ſhaped leaves, which are obtuſe and hoary, compreſſed pods with truncated points, and a ſhrubby ſtalk.* Leucojum incanum majus. C. B. P. 200. *Greater hoary Stock Gilliflower, commonly called the Queen's Stock Gilliflower.*
7. Cheiranthus (*Coccineus*) foliis lanceolatis undatis, caule erecto indiviſo. *Cheiranthus with waved ſpear-ſhaped leaves, and an upright undivided ſtalk.* Leucojum incanum majus Coccineum. Mor. Hiſt. 2. 240. *Greater hoary Stock Gilliflower with a ſcarlet flower, commonly called the Brompton Stock Gilliflower.*
8. Cheiranthus (*Albus*) foliis lanceolatis, integerrimis, obtuſis, incanis, ramis floriferis axillaribus, caule ſuffruticoſo. *Cheiranthus with hoary, entire, ſpear-ſhaped, obtuſe leaves, flower branches proceeding from the ſides, and a ſhrubby ſtalk.* Leucojum album ſive purpureum ſive violaceum. Ger. *The white, purple, or Violet Stock Gilliflower.*
9. Cheiranthus (*Glabrus*) foliis lanceolatis, acutis, petiolatis, viridibus, caule ſuffruticoſo. *Cheiranthus with ſpear-ſhaped acute leaves, which are green, having foot-ſtalks, and a ſhrubby ſtalk.* Leucojum album odoratiſſimum, folio viridi. C. B. P. 2. 102. *Sweeteſt white Stock Gilliflower with a green leaf, commonly called white Wall-flower.*

10. Cheiranthus (*Seniſtalis*) foliis conferto-capitatis, recurvatis, undatis. Lin. Sp. Plant. App. 1198. *Cheiranthus with leaves growing cloſe together in heads, which turn backward, and are waved.*

11. Cheiranthus (*Littoreus*) foliis lanceolatis, ſubdentatis ſubtomentoſis ſubcarnoſis, petalis emarginatis, ſiliquis tomentoſis. Lin. Sp. 925. *Cheiranthus with ſpear-ſhaped, indented, woolly leaves, emarginated petals, and woolly pods.* Leucojum maritimum anguſtifolium. C. B. P. 221. *Narrow-leaved Sea Stock Gilliflower.*

12. Cheiranthus (*Maritimus*) foliis lanceolatis acutiuſculis, caule diffuſo, antheris eminentibus. Amœn. Acad. 4. p. 280. *Cheiranthus with acute ſpear-ſhaped leaves, a diffuſed ſtalk, and eminent antheræ.* Heſperis maritima, ſupina, exigua. Tourn. Inſt. 223. *Small, low, maritime Dames Violet, commonly called Dwarf, or Virginia Stock Gilliflower.*

13. Cheiranthus (*Chius*) foliis obovatis aveniis emarginatis, ſiliquis apice ſubulatis. Hort. Upſal. 187. *Cheiranthus with oval emarginated leaves and pods, whoſe ſummits are awl-ſhaped.* Heſperis ſiliquis hirſutis flore parvo rubello. Hort. Elth. 180. tab. 147. *Dames Violet with hairy pods, and a ſmall reddiſh flower.*

14. Cheiranthus (*Tricuſpidatus*) ſiliquarum apicibus tridentatis foliis lyratis. Hort. Cliff. 335. *Cheiranthus with pods indented in three parts at the point, and lyre-ſhaped leaves.* Heſperis maritima latifolia ſiliquâ tricuſpide. Tourn. Inſt. R. H. 223. *Broad-leaved maritime Dames Violet, with a three-pointed pod.*

15. Cheiranthus (*Sinuatis*) foliis tomentoſis obtuſis ſubſinuatis, ramis integris, ſiliquis muricatis. Lin. Sp. 926. *Cheiranthus with woolly, obtuſe, ſinuated leaves, intire branches, and rough pods.* Leucojum maritimum ſinuato folio. C. B. P. 200.

16. Cheiranthus (*Triſtis*) foliis linearibus ſubſinuatis, floribus ſeſſilibus petalis undatis, caule ſuffruticoſo. Lœfl. *Cheiranthus with linear indented leaves, flowers cloſe to the ſtalk, waved petals, and a ſhrubby ſtalk.* Leucojum minus breviore folio, obſolete flore. Barrel. It. 999.

17. Cheiranthus (*Lacerus*) foliis lacero-dentatis acuminatis, calycibus piloſis, ſiliquis nodoſis mucronatis. Lin. Sp. 926. *Cheiranthus with torn, indented, pointed leaves, hairy empalements, and knobbed, acute-pointed pods.* Leucojum Luſitanicum purpureum, foliis eleganter dentatis. Parad. Bat. 193.

The firſt ſort grows naturally in the ſouth of France, in Spain and Italy; this is an annual plant, which riſes a foot high, with an angular channelled ſtalk, which branches upward on every ſide; theſe are garniſhed with long, narrow, green leaves, reſembling thoſe of the common Wall-flower, but are ſharply indented on their edges, ſitting cloſe to the ſtalks; at the extremity of the branches the flowers are produced in looſe ſpikes; theſe are yellow, having four petals ſituated in form of a croſs, greatly reſembling thoſe of the common yellow Wall-flower, but have no ſcent; theſe are ſucceeded by long four-cornered pods, filled with brown ſeeds. It flowers in June, and the ſeeds are ripe in autumn.

The ſecond ſort grows naturally in Hungary and Iſtria; this is alſo an annual plant, riſing with an upright ſtalk nearly the ſame height as the other, but doth not branch out as that doth. The leaves are broader, ſmoother, and not pointed as thoſe of the other; they ſtand alternately on the ſtalk without any viſible foot-ſtalk, and are of a deep green. The flowers come out in looſe ſpikes at the top of the ſtalks; theſe are ſmall, and of a pale yellow without ſcent, and are ſucceeded by four-cornered pods like thoſe of the former. It flowers, and the ſeeds are ripe at the ſame time with the former.

Theſe two plants have by ſome perſons been ſuppoſed the ſame, but I have cultivated them thirty years, and have never found them alter. If their ſeeds are permitted to ſcatter, the plants will come up without care, and will thrive on any ſoil or ſituation, and upon walls, or in rubbiſh, in the ſame manner as the common Wall-flower.

The ſecond ſort grows naturally upon old walls and buildings in many parts of England; it is alſo cultivated in gardens for the fragrancy of its flowers. When theſe plants grow upon walls or buildings, they ſeldom riſe more than ſix or eight inches high, having very tough roots and firm ſtalks; the leaves are ſhort, and ſharp-pointed, and the flowers are ſmall, but in gardens the plants will grow two feet high, and branch out wide on every ſide; the leaves are broader, and the flowers much larger; but in ſevere winters, when theſe plants are frequently killed in the gardens, thoſe upon the walls will receive no injury, though they are much more expoſed to the winds and froſts; for as theſe plants are ſtunted, and of a firmer texture, having but little juice, the cold never affects them.

There is a variety of this with very double flowers, which is propagated in the gardens from ſlips planted in the ſpring, which readily take root. There is one ſort of this with variegated leaves, which is preſerved in the gardens, but this is not quite ſo hardy as the plain.

The large, yellow, bloody Wall-flower, is alſo ſuppoſed to be a variety of this, which has been improved by culture; and this I am inclinable to believe, becauſe I have frequently obſerved many of them degenerate to the common ſort; but although I have many years ſowed the ſeeds of the common ſort from the walls, yet I could never find them alter, except in being larger, but not any of them approached toward the other varieties. The large bloody Wall-flower will frequently riſe with double flowers from ſeeds, if they are carefully ſaved from ſuch plants as have five petals; and theſe double flowers may be propagated by ſlips as the common ſort, but the plants ſo raiſed will not produce ſuch large ſpikes of flowers as thoſe which are propagated by ſeeds.

There is alſo another variety with double blood-coloured flowers, whoſe petals are ſhorter and more numerous, approaching nearer to the common double Wall-flower, but much larger. This is called the Old Bloody Wall-flower. It is propagated from ſlips, in the ſame manner as the other double ſorts. There are ſome intermediate varieties of theſe flowers, differing in the ſize and colour of their petals, which the floriſts diſtinguiſh as different; but as they conſtantly vary from ſeeds, they do not deſerve notice.

The fourth ſort grows naturally upon the Alps, and the mountains in Italy, where it rarely riſes above ſix inches high; the leaves are very narrow, and the flowers grow in cloſe ſpikes at the end of the branches; they are of a pale yellow, or brimſtone colour, and the necks of the petals are much longer than the empalement; theſe have but little ſcent. When this ſort is cultivated in gardens, it grows as large as the common Wall-flower, and makes a finer appearance, for the ſpikes of flowers are longer, and they grow much cloſer together; but they have little ſcent, which occaſioned their being firſt neglected, and at preſent there are few, if any, of the plants remaining in the Engliſh gardens. It was titled the Straw-coloured Wall-flower by the gardeners.

The ſorts with ſingle flowers produce ſeeds in plenty, from which the plants are raiſed; but the largeſt and deepeſt coloured flowers ſhould always be ſelected for ſeeds, becauſe from ſeeds carefully ſaved, there will be fewer of the plants degenerate. The ſeeds ſhould be ſown in April, upon poor or undunged ſoil, and when the plants are fit to remove, they ſhould be tranſplanted into nurſery-beds, at about ſix inches diſtance each way, obſerving to water and ſhade them until they have taken freſh root; after which they will require no farther care, but to keep them clean from weeds all the ſummer; and at Michaelmas they may be tranſplanted into the borders of the flower-garden where they are deſigned to remain, that the plants may get good roots before the froſt comes on. This is the method which is commonly practiſed with theſe flowers; but if the ſeeds are ſown upon poor land, where they are deſigned to remain, and not tranſplanted, they will thrive, and endure the froſt in winter much better than thoſe which are removed; ſo that upon ruins or rubbiſh the ſeeds of theſe plants may be ſown, where they will thrive and continue much longer than in good land; and in ſuch places, if they are properly diſpoſed, they will be very ornamental, and their flowers having a ſtrong odour, will perfume the air to a conſiderable diſtance.

The Stock Gilliflowers are diſtinguiſhed from the Wall-flowers by their hoary leaves. Theſe agree with each other in their botanical characters, ſo are generally included in the ſame genus; but the gardeners remove them to a conſiderable diſtance, and treat them very differently; yet there is ſo great affinity between them, as that they may be treated in the ſame manner, and both will grow equally upon old walls or ruins; but as they have been ſeparated by moſt of the writers on gardening, I have, in compliance with that cuſtom, ranged them accordingly.

The fifth ſort is now generally known by the appellation of ten Weeks Stock, but it is what was formerly titled Annual Stock Gilliflower, which of late has been applied to another ſpecies, which is biennial. This riſes with a round ſmooth ſtalk about two feet high, dividing into ſeveral branches upward, garniſhed with ſpear-ſhaped hoary leaves, which are rounded at their ends, and placed without order, ſometimes being almoſt oppoſite, and others alternate, and frequently three or four together of unequal ſizes; at the ends of the branches the flowers are produced in looſe ſpikes, which are placed alternate; the empalement of the flower is large, erect, and ſlightly cut into ſeveral acute parts at the top; the petals are large and heart-ſhaped, ſpreading open in form of a croſs; the pods are long, cylindrical, and have a longitudinal furrow on one ſide, which opens in two cells, which are filled with flat roundiſh ſeeds, having a thin border. It flowers in July and Auguſt, and the ſeeds ripen in October.

Of this ſort there are the red, the purple, the white, and ſtriped, with ſingle flowers, and the ſame colours with double flowers; theſe are very great ornaments in the borders of the flower-garden in the autumn, when there is a ſcarcity of other flowers; and if the ſeeds are ſown at two or three different times, the flowers may be continued in ſucceſſion near three months. The firſt ſowing ſhould be about the middle of February, upon a very ſlender hot-bed, juſt to bring up the plants, which muſt be guarded againſt froſt; and when they are fit to remove, they ſhould be tranſplanted into the nurſery beds, at about three or four inches diſtance, obſerving to water and ſhade them till they have taken root, and afterward to keep them clean from weeds; in theſe beds they may remain five or ſix weeks to get ſtrength, and may then be planted into the borders of the flower-garden, where they are to remain: if theſe are tranſplanted when there is rain, they will ſoon take root, after which they will require no farther care. From theſe early plants good ſeeds may be expected, therefore ſome of the fineſt plants of each colour ſhould be preſerved, and marked for ſeeds, which, when ripe, ſhould be carefully cut before the froſt pinches it, and the ſtalks tied up in ſmall bundles, and hung up in a dry room till the pods are well dried, when the ſeeds may be rubbed out and preſerved for uſe.

The ſixth ſort is a biennial plant, though when the ſeeds are ſown early in the ſpring, the plants often flower the following autumn; but theſe plants which are ſo forward, are often killed in winter; therefore it is much better to ſow them in May, that the plants may not grow too rank the firſt ſeaſon; they will live through the winter, and produce large ſpikes of flowers the ſecond year.

This is commonly called the Queen's Stock Gilliflower by the gardeners, and differs greatly from the other ſorts, though many of the late botaniſts have ſuppoſed they were only ſeminal variations; but from near forty years experience in the culture of theſe plants, I can affirm, that the ſpecies here enumerated, do not alter from one to the other, though they frequently vary in the colour of their flowers.

It riſes with a ſtrong ſtalk, which is almoſt ſhrubby, a foot high or more, having oblong, ſpear-ſhaped, hoary leaves, which are frequently waved on their edges, and turn downward at the extremity; from the ſtalk is ſent out many lateral branches, which are garniſhed with the ſame ſhaped leaves, but ſmaller; theſe ſide branches are each terminated by a looſe ſpike of flowers, each having an oblong woolly empalement, and conſiſt of four large roundiſh petals, which are indented at the end. Theſe uſually appear in May and June, but the ſame plants frequently continue flowering moſt part of the ſummer. The ſeeds ripen in autumn, and the plants generally periſh ſoon after; but when any of them grow in dry rubbiſh, they will laſt two or three years and become ſhrubby; but thoſe with ſingle flowers, are not worth preſerving after they have perfected their ſeeds. The flowers of this ſort vary in their colour; ſome are of a pale red, others are of a bright red, and ſome are curiouſly variegated, but thoſe of the bright red are generally moſt eſteemed. There is always a great number of double flowers produced, if the ſeeds are well choſen, frequently three parts in four of the plants will be double; and as the plants divide into many branches, they make a fine appearance during their continuance in flower.

The ſeventh ſort is known by the title of Brompton Stock Gilliflower, I ſuppoſe from its having been there firſt cultivated in England. This riſes with an upright, ſtrong, undivided ſtalk, to the height of two feet or more, garniſhed with long hoary leaves, which are reflexed, and waved on their edges, and at the top form a large head; out of the center of theſe ariſes the flower-ſtalk, which, when the plants are ſtrong, is frequently a foot and a half long, putting out two or three ſhort branches toward the bottom; the flowers of this kind have longer petals than any of the other ſorts, and are formed into a pyramidal ſpike; but thoſe with ſingle flowers are looſely diſpoſed, becauſe the flowers having but few petals, do not fill the ſpike, as thoſe do which are double; for theſe often have ſo many petals, as to render each flower as large and full as ſmall Roſes; and when they are of a bright red, make a pretty appearance, being excelled by none of the flowery tribe; but the plants of this ſort produce but one ſpike, in which it differs from all the other kinds, and being conſtant in this particular, I think is ſufficient to eſtabliſh a diſtinct ſpecies. This ſort is generally biennial, though many times the plants are preſerved longer; but they are always ſtronger the firſt year of their flowering, than they will be after; ſo that the ſeeds are ſown every ſpring, to continue a ſucceſſion of flowering plants.

The eighth ſort is the White Stock Gilliflower, which is of longer duration than either of the other ſorts. I have frequently had theſe plants live three or four years, which have become ſhrubby; their ſtalks have been three feet high, and branched out on every ſide, ſo as to appear like ſhrubs; theſe ſeldom ſend out flower-ſtalks from the center of the plant, but it is the ſide branches which produce the flowers, and theſe ſide branches divide into ſeveral other, which is not common to the other ſorts. There are always many double flowers riſe from ſeeds of this ſort, when they are well choſen; ſome years I have ſcarce had enough ſingle flowers to preſerve the kind. The varieties of this are few, ſometimes a few of the plants will produce pale fleſh-coloured flowers, and now and then ſome have been purple; and as that ſort of Stock Gilliflower, which is titled the Twickenham Purple, will ſometimes come with flowers variegated with white, I have been inclinable to think theſe two may be varieties of each other; and the rather, becauſe the plants agree with each other in their external habit; for neither of theſe put out their flower-ſtems from the center of the plants, but always on their ſide, ſo that theſe are undoubtedly a diſtinct ſpecies from the former.

The ninth ſort is known by the title of White Wall-flower, among the gardeners and floriſts. This riſes with a greeniſh ſtalk a foot high, dividing into many branches, garniſhed with narrow, ſmooth, ſpear-ſhaped leaves, of a lucid green, and of thicker conſiſtence than thoſe of any of the other ſorts; they come out without any order, are near three inches long, and about half an inch broad in the middle; the flowers are produced in looſe ſpikes at the end of the branches, which are of a pure white, and have a great fragrancy, eſpecially in an evening or in cloudy weather; the flowers are ſucceeded by oblong compreſſed pods like thoſe of the other ſpecies. There is a variety of this with double flowers, which is propagated by cuttings or ſlips, in the ſame manner as the double Wall-flowers; but theſe plants require protection from great rains, and froſt in winter; ſo if they are planted in pots, and placed under a common frame in winter, where in mild weather they may enjoy the open free air, and be covered from hard rains and froſt, they may be preſerved ſeveral years.

Sometimes many of the plants with double flowers will come up from ſeeds, but not ſo frequent as ſome of the other ſorts. I have for ſeveral years raiſed more than one hundred plants in a ſeaſon, without obtaining one double flower; and from the ſeeds of theſe, have the following year had more than half the plants with double flowers: but this is not to be expected often.

The ſeeds of the tenth ſort were ſent me by Dr. Linnæus, from Upſal in Sweden. This plant riſes about ſix inches high, with an herbaceous ſwelling ſtalk; the leaves are produced in cluſters at the top, which are very hoary, waved on their edges, have obtuſe points, and ſet very cloſe to the ſtalk; the flowers are produced in ſlender ſpikes from the ſide of ſtalk; theſe are purple, but not ſo fragrant as many of the other ſorts; the pods are woolly, and recurve backward at the end.

All theſe ſorts flower in May and June, at which time they are the greateſt ornament to the flower-garden, therefore deſerve our care to cultivate them as much as any of the flowery tribe; but in order to have many double flowers, there muſt be great care taken in the choice of plants for ſeeds, without which there can be little hopes of having theſe flowers in perfection. The only ſure way of getting many double flowers, is to make choice of thoſe ſingle flowers which grow near many double ones; for I have always found thoſe ſeeds which have been ſaved from plants growing in beds cloſe to each other, where there happened to be many double flowers among them, have produced a much greater number of plants with double flowers, than thoſe which have been ſaved from plants of the ſame kinds, which grew ſingle in the borders of the flower-garden; ſo that there ſhould be a ſmall bed of each kind planted on purpoſe to ſave ſeeds in the flower-nurſery; or if they are ſown there, and the plants thinned properly when they are young, they need not be tranſplanted; for I have always obſerved the plants which have come up from ſcattered ſeeds, which have not been tranſplanted, endure the froſt much better than thoſe which have been removed; for as theſe plants ſend out horizontal roots from the bottom of their ſtems, which ſpread near the ſurface of the ground, ſo when they are tranſplanted, the roots are forced downward out of their natural direction; and if their ſtalks were grown tall before removal, they are generally planted low in the ground, whereby they are apt to rot, if the ground is moiſt, or the winter ſhould prove wet; therefore where they can be left unremoved, there will be a better chance of their living through the winter; and as theſe beds need not be of great extent, ſo when the winter proves very ſevere, it will not be much trouble or expence to arch the beds over with hoops, and cover them with mats in froſty weather, by which method they may be always preſerved.

The ground where theſe ſeeds are ſown, muſt not have any dung, for in rich land the plants will grow very vigorous in ſummer, but when the froſt comes on, or the heavy rains in autumn, either of which will ſoon deſtroy them; for theſe plants will thrive upon rocks or old walls, as was before obſerved; and in ſuch ſituations they will live, when all thoſe which are planted in gardens are deſtroyed. The beſt time to ſow the ſeeds is about the beginning of May; and if the ſeaſon ſhould prove dry, it will be proper to ſhade the beds with mats every day, to prevent the earth from drying too faſt; but the covering muſt be taken off every evening, to admit the dews of night, and they ſhould be gently watered in the evening two or three times a week. When the plants firſt appear, with their two ſeed-leaves, they are often attacked by flies, eſpecially in dry hot ſeaſons; therefore to prevent their deſtroying of the plants, the covering ſhould be continued over them during the heat of the day, and the plants frequently refreſhed with water, which will keep them in a growing ſtate, ſo the flies will not infeſt them; for I have always obſerved, they never attack any plants unleſs they have been ſtunted in their growth: when the plants have got ſtrength, they will be ſecure from this danger, and the coverings may be removed; after this the plants will require no farther care but to keep them clean from weeds, and to be thinned to the diſtance of nine inches or a foot aſunder, that they may have proper room to grow, and not draw each other up tall and weak. The plants which are drawn out of theſe beds to thin them, may be planted in the borders of the flower-garden, where they are deſigned to remain, and the ſooner they are removed, when the plants have got ſix or eight leaves, the more likely they will be to live through the winter; becauſe their roots will not have extended themſelves ſo far, ſo cannot be planted deep in the ground, and may take their natural direction; therefore whenever theſe plants are removed, it is always the beſt way to do it when they are young.

The farther care of the plants which are left in the beds, will be to cover them in winter with mats; and when they come to flower, all thoſe which are not of good colours, or whoſe flowers are ſmall, ſhould be drawn out as ſoon as they appear, that they may not impregnate thoſe which are deſigned for ſeeds with their farina; but thoſe with double flowers ſhould by no means be removed, nor ſhould their flowers be cut off, but ſuffered to fade among the ſingle ones, by which the ſeeds will be improved; it will alſo be a ſure method of preſerving each ſort in perfection, to have them ſeparate from each other, in diſtinct beds; though I think there is no danger of any of the ſpecies altering, by the mixture of their farina, but their colours are liable to be changed by it; ſo that in order to continue thoſe pure, they ſhould not ſtand too near each other.

The time for ſowing the ſeeds before-mentioned, muſt be underſtood to be for the ſorts which are biennial; for the annual, or ten Weeks Stock Gilliflower ſhould be for the firſt ſeaſon ſown in February, as was before directed; and to ſucceed theſe, there ſhould be another parcel ſown in March; and thoſe who are curious to continue theſe flowers late in the autumn, ſhould ſow a parcel of the ſeed the latter end of May; and if theſe laſt ſown plants are upon a warm border, where they may be covered, by placing glaſſes before them in winter, or covering them with mats, they may be continued in flower till Chriſtmas; and if ſome of the plants are potted, and put under a hot-bed frame in autumn, where they may enjoy the open air in mild weather, and be ſcreened from hard rains and froſt; by which method I have known theſe plants kept flowering all the winter, when the winters have not been very ſevere.

There are ſome who propagate the double Stock Gilliflowers by ſlips and cuttings, which will take root when properly managed; but the plants ſo raiſed are never ſo ſtrong as thoſe which come from ſeeds, and their ſpikes of flowers are always very ſhort, and have not half the beauty; therefore it is not worth while to practiſe this method, unleſs for thoſe ſorts which cannot be obtained with any certainty from ſeed.

The eleventh ſort grows naturally in the ſouth of France, Spain, and Italy, near the ſea coaſt. This riſes near a foot high, with a ligneous ſtalk, dividing into many ſmall branches, garniſhed with narrow hoary leaves, which are entire, and rounded at their extremity; the flowers are produced in looſe ſpikes at the end of the branches, which are ſmaller than thoſe of either ſort before-mentioned, of a bright red at their firſt appearing, but fade to a purple before they fall off. The ſtalks, leaves, and the whole plant is very white, and by its woody ſtalks hath the appearance of a perennial plant, but it generally periſhes in autumn. The ſeeds of this ſort ſhould be ſown in autumn, upon a warm border, where the plants are deſigned to remain; when the plants come up, they will require no farther care but to keep them clean from weeds, and thin them where they come up too cloſe. Theſe autumnal plants will flower early in June, ſo will produce good ſeeds; but thoſe which are ſown in the ſpring will flower in July and Auguſt, ſo that from theſe there cannot be any certainty of having ripe ſeeds: however, by ſowing the ſeeds at two or three different ſeaſons, there may be a ſucceſſion of flowers continued for three or four months.

The twelfth ſort is commonly ſown in gardens, ſometimes as an edging for borders, but more generally in patches between taller growing flowers: it is titled ſometimes Dwarf annual Stock Gilliflower, and by others it hath the appellation of Virginia Stock Gilliflower. This ſeldom riſes more than ſix inches high, ſending out many branches from the root, which intermix and grow irregular; theſe are garniſhed with ſpear-ſhaped leaves, rounded at their ends, and ſit cloſe to the branches; the flowers come out in looſe ſpikes at the end of the branches, which are of a purple colour, compoſed of four petals in form of a croſs, and are ſucceeded by ſlender pods like thoſe of the other ſorts. If the ſeeds of this ſort are ſown in patches, at two or three different times, the firſt in autumn, the ſecond the latter end of March, and the third the end of April, or the beginning of May, in the borders of the flower-garden, they will make a variety, when intermixed with other low growing annual flowers, for three months.

The thirteenth ſort riſes near two feet high, ſending out many upright branches from the bottom, which are thinly garniſhed with ſpear-ſhaped leaves, the lower ones being a little indented; the flowers come out ſingle, at great diſtances from each other, toward the upper part of the branches; theſe are ſmall, of a purpliſh red colour, and ſoon fall away, being ſucceeded by long taper pods, with awl-ſhaped points. This is an annual plant, which may be treated in the ſame manner as the laſt mentioned ſort; but as it hath little beauty, it is not often cultivated in gardens.

The fourteenth ſort grows naturally on the ſea coaſts in Italy, Spain, and Portugal. This is alſo an annual plant, which branches out from the root into many declining ſtalks; the lower leaves are about two inches long, and three quarters of an inch broad, very deeply ſinuated on their edges, and hoary; thoſe upon the ſtalks are of the ſame form, but much ſmaller; the flowers are produced from the ſides of the ſtalks ſingly, and at the top in looſe ſpikes; the empalements of the flowers are covered with a white down, as are alſo the end of the branches; the flowers are purple, compoſed of four leaves placed in form of a croſs; the pods are about three inches long, taper, woolly, and at their ends are divided into three parts, which ſpread into a triangle. It flowers in July, and when the ſeaſon is favourable, the ſeeds will ripen in autumn; but if the ſeeds are ſown in autumn on a warm border, the plants will live through the winter, and theſe will flower early in June, ſo from theſe good ſeeds may be obtained from them.

The fifteenth ſort grows naturally on the ſea coaſts in the ſouth of France and Spain, where it continues three or four years; the ſtalk is erect, and the whole plant is covered with a white down; the lower leaves are broad, ſpear-ſhaped, obtuſe, and alternately indented; the flowers are fleſh-coloured, compoſed of four petals like the other ſpecies, and are ſucceeded by long woolly pods.

This may be propagated by ſeeds in the ſame manner as the other ſorts; and if the plants grow in rubbiſh, they will live through the winter better than in rich earth.

The ſixteenth ſort is of humble growth, ſeldom riſing above eight or nine inches high; the leaves are very narrow, and indented on their edges; the ſtalk becomes ſhrubby, to which the flowers grow very cloſe; theſe are of a worn out purple colour, ſo make but little appearance. It grows naturally in Spain and Italy, and is not ſo hardy as the other ſorts, therefore requires ſome protection in winter.

The ſeventeenth ſort grows naturally in Portugal. This is a low annual plant with pointed leaves, whoſe borders are indented as if torn; the empalement of the flower is hoary; the flowers have four purple petals placed in form of a croſs, which are ſucceeded by knobbed-pointed pods incloſing flat ſeeds.

If the ſeeds of this kind are ſown in the ſpring upon ſheltered borders, where the plants are to remain, and they are thinned and kept clean from weeds, the plants will flower in July, and produce ripe ſeeds in autumn.

CHELIDONIUM. Tourn. Inſt. R. H. 231. tab. 116. Lin. Gen. Plant. 572. Chelidonium majus. Raii Meth. Plant. 100. Glaucium. Tourn. Inſt. R. H. tab. 130. Celandine, or Greater Celandine, in French *Chelidoine* or *Eclair*.

The Characters are,

The flower hath a roundiſh empalement, compoſed of two concave obtuſe leaves, which fall off; it hath four large roundiſh petals, which ſpread open and are narrow at their baſe; in the center is ſituated a cylindrical germen, attended by a great number of ſtamina, which are broad at the top, and are terminated by oblong, compreſſed, twin ſummits. Upon the germen is ſituated a bifid ſtigma in form of a head. The germen afterward becomes a cylindrical pod, with one or two cells, opening with two valves, and filled with many ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flower having many ſtamina and one ſtyle. To this genus he has joined the Glaucium of Tournefort, whoſe characters very well agree with thoſe of Celandine, ſo are very properly brought together.

The Species are,

1. Chelidonium (*Majus*) pedunculis umbellatis. Lin. Gen. Plant. 505. *Celandine with an umbellated foot-ſtalk.* Chelidonium majus vulgare. C. B. P. 144. *Greater common Celandine.*
2. Chelidonium (*Laciniatum*) foliis quinque lobatis, lobis anguſtis acute laciniatis. *Celandine whoſe leaves are compoſed of five narrow lobes, which are cut into many acute ſegments.* Chelidonium majus laciniato flore. Cluſ. Hiſt. 203. *Greater Celandine with a jagged flower.*
3. Chelidonium (*Glaucium*) pedunculis unifloris, foliis amplexicaulibus ſinuatis, caule glabro. Lin. Sp. Plant. 506. *Celandine with ſingle flowers on the foot-ſtalks, ſinuated leaves which embrace the ſtalks, and a ſmooth ſtalk.* Glaucium flore luteo. Tourn. Inſt. R. H. 351. *Glaucium with a yellow flower*; and the Papaver corniculatum luteum. C. B. P. 171. *Yellow horned Poppy.*
4. Chelidonium (*Corniculatum*) pedunculis unifloris, foliis ſeſſilibus pinnatifidis, caule hiſpido. Lin. Sp. Plant. 506. *Celandine with ſingle flowers upon the foot-ſtalks, leaves ſet cloſe to the ſtalks which have winged points, and a rough ſtalk.* Glaucium hirſutum flore Phœnicio. Tourn. Inſt. R. H. 253. *Hairy Glaucium, or horned Poppy, with a ſcarlet flower.*
5. Chelidonium (*Glabrum*) pedunculis unifloris, foliis ſemiamplexicaulibus, dentatis, glabris. *Celandine with*

foot-ſtalks having a ſingle flower, and ſmooth indented leaves, which half embrace the ſtalks. Glaucium glabrum flore Phœnicio. Tourn. Inſt. 254. *Smooth horned Poppy with a ſcarlet flower.*

6. Chelidonium (*Hybridum*) pedunculis unifloris, foliis pinnatifidis, linearibus, caule lævi. ſiliquis trivalvibus. Lin. Sp. Plant. 724. *Celandine with ſingle flowers upon the foot-ſtalk, many pointed narrow leaves, and a ſmooth ſtalk.* Glaucium flore violaceo. Tourn. Inſt. 254. *Horned Poppy with a Violet-coloured flower.*

The firſt ſort is the common Celandine which is uſed in medicine, and is eſteemed aperitive and cleanſing, opening obſtructions of the ſpleen and liver, and is of great uſe in curing the jaundice and ſcurvy. This grows naturally on the ſide of banks, and in ſhady lanes in many parts of England, ſo is ſeldom cultivated in gardens; for if the ſeeds are permitted to ſcatter, the ground will be plentifully ſtored with plants to a conſiderable diſtance. It flowers in May, at which time the herb is in the greateſt perfection for uſe.

The ſecond ſort is found growing in a few particular places, where the ſeeds have been formerly ſown, or the plants caſt out of gardens. This is by ſome ſuppoſed to be only a variety of the firſt, but I have propagated this by ſeeds above forty years, and have conſtantly found the plants produced to be the ſame as thoſe from which the ſeeds were ſaved, and never vary, nor have I ever obſerved the firſt alter to this. The leaves of this are divided into narrow long ſegments, which are deeply jagged on their edges, and the petals of the flower are cut into many parts, in which it differs from the firſt. If the ſeeds of this ſort are permitted to ſcatter, they will fill the ground with plants. They both delight in ſhade. There is a variety of this with double flowers, which generally riſes the ſame from ſeeds, which is not uſual in many other plants; however, this variety may always be preſerved by parting the roots.

The third ſort is known by the title of Horned Poppy; it was ſo called from the reſemblance which the flower bears to the Poppy, and the long ſeed-veſſel, which is like a horn. It grows naturally upon the ſandy and gravelly ſhores by the ſea, in many parts of England, from whence the ſeeds have been brought into gardens, where it is ſometimes allowed to have place for the ſake of variety. This plant abounds with a yellow juice which flows out from every part, when broken. It ſends out many thick gray leaves, which are deeply jagged; the ſtalks are ſtrong, ſmooth, and jointed, which riſe near two feet high, and divide into many branches. Theſe are garniſhed with leaves at each joint; thoſe on the lower part of the ſtalks are long, broad, and deeply jagged, but the upper leaves are entire and almoſt heart-ſhaped: they cloſely embrace the ſtalks with their baſe; from the boſom of the leaves come out the ſhort foot-ſtalks of the flowers, each ſupporting one large yellow flower, compoſed of four broad petals, which ſpread open like the garden Poppy, in the center of which are a great number of yellow ſtamina, ſurrounding a long cylindrical germen, crowned by an arrow-pointed ſtigma, which is permanent, remaining upon the top of the horned ſeed-veſſel, which grows nine or ten inches long, having a longitudinal furrow on one ſide, where it opens when ripe, and lets out the ſeeds. This is a biennial plant, which flowers the ſecond year, and periſhes ſoon after the ſeeds are ripe.

If the ſeeds of this plant are permitted to ſcatter, they will fill the ground near them with plants, ſo that it is not a proper plant for a flower-garden; but if a few of the ſeeds are ſcattered about in rock work, the plants will riſe without trouble, and in ſuch places will have a pretty effect. And if the ſeeds are permitted to ſcatter, there will always be a ſupply of young plants; ſo the only care they will require, is to pull them up when they multiply too faſt. It flowers in June and July, and the ſeeds ripen in autumn.

The fourth ſort grows naturally in Spain, Italy, and ſome parts of Germany, from whence the ſeeds have been brought to England. The leaves of it are deeply jagged and hairy, of a pale green, and grow cloſe to the ſtalks: thoſe at the bottom lie on the ground, and are broader than thoſe above. The ſtalks are a foot and a half high, having a ſingle jagged leaf placed at each joint; theſe have many diviſions, from their origin to the point, which is extended longer than the lower leaves. The flowers come out from the boſom of the leaves; theſe are compoſed of five broad obtuſe petals, which are of a dark ſcarlet colour, and ſoon fall off. In the center of each is ſituated an oblong germen, having no ſtyle, but ſupports a bifid ſtigma; this is attended by a great number of ſhort ſtamina, terminated by obtuſe ſummits. The germen afterward becomes a long taper pod, on the apex of which the bifid ſtigma remains, ſitting on the middle partition, which divides the pod into two cells, which are filled with ſmall ſeeds. The flower hath an empalement compoſed of two hollow leaves, which are cloſely ſet with ſhort prickles; this falls away when the flower is expanded. It flowers in June and July, and the ſeeds ripen in autumn. As the flowers of this plant are but of ſhort duration, they do not make any conſiderable figure; but the foliage of the plant is very elegant, and might be introduced by way of ornament to furniture with great advantage, being very pictureſque: it may alſo be wrought into patterns for ſilks, and painted upon porcelain, where it would have a very good effect. If the ſeeds of this plant are ſown in the autumn, they will more certainly grow than thoſe which are ſown in the ſpring; which frequently, in dry ſeaſons, do not come up the ſame year, or at leaſt not before autumn; whereas thoſe ſown in autumn, frequently come up ſoon after, or if not at that ſeaſon, do not fail coming up in the ſpring; and theſe plants come early to flower, ſo that good ſeeds may always be obtained from them. They ſhould be ſown where the plants are to remain, and they will require no other care but to thin them where they are too cloſe, and keep them clean from weeds.

The fifth ſort differs from the fourth, in having broader leaves, which are not ſo deeply divided; the whole plant is ſmooth, and the flowers are larger, but are of the ſame colour: this is alſo an annual plant, and requires the ſame treatment as the laſt.

The ſixth ſort grows naturally among the Corn, in ſome parts of England. This is alſo an annual plant, whoſe ſeeds ſhould be ſown in autumn, for thoſe which are ſown in the ſpring ſeldom ſucceed. The leaves of this ſort are finely jagged, and divided into narrow ſegments, ſomewhat like thoſe of Buckſhorn Plantain; they are ſmooth, of a lucid green, and are commonly oppoſite. The ſtalks riſe little more than a foot high, dividing into two or three branches upward, garniſhed with ſmall leaves of the ſame form as thoſe below. The flowers are ſuſtained by ſlender foot-ſtalks, which come out from the wings of the leaves; theſe are compoſed of four obtuſe petals, of a Violet colour, in the center of which is ſituated a cylindrical germen, attended by a great number of ſtamina; the germen afterward becomes a long cylindrical pod, like thoſe of the other ſpecies. The flowers of this plant are very fugacious, ſeldom laſting above three or four hours before the petals drop off, eſpecially in clear weather. It flowers in May, and the ſeeds ripen in July, and the plants ſoon after periſh. If the ſeeds are permitted to ſcatter, the plants will come up without care as the others.

CHELONE [χελώνη, *Gr.* a tortoiſe.] Tourn. Act. R. S. 1706. tab. 7. fol. 2. Lin. Gen. Plant. 666.

The Characters are,

The empalement of the flower is of one leaf, cut into five parts, and is permanent; the flower is of the ringent kind, having a ſhort cylindrical tube, which is ſwollen at the chaps, where it is oblong, convex above, and plain below; the mouth is almoſt cloſed; the upper lip is obtuſe and in-

dented, the lower lip is lightly cut into three parts. It hath four ſtamina, which are incloſed in the backſide of the petal, the two ſide ones being a little longer than the other, which are terminated by oval hairy ſummits. It hath an oval germen ſupporting a ſlender ſtyle, crowned by an obtuſe ſtigma; the germen afterward becomes an oval capſule having two cells, which are filled with flat roundiſh ſeeds having a border.

This genus of plants is ranged in the ſecond ſection of Linnæus's thirteenth claſs, intitled Didynamia Angioſpermia, from the flower having two long and two ſhort ſtamina, and the ſeeds being included in a capſule.

The Species are,

1. Chelone (*Glabra*) foliis lanceolatis, acuminatis, ſeſſilibus, obſoletè ſerratis, radice reptatrice. *Chelone with pointed ſpear-ſhaped leaves, ſet cloſe to the ſtalks, with ſmall ſerratures on their edges, and a creeping root.* Chelone Acadienſis flore albo. Tourn. Act. R. Par. 1706. *Chelone of Acadia, with a white flower.*
2. Chelone (*Purpurea*) foliis lanceolatis, obliquis, petiolatis, oppoſitis, marginibus acutè ſerratis. *Chelone with oblique ſpear-ſhaped leaves, growing oppoſite on footſtalks, and their borders ſharply ſawed.* Chelone floribus ſpecioſis pulcherrimis, colore roſæ damaſcenæ. Clayt. Flor. Virg. 71. *Chelone with a very beautiful looking flower, the colour of the Damaſk Roſe.*
3. Chelone (*Hirſuta*) caule foliiſque hirſutis. Lin. Sp. Plant. 611. *Chelone with hairy ſtalks and leaves.* Digitatis Virginiana, panacis coloni foliis, flore amplo, pallaſcente. Pluk. Mant. 64. *Virginia Foxglove with Clowns all-heal leaves, and a large pale flower.*

The firſt ſort grows naturally in moſt parts of North America. This is called by Joſcelin, in his New England Rarities, the Humming Bird-tree. It hath a pretty thick jointed root, which creeps under ground to a conſiderable diſtance, ſending up ſmooth channelled ſtalks, which riſe about two feet high, garniſhed with two leaves at each joint, ſtanding oppoſite without foot-ſtalks; theſe are three inches and a half long, and about three quarters of an inch broad at their baſe, where they are broadeſt, and diminiſh gradually to a ſharp point; they have ſmall ſerratures on their edges, which ſcarcely appear. The flowers grow in a cloſe ſpike at the end of the ſtalks; they are white, and have but one petal, which is tubular, and narrow at the bottom, but ſwells upward, almoſt like the Foxglove flower; the upper ſide is bent over and convex, but the under is flat, and ſlightly indented in three parts at the end. When the flowers fall off, the germen turns to an oval capſule ſitting in the empalement, filled with roundiſh compreſſed ſeeds, which have a thin border. It flowers in Auguſt, and when the autumn proves favourable, the ſeeds will ſometimes ripen in England; but as the plants propagate ſo faſt by their creeping roots, the ſeeds are ſeldom regarded. The beſt time to tranſplant the roots is in autumn, that they may be well eſtabliſhed in the ground before the ſpring, otherwiſe they will not flower ſo ſtrong, eſpecially if the ſeaſon proves dry; but when they are removed in the ſpring, it ſhould not be later than the middle of March, by which time their roots will begin to puſh out new fibres. They will thrive in almoſt any ſoil or ſituation, but their roots are apt to creep too far, if they are not confined, and ſometimes intermix with thoſe of other plants; and then their ſtalks ſtand ſo far diſtant from each other, as to make but little appearance; therefore they ſhould be planted in pots, which will confine their roots, ſo that in each pot there will be eight or ten ſtalks growing near each other, when they will make a tolerable good appearance. This plant is very hardy, ſo is not injured by cold, but it muſt have plenty of water in hot weather.

The ſecond ſort was diſcovered in Virginia by Mr. Clayton, who ſent it to England: the roots of this do not creep ſo far as thoſe of the firſt, the ſtalks are ſtronger, and the leaves much broader, and are oblique; they are deeply ſawed on their edges, and ſtand upon ſhort foot-ſtalks: the flowers are of a bright purple colour, ſo make a finer appearance. This flowers at the ſame time with the firſt, and is propagated by parting of the roots in the ſame manner.

The third ſort I received from New England, where it grows naturally: this is near to the firſt ſort, but the ſtalks and leaves are very hairy, and the flower is of a purer white. It flowers at the ſame time with the former, and requires the ſame treatment.

As theſe plants flower in the autumn, when there is a ſcarcity of other flowers, it renders them the more valuable, eſpecially the ſecond ſort, whoſe flowers make a very pretty appearance, when they are ſtrong; and if ſome of them have a ſhady ſituation in the ſummer, they will flower later in the autumn.

CHENOPODIA-MORUS. See Blitum.

CHENOPODIUM [χηνοπόδιον, *Gr.*] Tourn. Inſt. R. H. 506. tab. 288. Lin. Gen. Plant. 272. Gooſefoot, or Wild Orach.

The Characters are,

It hath a permanent empalement, compoſed of five oval concave leaves: the flower hath no petal, but in the center it hath five ſtamina placed oppoſite to the leaves of the empalement, and of the ſame length, terminated by roundiſh twin ſummits; it hath a round germen ſupporting a ſhort double ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a five-cornered fruit incloſed in the empalement, containing one roundiſh depreſſed ſeed.

Linnæus places this genus in the ſecond ſection of his fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The Species are,

1. Chenopodium (*Bonus Henricus*) foliis triangulari-ſagittatis, integerrimis ſpicis compoſitis aphyllis. Hort. Cliff. 84. *Gooſefoot with arrow-ſhaped triangular leaves which are entire.* Chenopodium folio triangulo. Tourn. Inſt. 506. *Gooſefoot with a triangular leaf, called Engliſh Mercury, All Good, or Good Henry.*
2. Chenopodium (*Vulvaria*) foliis integerrimis rhombeo-ovatis, floribus conglomeratis axillaribus. Flor. Suec. 216. *Gooſefoot with entire, oval, rhomboidal leaves, and flowers growing in cluſters on the ſide of the ſtalks.* Chenopodium fœtidum. Tourn. Inſt. 506. *Stinking Orach.*
3. Chenopodium (*Scoparia*) foliis lineari-lanceolatis, planis, integerrimis. Hort. Cliff. 86. *Gooſefoot with narrow ſpear-ſhaped leaves, which are plain and entire.* Chenopodium lini folio villoſo. Tourn. Inſt. R. H. *Gooſefoot with a hairy Flax leaf, commonly called Belvedere, or Summer Cypreſs.*
4. Chenopodium (*Botrys*) foliis oblongis, ſinuatis, racemis nudis multifidis. Hort. Cliff. 84. *Gooſefoot with oblong ſinuated leaves, and naked multifid ſpikes of flowers.* Chenopodium ambroſioides folio ſinuato. Tourn. Inſt. 506. *Gooſefoot, like Ambroſia, with ſinuated leaves, commonly called Oak of Jeruſalem.*
5. Chenopodium (*Ambroſioides*) foliis lanceolatis, dentatis, racemis foliatis ſimplicibus. Hort. Cliff. 84. *Gooſefoot with ſpear-ſhaped indented leaves, and ſingle leafy ſpikes of flowers.* Chenopodium ambroſioides Mexicanum. Tourn. Inſt. 506. *Mexican Gooſefoot, like Ambroſia, commonly called Oak of Cappadocia.*
6. Chenopodium (*Fruticoſum*) foliis lanceolatis, dentatis, caule fruticoſo. *Gooſefoot with ſpear-ſhaped indented leaves, and a ſhrubby ſtalk.* Chenopodium ambroſioides Mexicanum fruticoſum. Boerh. Ind. alt. 2. p. 90. *Shrubby Mexican Orach.*
7. Chenopodium (*Multifidum*) foliis multifidis, ſegmentis linearibus, floribus axillaribus ſeſſilibus. Lin. Sp. 320. *Gooſefoot with multifid leaves, linear ſegments, and flowers ſet cloſe to the ſtalk.* Chenopodium ſempervirens, foliis tenuiter laciniatis. Hort. Elth. 78.

There are many other ſpecies of this genus, ſome of which grow naturally on dunghills and the ſide of ditches, in moſt parts of England, where they often become very troubleſome weeds; for which reaſon, I have not enumerated them here.

The firſt ſort is found growing naturally in ſhady lanes in many parts of England, but it is very doubtful if the ſeeds have not been caſt out of gardens originally, becauſe this plant was formerly cultivated in kitchen-gardens for uſe; and in ſome of the northern counties, the people ſtill preſerve it in their gardens as an eſculent herb; which in the ſpring ſeaſon, they dreſs in the ſame manner as Spinach, for which it is a ſubſtitute. But, as the latter is a much better herb, it has obtained the preference very juſtly, in all the countries where the culture of the kitchen-garden is underſtood.

The ſecond ſort is very common upon dunghills, and in gardens, in moſt parts of England: it is ſeldom cultivated, except in ſome phyſic-gardens; for the markets in London are ſupplied with it by the herb-women, who gather it in the places where it grows wild.

The third ſort is ſometimes cultivated in gardens; it is a beautiful plant, which is naturally diſpoſed to grow very cloſe and thick, and in as regular a pyramid as if cut by art. The leaves are of a pleaſant green; and were it not for that, it hath ſo much of the appearance of a Cyprus-tree, that at ſome diſtance it might be taken for the ſame, by good judges: the ſeeds ſhould be ſown in autumn; and in the ſpring, when the plants are come up, they may be planted into pots of good earth, and kept ſupplied with water in dry weather: theſe pots may be intermixed with other plants to adorn court-yards, &c. where they will appear very handſome, until their ſeeds begin to ſwell and grow heavy, which weigh down and diſplace the branches; at which time the pots ſhould be removed to ſome abject part of the garden, to perfect their ſeeds; which, if permitted to fall upon the ground, will come up the next ſpring; ſo that you need be at no more trouble in propagating theſe plants, but only to tranſplant them where you intend they ſhould grow.

The fifth ſort was formerly uſed in medicine; but although it ſtill continues in the catalogue of ſimples annexed to the London Diſpenſatory, yet is very ſeldom uſed at preſent. This plant may be propagated by ſowing the ſeeds in an open border of good earth in the ſpring, where it will perfect its ſeeds in autumn; which, if permitted to ſhed upon the ground, will ariſe as the former.

The fourth ſort was brought from America, where the ſeeds are called Worm Seed, I ſuppoſe from ſome quality contained in it, which deſtroys worms in the body.

This is propagated by ſowing the ſeeds in the ſpring, as the before-mentioned ſort, and will perfect its ſeed in autumn; after which, the plant decays to the ground: but if the root be preſerved in ſhelter under a common frame in winter, the ſtalks will riſe again the following ſpring.

The leaves of this plant emit a very ſtrong odour when bruiſed, ſomewhat like thoſe of the Ambroſia, for which the plants are preſerved in gardens, for the flower hath no beauty. This plant grows naturally in moſt parts of North America, where it is generally called Worm Seed. It ſends up ſeveral ſtalks from the root, which riſe about two feet high, garniſhed with oblong leaves a little indented on their edges, of a light green, and placed alternately on the ſtalks; the flowers come out from the wings of the leaves on the upper part of the branches, in looſe ſpikes: theſe appear in July, and the ſeeds ripen in September; which, if permitted to ſcatter, the plants will come up the following ſpring, when a few of them may be tranſplanted into pots filled with kitchen-garden earth, to be preſerved through the winter; and the others may be planted in the common borders, where they will flower and perfect their ſeeds; but unleſs the winter is very favourable, the roots will be deſtroyed.

The ſeeds of all the ſpecies of this genus will ſucceed beſt, if they are ſown in autumn; for when they are ſown in the ſpring, they frequently lie a whole year before the plants come up; therefore where the ſeeds of any of them ſcatter, the plants will come up much better than thoſe which are ſown by hand.

The fifth ſort is annual: this alſo grows naturally in North America, from whence I have frequently received the ſeeds. It is alſo a native of many of the warm countries in Europe. This hath many oblong leaves at the bottom, which are deeply ſinuated on both ſides, ſomewhat like thoſe of the Oak-tree; from whence it received the title of Oak of Jeruſalem. Theſe are purple on their under ſide, and when bruiſed, emit a ſtrong odour. The ſtalks riſe about eight or nine inches high, dividing into ſeveral ſmaller branches. The lower part of theſe is garniſhed with leaves of the ſame ſhape with thoſe below, but are ſmaller. The flowers grow in naked looſe ſpikes, divided into many parts: they are ſmall, herbaceous, and are ſucceeded by ſmall round ſeeds. This ſort flowers in June and July, and the ſeeds ripen in autumn.

The ſixth ſort hath leaves very like thoſe of the fourth, and have the ſame ſcent: but this hath a ſhrubby ſtalk, which riſes five or ſix feet high, and divides into many branches. It is a native of America, and muſt be houſed in the winter, for it will not live through the winter in England in the open air. It is eaſily propagated by cuttings during any of the ſummer months, which, if planted in a ſhady border, and duly watered, will ſoon take root; and then may be planted in pots filled with light earth, and placed in the ſhade till they have taken new root, after which they may be placed with other hardy exotic plants in a ſheltered ſituation during ſummer; and when the froſt comes on, they muſt be removed into the green-houſe; but they only require protection from hard froſts, and ſhould have plenty of air in mild weather. This grows naturally in the Braſils.

The ſeventh ſort grows naturally at Buenos Ayres: this riſes with a ſhrubby ſtalk three or four feet high, garniſhed with oblong leaves, which are cut into many linear ſegments; the flowers ſit cloſe to the ſtalks, which, like the other ſpecies of this genus, have no petals, but the empalement incloſes five ſlender ſtamina: the germen ſupports two ſtyles, crowned by obtuſe ſtigma.

This is a perennial plant, which retains its leaves through the year, ſo will add to the variety in a green-houſe in winter, but has little other beauty to recommend it. This may be propagated by cuttings, which, if planted in a bed of light earth during any of the ſummer months, and duly ſhaded and watered, will put out roots; then they may be tranſplanted into pots, and may be placed with other hardy exotic plants in ſummer, but muſt be ſheltered from froſt in winter.

CHERRY-LAUREL. See PADUS.

CHERRY-TREE. See CERASUS.

CHERVIL. See SCANDIX.

CHESNUT. See CASTANEA.

CHESNUT, the Horſe. See ESCULUS.

CHIONANTHUS. Lin. Gen. Plant. 21. The Fringe, or Snowdrop-tree. This title was given to this plant by Dr. Van Royen, from the whiteneſs of its flowers: the inhabitants of America, where this tree is a native, call it Snowdrop-tree, for the ſame reaſon: and the Dutch call it Sneebaum, i. e. Snow-tree, on the ſame account.

The CHARACTERS are,

It hath a permanent empalement of one leaf, which is erect, and cut into four acute parts; the flower is of one petal, having a ſhort ſpreading tube the length of the empalement, and the upper part is cut into four very long narrow ſegments, which are erect. It hath two ſhort ſtamina inſerted in the tube of the petal, which are terminated by upright heart-ſhaped ſummits. In the center is placed the oval germen, ſupporting a ſingle ſtyle, crowned by an obtuſe trifid ſtigma. The germen afterward becomes a round berry with one cell, incloſing one hard ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, intitled Diandria Monogynia, the flower having two ſtamina and one ſtyle.

We have but one Species of this plant in the Engliſh gardens, viz.

Chionanthus pedunculis trifidis trifloris. Lin. Sp. Plant. 8. *Snowdrop-tree, or Fringe-tree, with trifid foot-ſtalks ſupporting three flowers.* Amelanchier Virginiana laurocerasi folio. Pet. Hor. Sicc. 241. *Virginia Amelanchier with a Laurel leaf.*

This ſhrub is common in South Carolina, where it grows by the ſide of rivulets, and ſeldom is more than ten feet high: the leaves are as large as thoſe of the Laurel, but are of a much thinner ſubſtance; the flowers come out in May, hanging in long bunches, and are of a pure white, from whence the inhabitants call it Snowdrop-tree; and, from the flowers being cut into narrow ſegments, they give it the name of Fringe-tree. After the flowers have fallen away, the fruit appears, which becomes a black berry, about the ſize of Sloes, having one hard ſeed in each.

This tree is now more common in the curious gardens in England, than it was a few years ſince; there having been many young plants raiſed from the ſeeds, which have been brought from America lately: there have alſo been ſome plants propagated by layers, though there is great uncertainty of their taking root, which they ſeldom do in leſs than two years; nor will they ever take root, unleſs they are well ſupplied with water in dry weather.

The beſt way to obtain good plants, is from the ſeeds, which muſt be procured from America, for they never have produced any fruit in this country. The ſeeds ſhould be ſown in ſmall pots filled with freſh loamy earth ſoon after they arrive, and ſhould be placed under a hot-bed frame, where they may remain till the beginning of May, when they muſt be removed to a ſituation expoſed to the morning ſun, and ſcreened from the ſun in the middle of the day. In dry weather the pots muſt be watered, and kept clean from weeds; for as theſe ſeeds lie in the ground a whole year before the plants will come up, they ſhould not be expoſed to the ſun the firſt ſummer, but the following autumn they ſhould be removed, and placed under a frame, to protect the ſeeds from being injured by the froſt; and if the pots are plunged into a moderate hot-bed the beginning of March, it will bring up the plants much ſooner than they will otherwiſe riſe; by which means they will get more ſtrength the firſt ſummer, and be better able to reſiſt the cold of the next winter. While theſe plants are very young, they will be in danger of ſuffering by ſevere froſt; but when they have obtained ſtrength, they will reſiſt the greateſt cold of our climate in the open air; therefore for the two or three firſt winters, it will be proper to keep them under ſhelter; ſo that the young plants may remain in the ſeed-pots all the firſt ſummer, and the following winter; and in the ſpring before they begin to ſhoot, they ſhould be ſhaken out of the pots, and carefully ſeparated ſo as not to break off their roots, and each planted in a ſmall pot filled with light loamy ſoil, and plunged into a very moderate hot-bed, juſt to forward their taking freſh root; then they ſhould be gradually inured to the open air, and during the following ſummer, the pots ſhould be plunged into the ground, to prevent the earth from drying, in a ſituation where they may enjoy the morning ſun, but ſcreened from the great heat at noon. During the ſummer ſeaſon, they will require to be frequently watered, and kept clean from weeds. The autumn following, they ſhould be again placed under a hot-bed frame to ſcreen them from froſt; but they ſhould enjoy the free air at all times, when the weather is mild. The April following, the plants may be ſhaken out of the pots, with the ball of earth to their roots, and planted where they are deſigned to remain.

This ſhrub delights in a moiſt, ſoft, loamy ſoil, and if it is planted in a ſheltered ſituation, will endure the cold of our winters very well in the open air; but in dry land it is very ſubject to decay in warm ſeaſons. In the places where this ſhrub grows naturally, it produces great quantities of flowers, ſo that they ſeem covered with ſnow, which gave occaſion to the inhabitants for titling it Snowdrop-tree; but in England the flowers are ſeldom ſo numerous, ſo do not make ſo good an appearance.

CHIRONIA. Lin. Gen. Plant. 227.

The Characters are,

The flower hath a permanent empalement of one leaf, cut into five oblong ſegments: it hath one petal, with a roundiſh tube, the ſize of the empalement, divided into five equal parts above, which ſpread open: it hath five ſhort broad ſtamina, which are faſtened to the top of the tube, and are terminated by large oblong ſummits, which join together, and after the flowers drop are ſpirally twiſted. It hath an oval germen, ſituated in the center, ſupporting a ſlender declining ſtyle, crowned by a riſing ſtigma in form of a head. The germen afterward becomes an oval capſule with two cells, filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Chironia fruteſcens, capſulifera. Lin. Sp. Plant. 190. *Shrubby Chironia bearing capſules.* Centaurium minus Africanum, arboreſcens, latifolium, flore ruberrimo. Com. Rar. Pl. 8. tab. 8. *Leſſer Tree-like African Centaury, with a broad leaf, and a very red flower.*
2. Chironia fruteſcens baccifera. Lin. Sp. Plant. 190. *Shrubby berry-bearing Chironia.* Centaurium minus arboreſcens pulpiferum. Com. Rar. Pl. 9. tab. 9. *Leſſer Tree-like Centaury with ſeeds ſurrounded with pulp.*

Theſe plants grow naturally at the Cape of Good Hope, from whence their ſeeds were brought to Holland many years paſt, and the plants were raiſed in ſome of the curious gardens there, and have ſince been communicated to the curious in many parts of Europe. The ſeeds of the firſt ſort were ſent me from Paris, by Mr. Richard, gardener to the king at Verſailles, from which I raiſed ſeveral plants, which have flowered in the Chelſea garden ſeveral years, but have not as yet perfected any ſeeds.

It hath a fibrous root, which ſpreads near the ſurface of the ground. The ſtalks are round, and inclining to be ligneous, but are of a very ſoft texture; theſe grow from two to three feet high, having ſeveral branches on every ſide, which grow erect, garniſhed with ſucculent leaves, which are an inch or more in length, and an eighth part of an inch broad, ending in an obtuſe point. At the ends of each ſhoot the flowers are produced, which are tubulous, and ſpread open at the top like thoſe of Periwinkle; theſe are of a bright red colour, and when there are a large number of the flowers open on the ſame plant, they make a very fine appearance. In the center of the flower is placed an oval germen, upon which there is fixed a recurved ſtyle, having a blunt ſtigma at the top, ſurrounded by five incurved ſtamina, each ſupporting a large ſummit. When the flowers fall away, the germen becomes an inflated capſule, which is filled with ſmall ſeeds. The flowers are produced from June to autumn, and the ſeeds ripen in October. This plant ſhould be placed in an airy glaſs-caſe in winter, where it may enjoy a dry air and much ſun, but will not thrive in a warm ſtove; nor can it be well preſerved in a common green-houſe, becauſe a damp moiſt air will ſoon cauſe it to rot.

The ſeeds of this plant ſhould be ſown in ſmall pots filled with light ſandy earth, ſoon after they are ripe, and plunged into a moderate hot-bed, and muſt be frequently but gently watered; ſometimes the ſeeds will lie a long time in the ground, ſo that if the plants do not appear the ſame ſeaſon, the pots ſhould not be diſturbed, but preſerved in ſhelter till the following ſpring, and then plunged into a freſh hot-bed, which will bring up the plants in a ſhort time, if the ſeeds are good. When the plants are fit to remove, they ſhould be tranſplanted into ſmall pots, four or five in each pot; then plunge the pots into a moderate hot-bed, and ſprinkle them with water, and ſhade them every day from the ſun till they have taken new root; after which they muſt have a large ſhare of air in warm weather, to prevent their drawing up weak: when the plants have obtained ſome ſtrength, they muſt be gradually inured to bear the open air; but when they are expoſed abroad, if there ſhould happen much rain, the plants muſt be ſcreened from it, otherwiſe it will cauſe them to rot: when the plants have filled the pots with their roots, they ſhould be parted, and each put into a ſeparate pot filled with light ſandy earth, not rich with dung, placing them in the ſhade till they have taken freſh root; then they may be removed to a warm ſheltered ſituation, and mixed with ſuch other plants as require but little water; in which ſituation they may remain till autumn, when they muſt be placed in a dry airy glaſs-caſe; and in the winter ſhould have very little wet, but muſt enjoy the ſun as much as poſſible; and in mild weather ſhould have freſh air admitted to them, but muſt be protected from froſt: with this management, the plants will thrive and produce flowers the ſecond year from ſeed.

The ſecond ſort riſes with a firmer ſtalk than the firſt, which is round, jointed, and divides upward into a greater number of branches, garniſhed with ſhort narrow leaves, which are pretty thick and ſucculent. The flowers are produced at the end of the branches, in the ſame manner as thoſe of the firſt, which are of a fine red colour, but not half ſo large as the flowers of the firſt; when theſe fall away, they are ſucceeded by oval pulpy berries, in which are included many ſmall ſeeds. This ſort continues flowering great part of ſummer and autumn, and in warm ſeaſons the ſeeds will ripen in England.

It is propagated by ſeeds in the ſame manner as the former ſort, and the plants require the ſame treatment.

CHIVES, as they are by ſome titled, are the ſtamina, which ſupport the ſummits in the center of flowers.

CHIVETS, in French, are the ſmall parts, or little offſets from the roots of bulbous plants, by which they are propagated.

CHONDRILLA. Lin. Gen. Plant. 815. Tourn. Inſt. R. H. 475. tab. 268. [of Χόνδρος, *Gr.* a cartilage.] Gum Succory.

The Characters are,

The common empalement is compoſed of many narrow cylindrical ſcales, which are equal. The flower is compoſed of many hermaphrodite florets, which are uniform, and lie imbricatim, like tiles on a houſe; theſe have one petal, which is ſtretched out on one ſide like a tongue, and are indented at the top in four or five ſegments; they have each five ſhort hairy ſtamina, terminated by cylindrical ſummits. The germen is ſituated under the floret, having a ſtyle the length of the ſtamina, crowned by two reflexed ſtigmas; the germen afterward becomes a ſingle, oval, compreſſed ſeed, crowned with a ſingle down, and incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis. The flowers of this ſection are compoſed of only hermaphrodite florets, which are fruitful.

We have but one Species of this genus, viz.

Chondrilla (*Juncea.*) Lin. Hort. Cliff. 383. *Gum Succory.* Chondrilla juncea viſcoſa arvenſis. C. B. P. 30. *Viſcous Field Gum Succory with ruſhy ſtalks.*

This plant grows naturally in Germany, Helvetia, and France, on the borders of the fields, and is ſeldom preſerved in gardens, becauſe the roots are very apt to ſpread, and become troubleſome weeds; and the ſeeds having down on their tops, are carried by the wind to a great diſtance, ſo that the neighbouring ground is filled with the plants; the roots of this ſtrike deep into the ground, and ſpread out with thick fibres on every ſide, each of which, when cut, or broken into many parts, will ſhoot up a plant; ſo that when this plant hath obtained poſſeſſion of the ground, it is very difficult to root out. The root ſends out a great number of ſlender ſtalks, which at their bottom are garniſhed with oblong ſinuated leaves, but thoſe above are very narrow and entire. The flowers are produced from the ſide and top of the branches, which are like thoſe of Lettuce, and are ſucceeded by ſeeds of the ſame form, crowned with down. It flowers in July, and the ſeeds ripen in September.

The other ſpecies of this genus which were enumerated in the former edition, are referred to the Lactuca and Crepis.

CHRISTMAS FLOWER, or Black Hellebore. See Helleborus.

CHRISTOPHORIANA. See Actea.

CHRISANTHEMOIDES OSTEOSPERMON. See Osteospermum.

CHRYSANTHEMUM. Tourn. Inſt. R. H. 491. tab. 280. Lin. Gen. Plant. 866. Leucanthemum. Tourn. Inſt. R. H. 492. [χρυσάνθεμον, *Gr.* from χρυσος, gold, ἄνθεμος, a flowet; that is to ſay, Golden Flower.] Corn Marigold.

The Characters are,

It hath a compound flower, the rays being compoſed of female florets, which are extended on one ſide like a tongue, and are indented in three ſegments at the end; theſe have an oval germen, ſupporting a ſlender ſtyle, crowned by two obtuſe ſtigmas. The hermaphrodite florets which compoſe the diſk, are funnel-ſhaped the length of the empalement, but are divided into five ſegments at the top, which are ſpread open; theſe have five ſhort hairy ſtamina, terminated by tubular cylindrical ſummits, and have an oval germen, with ſtyle and ſtigma like the female; the germen afterward becomes a ſingle, oblong, naked ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua. In this ſection all the central florets which compoſe the diſk, are hermaphrodite and fruitful, and the rays are compoſed of female florets.

The Species are,

1. Chrysanthemum (*Segetum*) foliis amplexicaulibus, ſupernè laciniatis, infernè dentato-ſerratis. Hort. Cliff. 416. *Corn Marigold with leaves embracing the ſtalks, the upper being jugged, and the lower indented like a ſaw.* Chryſanthemum ſegetum. Cluſ. Hiſt. 1. p. 334. *Corn Marigold.*
2. Chrysanthemum (*Leucanthemum*) foliis amplexicaulibus, oblongis, ſupernè ſerratis, infernè dentatis. Hort. Cliff. 416. *Corn Marigold with oblong leaves embracing the ſtalks, the upper ones being ſawed, and the lower indented.* Bellis ſylveſtris caule folioſo major. C. B. P. 261. *Greater wild Daiſy with a leafy ſtalk.*
3. Chrysanthemum (*Serotinum*) foliis lanceolatis, ſupernè ſerratis, utrinque acuminatis. Hort. Cliff. 416. *Corn Marigold with ſpear-ſhaped leaves, thoſe above being ſawed, and pointed on all ſides.* Bellis major, radice repente, foliis latioribus, ſerratis. Mor. Hiſt. 3. p. 29. *Greater Daiſy with a creeping root, and broad ſawed leaves.*
4. Chrysanthemum (*Montanum*) foliis imis ſpathulato-lanceolatis, ſerratis, ſummis linearibus. Sauv. Monſp. 87. *Corn Marigold with lower leaves pointed like a ſpear-ſhaped ſpatula, and ſawed, and the upper ones linear.* Leucanthemum montanum minus. Tourn. Inſt. 492. *Leſſer Mountain Ox-eye.*
5. Chrysanthemum (*Graminifolium*) foliis linearibus, ſubintegerrimis. Sauv. Monſp. 87. *Corn Marigold with narrow leaves, which are entire.* Leucanthemum gramineo folio. Tourn. Inſt. 493. *Ox-eye with a Graſs leaf.*
6. Chrysanthemum (*Alpinum*) foliis pinnatifidis, laciniis parallelis, integris, caule unifloris. Lin. Sp. Plant. 889. *Corn Marigold with many pointed leaves, whoſe ſegments are parallel and entire, and one flower on each foot-ſtalk.* Leucanthemum Alpinum, foliis Coronopi. Tourn. Inſt. R. H. 493. *Alpine Ox-eye with a Hartſhorn leaf.*

7. **Chryſanthemum** (*Corymbiferum*) foliis pinnatis, inciſo-ſerratis, caule multifloro. Prod. Leyd. 174. *Corn Marigold with winged leaves, ſawed ſegments, and many flowers upon a ſtalk.* Tanacetum montanum inodorum, minore flore. C. B. P. 132. *Unſavoury Mountain Tanſy with a leſſer flower.*

. **Chryſanthemum** (*Coronarium*) foliis pinnatifidis, inciſis, extrorſum latioribus. Hort. Cliff. 416. *Corn Marigold with wing-pointed cut leaves, whoſe exterior parts are broadeſt.* Chryſanthemum Creticum. Cluſ. Hiſt. 1. p. 334. *Corn Marigold of Crete.*

9. **Chryſanthemum** (*Monſpelienſium*) foliis imis palmatis, foliolis linearibus, pinnatifidis. Sauv. Monſp. 304. *Corn Marigold, whoſe lower leaves are palmated, and the ſmaller linear, ending in many points.* Leucanthemum montanum foliis Chryſanthemi. Tourn. Inſt. 492. *Mountain Ox-eye with Corn Marigold leaves.*

10. **Chryſanthemum** (*Fruteſcens*) fruticoſum, foliis linearibus dentato-trifidis. Hort. Cliff. 417. *Shrubby Corn Marigold with narrow leaves, having three indented points.* Leucanthemum Canarienſe, foliis Chryſanthemi, Pyrethri ſapore. Tourn. Inſt. 493. *Canary Ox-eye with Corn Marigold leaves, and the taſte of Pellitory.*

11. **Chryſanthemum** (*Floſculoſum*) floſculis omnibus uniformibus, hermaphroditis. Hort. Cliff. 417. *Corn Marigold, whoſe florets are all uniform and hermaphrodite.* Bellis ſpinoſa, foliis Agerati. C. B. P. 262. *Prickly Daiſy with Maudlin leaves.*

12. **Chryſanthemum** (*Pallidum*) foliis linearibus, inferne apice dentatis, ſuperne integerrimis, pedunculis nudis unifloris. *Corn Marigold with narrow leaves, thoſe on the lower part being indented at their points, the upper entire, and naked foot-ſtalks with one flower.* Chryſanthemum pallidum minimis, imiſque, foliis inciſis ſuperioribus integris, capillaribus. Barrel. Icon. 421. *Leaſt Corn Marigold, with the under and leſſer leaves divided, the upper entire.*

The firſt ſort is the common Corn Marigold, which grows naturally amongſt the corn, and the borders of the corn-fields in divers parts of England, ſo is rarely admitted into gardens; but we have inſerted this and the next to introduce the other ſpecies.

The ſecond ſort is the greater Daiſy, which ſtands in the liſt of medicinal plants in the College Diſpenſatory: this grows naturally in moiſt paſtures, almoſt every where in this country. It riſes with ſtalks near two feet high, garniſhed with oblong indented leaves, which embrace the ſtalks with their baſe. The footſtalks are each terminated by one white flower, ſhaped like thoſe of the Daiſy, but four times as large. It flowers in June.

The third ſort grows naturally in North America, but hath been long preſerved in the Engliſh gardens. The roots of this plant creep far under the ſurface, and ſend up ſtrong ſtalks three or four feet high, garniſhed with long ſawed leaves, ending in points; the ſtalks divide upward into many ſmaller, each being terminated by a large, white, radiated flower; theſe appear in September. It multiplies very faſt by its creeping roots, and will thrive in any ſoil or ſituation.

The fourth ſort grows naturally upon the Alps, and other mountainous places. I received this from Verona, near which place it grows in plenty: this ſends up a ſingle ſtalk a foot high, garniſhed with entire leaves above, but the under leaves are ſawed on the edges. The ſtalk is terminated by one large white flower, ſhaped like thoſe of the third ſort. It flowers in June, and the ſeeds ripen in Auguſt. This ſort may be propagated by ſeeds, which, if ſown in a ſhady border, will come up in about ſix weeks; and the plants, when fit to remove, may be tranſplanted into a ſhady border, where they are to remain, and will require no other care but to keep them clean from weeds.

The fifth ſort grows naturally about Montpelier; this hath a perennial root, from which ſprings up many narrow Graſs-like leaves, and, between them, ſtalks which riſe a foot and a half high, garniſhed with leaves of the ſame form as thoſe below. The ſtalks are each terminated by one large white flower, with a yellow diſk or middle. This flowers in June, but rarely perfects ſeeds in England, ſo is propagated only by parting the roots: the beſt time for this is in autumn, that the plants may get good root before winter.

The ſeventh ſort grows naturally on the Alps, and other mountainous places in Germany: this ſends out upright ſtalks, garniſhed with leaves cut into many parallel ſegments, ſomewhat like thoſe of Buckſhorn Plantain. The ſtalks riſe a foot and a half high, and are each terminated by a ſingle flower of the ſame form with thoſe of the laſt: it hath a perennial root, and may be propagated in the ſame manner as the other.

The eighth ſort has been many years cultivated in the gardens for the beauty of its flowers. Of this there are ſingle and double with white, and the ſame with yellow flowers; and as theſe do not differ from each other in any thing except in the colour of their flowers, therefore they are generally eſteemed but one ſpecies; but this difference is conſtant, for I have never found the ſeeds ſaved from the white, produce plants with yellow flowers, nor thoſe of the yellow produce white.

There is alſo a variety of theſe colours with fiſtular florets, which has accidentally riſen from ſeeds of the other; theſe are generally titled Quill-leaved Chryſanthemum; but as the ſeeds ſaved from theſe degenerate to the common ſorts, ſo they do not merit a particular denomination.

Theſe plants are always eſteemed as annual, ſo the ſeeds are uſually ſown upon a ſlender hot-bed in the ſpring, and the plants treated in the ſame manner as the African Marigold, for the culture of which we ſhall refer the reader to that article; but as the plants which riſe from ſeeds, do many of them produce ſingle flowers, although the ſeeds are ſaved from the beſt double flowers, therefore many perſons now propagate theſe plants from cuttings, whereby they continue the double ſorts only; theſe cuttings, taken from the plants the beginning of September, and planted in pots, will readily take root; and if they are placed under a hot-bed frame to ſcreen them from the froſt in winter, letting them have free air in mild weather, they will live through the winter; and in the ſpring theſe plants may be tranſplanted into the borders of the flower-garden, where they will flower in June, and continue in ſucceſſion till the froſt puts a ſtop to them; by this method all the varieties may be continued without variation, but the plants which are propagated this way by cuttings will become barren ſoon, ſo will not produce ſeeds.

The ninth ſort is a perennial plant, ſending out many ſtalks from the root, which divide into branches, garniſhed with pretty thick leaves, deeply cut into many ſegments, like thoſe of the laſt ſort; theſe are of a pale green; the flowers are produced at the end of the branches, ſtanding upon pretty long naked footſtalks; they are very like thoſe of the common Greater Daiſy, in ſize and colour. It flowers in June, and continues till the end of September. This ſort ripens ſeeds every year in England, by which the plant is eaſily propagated; for if the ſeeds are ſown in the ſpring on a common border, the plants will come up in ſix weeks; when theſe are fit to remove, they may be tranſplanted into a nurſery-bed at about a foot diſtance every way, and kept clean from weeds till autumn, when they may be removed to the places where they are deſigned to remain. As theſe plants extend their branches pretty far on every ſide, they ſhould be allowed at leaſt two feet room; therefore they are not very proper furniture for ſmall gardens, where there is not room for theſe large growing plants; but in large gardens, theſe may have a place for the ſake of variety.

If theſe plants are planted in poor dry land, or upon lime-rubbiſh, they will not grow ſo vigorous as in good ground, ſo they will endure the cold better, and continue longer; for when their leaves and branches are replete with moiſture, they are very apt to rot in the winter, ſo are ſeldom of long duration; but where the plants have grown from the joints of old walls, I have known them continue in vigour ſeveral years.

The tenth ſort grows naturally in the Canary Iſlands, from whence it was firſt brought to England, where it has been long an inhabitant in ſome curious gardens. It has been frequently called by the gardeners Pellitory of Spain, from the very warm taſte which it hath, much reſembling the taſte of that plant.

This riſes with a ſhrubby ſtalk near two feet high, dividing into many branches, garniſhed with pretty thick ſucculent leaves, of a grayiſh colour, cut into many narrow ſegments, which are divided into three parts at their extremity. The flowers come out from the wings of the leaves, ſtanding upon naked foot-ſtalks ſingly, which greatly reſemble thoſe of the common Chamomile; there is a ſucceſſion of flowers upon the ſame plants great part of the year, for which it is chiefly eſteemed. This plant will perfect ſeeds in England, when the ſeaſons are favourable; but as the cuttings of it take root ſo eaſily, if planted during any of the ſummer months, the ſeeds are rarely ſown.

As this plant is a native of warm countries, it will not live in the open air in England during the winter ſeaſon; therefore when the cuttings have made good roots, they ſhould be each planted into a ſeparate pot, and placed in the ſhade till they have taken freſh root; then they may be removed to a ſheltered ſituation, where they may remain till autumn, at which time they muſt be removed into the green-houſe to protect them from froſt; but in mild weather they ſhould have plenty of free air, and, during the winter, they ſhould be frequently refreſhed with water, but it muſt not be given them in too great plenty. In ſummer they will require more moiſture, and ſhould be treated in the ſame manner as other hardier kinds of exotic plants.

The eleventh ſort grows naturally at the Cape of Good Hope, from whence the ſeeds were brought many years paſt to Holland, where the plants were firſt raiſed, and from thence all the other parts of Europe have been ſupplied with this plant. It riſes with a ſhrubby ſtalk about two feet high, which divides into many ſlender branches upward, garniſhed with oblong leaves, much indented on their edges, each indenture terminating in a ſoft ſpine; theſe are of a pale green, ſet cloſe to the branches. The flowers are produced on ſhort foot-ſtalks from the wings of the leaves, toward the upper part of the branches; theſe are globular, and formed of a great number of hermaphrodite florets, which are tubular and even, having no rays, ſo are naked, and of a deep yellow colour. The flowers appear in June, and continue in ſucceſſion till the froſt ſtops them. This may be propagated by cuttings in the ſame manner as the laſt, and the plants ſhould be treated in the ſame way.

The twelfth ſort grows naturally about Madrid: this hath a low ſhrubby ſtalk, which ſeldom riſes a foot high, putting out ſeveral ſlender ligneous branches, garniſhed with narrow, pale, green leaves; thoſe on the lower part of the branches are indented at their extremity in ſeveral parts, but the upper leaves are entire; from the end of each branch is produced a naked foot-ſtalk ſix inches long, ſuſtaining one radiated flower, of a ſulphur colour. The flowers come out in June and July, but there is ſeldom any ſeeds ripened in England; this ſort muſt be ſheltered under a common frame in winter, for unleſs the winter proves very favourable, the plants will not live in the open air here. It may be propagated by cuttings in ſummer, as the two laſt ſorts, but theſe cuttings do not ſo readily take root as thoſe do.

CHRYSOBALANUS. Lin. Gen. Plant. 585. Icaco. Plum. Nov. Gen. 44. Cocoa Plumb.

The CHARACTERS are,

The empalement of the flower is of one leaf, divided into five parts, almoſt to the middle. The flower hath five petals, which ſpread open, and ten ſtamina, five of which are longer than the petals; the other are ſhorter, and are terminated by heart-ſhaped ſummits. In the center is ſituated an oval germen, ſupporting a trifid ſhort ſtyle, crowned by obtuſe ſtigmas. The germen afterward becomes an oval fleſhy berry, incloſing a nut with five longitudinal furrows.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia; but it would be more properly placed in the third ſection of his tenth claſs, for the flowers have ten ſtamina and three ſtyles.

The SPECIES are,

1. CHRYSOBALANUS (*Icaco*) foliis ovatis, emarginatis, floribus racemoſis, caule fruticoſo. *Chryſobalanus with oval indented leaves, flowers growing in bunches, and a ſhrubby ſtalk.* Frutex Cotini ferè folio craſſo, in ſummitate deliquium patiente, fructu ovali cæruleo oſſiculum anguloſum continente. Cateſb. Car. *The Cocoa Plumb.*
2. CHRYSOBALANUS (*Purpurea*) foliis decompoſitis, foliolis ovatis integerrimis. *Chryſobalanus with decompounded leaves, whoſe lobes are oval and entire.* Icaco fructu purpureo. Plum. Nov. Gen. 44. *Icaco with purple fruit.*

The firſt ſort grows naturally in the Bahama Iſlands, and in many other parts of America, but commonly near the ſea. It riſes with a ſhrubby ſtalk about eight or ten feet high, ſending out ſeveral ſide branches, covered with a dark brown bark, ſpotted with white; theſe are garniſhed with oval ſtiff leaves, which are indented at the end, in form of a heart, placed alternately on the branches. From the wings of the leaves, and alſo at the diviſion of the branches, the flowers are produced, which grow in looſe bunches; theſe are ſmall and white, having many ſtamina in each, which are joined to the petals of the flowers, terminated by yellow ſummits. The flowers are ſucceeded by oval Plumbs about the ſize of Damſons; ſome of theſe are blue, ſome red, and others yellow; they have a ſweet luſcious taſte. The Spaniards in the iſland of Cuba, make a conſerve of theſe fruits. The ſtone of the Plumb is ſhaped like a Pear, and hath five longitudinal ridges on it. This grows naturally on moiſt land.

The ſeeds of the ſecond ſort were ſent me from Jamaica, with Plumier's title; the ſtones were exactly the ſame ſhape of thoſe of the former, but the plants have leaves compounded of ſeveral winged lobes, which are branched out oppoſite, each having ſix or ſeven pair of pinnæ (or lobes.) This ſort hath not flowered in England, ſo I can give no farther account of it.

As theſe trees are natives of the warm parts of America, ſo they will not thrive in England, unleſs they are kept in a warm ſtove. They are propagated by ſeeds, which muſt be obtained from the countries where the plants naturally grow; theſe muſt be ſown in the ſpring in ſmall pots filled with light earth, and plunged into a hot bed of tanners bark, obſerving frequently to water the pots; but not let them have much at each time. In ſix weeks the plants will come up, and, if properly managed, will be fit to remove in a month's time after, when they ſhould be carefully ſeparated, and each planted into a ſeparate ſmall pot filled with light kitchen-garden earth, and then plunged into the hot-bed again, obſerving to ſhade them from the ſun till they have taken freſh root; after which they muſt have air every day in proportion to the warmth of the ſeaſon, and their waterings during the ſummer ſhould be frequent, but ſparing. In the autumn the plants muſt be removed into the bark-ſtove, and plunged into the tan-bed; and in winter the plants muſt not have too much water, leſt it occaſions their throwing off their leaves. In ſummer they muſt have a good ſhare of air, and the plants in the ſtove ſhould be conſtantly treated in the ſame manner as other tender plants from the ſame countries.

CHRYSOCOMA. Lin. Gen. Plant. 845. Dillen. Gen. 14. Coma aurea. Boerh. 1. p. 121. Goldylocks.

The Characters are,

The common empalement is imbricated, the ſcales are narrow, the outer being convex and pointed; the flower is compoſed of many hermaphrodite florets, which are tubular, equal, and funnel-ſhaped, cut into five ſegments at the brim, which turn back; theſe have each five ſhort ſlender ſtamina, terminated by cylindrical ſummits; they have an oblong germen, ſupporting a ſlender ſtyle, crowned by two oblong depreſſed ſtigmas. The germen afterward becomes a ſingle, oblong, compreſſed ſeed, crowned with hairy down.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Æqualis; the plants of this ſection have only hermaphrodite florets, which are fruitful.

The Species are,

1. Chryſocoma (*Linoſyris*) herbacea, foliis linearibus, glabris, calycibus laxis. Lin. Sp. Plant. 841. *Herbaceous Goldylocks with narrow ſmooth leaves, and looſe empalements.* Coma aurea Germanica linariæ folio. Park. Theat. 688. *German Goldylocks.*
2. Chryſocoma (*Biflora*) herbacea paniculata, foliis lanceolatis trinerviis, punctatis, nudis. Lin. Sp. Plant. 841. *Herbaceous Goldylocks with flowers growing in panicles, and ſpear-ſhaped leaves, having three nerves, and yellow flowers growing in umbels.*
3. Chryſocoma (*Coma Aurea*) fruticoſa foliis linearibus dorſo decurrentibus. Hort. Cliff. 397. *Shrubby Goldylocks with very narrow leaves, whoſe back parts run along the ſtalks.* Coma aurea Africana fruticans, foliis linariæ anguſtis, major. Com. Hort. Amſt. 2. p. 89. *Greater ſhrubby African Goldylocks, with narrow Toad-flax leaves.*
4. Chryſocoma (*Cernua*) ſubfruticoſa, foliis linearibus ſubtus piloſis, floribus ante floreſcentiam cernuis. Hort. Cliff. 397. *Shrubby Goldylocks with very narrow hairy leaves, and flowers nodding before they are blown.* Coma aurea foliis linariæ anguſtioribus minor. Hort. Amſt. 2. p. 89. *Leſſer Goldylocks with narrower Toad-flax leaves.*
5. Chryſocoma (*Ciliata*) ſuffruticoſa, foliis linearibus rectis, ciliatis ramis pubeſcentibus. Lin. Sp. Plant. 481. *Shrubby Goldylocks with narrow leaves and downy branches.* Conyza Africana, tenuifolia, ſubfruteſcens, flore aureo. Hort. Elth. 104. tab. 68. *Narrow-leaved, African, ſhrubby Fleabane, with a golden flower.*

The firſt ſort grows naturally in Germany, and alſo in France and Italy; this hath a perennial root; the ſtalks riſe two feet and a half high, are round, ſtiff, and cloſely garniſhed with long, narrow, ſmooth leaves, which come out without any order, of a pale green colour; the upper part of the ſtalk divides into many ſlender foot-ſtalks, each ſuſtaining a ſingle head of flowers, which are compoſed of many hermaphrodite florets, contained in one common empalement, having very narrow ſcales. The flowers are of a bright yellow, and ſtand diſpoſed on the top of the ſtalk, in form of an umbel. Theſe appear in July; and in favourable ſeaſons are ſucceeded by ſeeds, which ripen in September, ſoon after which the ſtalks decay to the root, and new ones ariſe the following ſpring.

This plant is generally propagated by parting of the roots, that being the moſt expeditious method; for the ſeedling plants do not flower till the ſecond or third year. The beſt time to remove the plants and part their roots, is ſoon after the ſtalks decay in autumn, that the plants may get freſh roots before winter. It delights in a dry looſe ſoil, in which it will live in the open air, and propagate by its roots very faſt; but in ſtrong wet land, the roots often rot in winter.

The ſecond ſort grows naturally in Siberia, from whence the ſeeds were ſent to Peterſburgh, part of which I received from the late Dr. Amman, who was profeſſor of botany in that univerſity. This plant hath a perennial creeping root, which ſpreads on every ſide to a conſiderable diſtance, ſending up many erect ſtalks, garniſhed with flat ſpear-ſhaped leaves, ending in points; theſe are rough, and have three longitudinal veins; the upper part of the ſtalks branch out, and form looſe panicles of yellow flowers, which are larger than thoſe of the former ſort. This flowers in June and July, and the ſeeds ripen in autumn.

It propagates too faſt by its creeping roots to be admitted into the flower-garden, for the roots will often extend two or three feet every way in the compaſs of one year, ſo that they will interfere with the neighbouring flowers; but as the plants will grow in any ſoil or ſituation, ſo a few roots may be planted on the ſide of extenſive rural walks round the borders of fields, where they will require no care, and their flowers will make a good appearance, and continue long in beauty.

The third ſort grows naturally at the Cape of Good Hope. This riſes with a ligneous ſtalk about a foot high, dividing into many ſmall branches, which are garniſhed with narrow leaves, of a deep green, coming out on every ſide without order; the back part of each leaf hath a ſmall ſhort appendix, which runs along the ſtalks. The flowers are produced at the end of the branches, on ſlender naked foot-ſtalks; theſe are of a pale yellow, and ſhaped like thoſe of the former ſorts, but are larger. This plant flowers great part of the year, for which it is chiefly eſteemed; the ſeeds ripen very well in autumn, which if ſown on a common border of light earth in the ſpring, the plants will come up, and may be tranſplanted into pots, to be removed into ſhelter in winter, for theſe plants will not live through the winter in the open air in England.

The moſt expeditious method of propagating this plant is by cuttings, which, if planted in a common border in any of the ſummer months, and covered with hand-glaſſes, will eaſily take root, provided they are ſhaded from the ſun and duly watered: when theſe have gotten good roots they ſhould be carefully taken up, and each planted in a ſeparate pot, filled with light earth, placing them in the ſhade till they have taken new root; then they may be expoſed with other hardy exotic plants till autumn, when they muſt be removed into the green-houſe during the winter ſeaſon; they ſhould enjoy a large ſhare of free air in mild weather, for they only require protection from froſt, ſo muſt not be too tenderly treated.

The fourth ſort is a native of the Cape of Good Hope, from whence I received the ſeeds; this is a leſs plant than the former, it hath a ſhrubby ſtalk, branching out in the ſame manner; the leaves are ſhorter, and a little hairy; the flowers are not half ſo large, of a pale ſulphur colour, and nod on one ſide before they are blown. This alſo flowers great part of the year, and ripens ſeeds very well; but this is generally propagated in the ſame manner as the former, and the plants require the ſame treatment.

The fifth ſort is alſo a native of the ſame country as the two former; this hath a low ſhrubby ſtalk, which branches out on every ſide, very narrow, ſhort, rough, and reflexed; the flowers ſtand ſingle on the top of naked foot-ſtalks, which ariſe from the upper part of the branches; theſe flowers are larger than thoſe of the laſt, and ſtand erect. This plant requires the ſame treatment as the two former, and is propagated by cuttings in the ſame manner.

CHRYSOPHYLLUM. Lin. Gen. Plant. 233. Cainito. Plum. Nov. Gen. 9. tab. 9. The Star Apple.

The Characters are,

The empalement is permanent, and conſiſts of five ſmall, roundiſh, concave petals; the flower is compoſed of five petals, which ſpread open, and are cut in the middle into two parts; it hath five ſtamina placed alternate to the ſegments of the petals, terminated by heart-ſhaped ſummits: the oval germen is ſituated in the center, ſupporting

ing a ſhort ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a large, oval, fleſhy fruit, incloſing three or four flat ſeeds, having hard ſhells.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Chrysophyllum (*Cainito*) foliis ovatis, parallele ſtriatis ſubtus, tomentoſo-nitidis. Jacq. Amer. 15. *Chryſophyllum with oval leaves, with parallel veins and neat woolly leaves on their under ſide.* Cainito folio ſubtus aureo, fructu olivæ formi. Plum. Nov. Gen. 10. *The Damſon-tree.*

2. Chrysophyllum (*Glabrum*) foliis utrinque glaberrimis. Jacq. Amer. 15. *Chryſophyllum with very ſmooth leaves.* Cainito folio ſubtus aureo, fructu maliformi. Plum. Nov. Gen. 10. *The Star Apple.*

Theſe trees grow naturally in the Weſt-Indies, where the firſt ſort riſes from twenty to thirty feet high, dividing into many branches, garniſhed with oval leaves, ſmooth above, and of a gold colour on their under ſide; the flowers come out from the ſide of the branches, at the ſetting on of the leaves, in round cluſters, which are ſucceeded by oval, ſmooth, pulpy fruit, incloſing three or four hard flat ſeeds.

The ſecond ſort riſes with an upright trunk to the height of thirty or forty feet, dividing into many ſlender branches, garniſhed with ſpear-ſhaped leaves, coming out without order; from the wings of the leaves, and alſo at the extremity of the branches, the flowers are produced in bunches, which are ſucceeded by round pulpy fruit the ſize of a Golden Pippin, containing many flat hard ſeeds.

The fruit of both theſe trees is very rough and aſtringent at firſt, but by lying ſome time after they are gathered, they become mellow, like the Medlar. The timber of both theſe trees is uſed in buildings, and for ſhingles to cover houſes.

Theſe plants are preſerved in ſeveral curious gardens for the beauty of their leaves, eſpecially the firſt ſort, whoſe under ſides ſhine like ſattin, the upper ſides are of a deep green. The leaves continue all the year, ſo make a very pretty appearance in the ſtove at all ſeaſons.

Theſe trees, being natives of the warmeſt parts of the world, cannot be preſerved in this country, without being kept in the warmeſt ſtoves; and ſhould always remain in a hot-bed of tanners bark, otherwiſe they will make but little progreſs. They are propagated by ſeeds, which muſt be procured from the places of their growth, for they do not produce fruit in Europe. Theſe ſeeds muſt be freſh, otherwiſe they will not grow; and if they are ſent over in ſand, it will preſerve them from drying too much; when the ſeeds arrive, they muſt be ſown as ſoon as poſſible in ſmall pots filled with light freſh earth, and plunged into a good hot-bed of tanners bark. If the ſeeds are good, and the bed in a proper temperature of warmth, the plants will appear in five or ſix weeks; and in about two months after, will be ſtrong enough to tranſplant; in doing of which, the plants, with all the earth, ſhould be ſhaken out of the pots very carefully, and ſeparated with their roots entire, and each planted into a ſingle ſmall pot filled with freſh rich earth, and plunged again into a hot-bed of tanners bark, watering and ſhading them until they have taken freſh root. If the hot-bed in which theſe plants are plunged, is from time to time ſtirred, and a little freſh tan added to it, to renew the heat when it declines, the plants will make good progreſs, and in three or four months will be near a foot high, and may then be ſhifted into pots a ſmall ſize larger than thoſe they before were in. If theſe plants are conſtantly kept in a warm bed in the ſtove, and ſhifted twice a year, to renew the earth to their roots, they will thrive very faſt, and put out their ſide branches, ſo as to make a handſome appearance in the ſtove, with other curious plants of the ſame country; for though they do not produce either flowers or fruit, yet as they keep their leaves through the year, which are ſo very beautiful, they deſerve a place in the ſtove, better than moſt other plants. The chief care they require, is to keep them conſtantly in a proper degree of heat, and never to put them into too large pots; and in winter they ſhould not have too much water, about twice a week will be often enough to water them; and in the depth of winter, they ſhould not have much at each time.

Theſe trees are frequently propagated in the Weſt-Indies, by planting of their branches (as I have been informed by perſons of credit;) but I have not heard of their being propagated in England by that method.

CHRYSOSPLENIUM. Lin. Gen. Plant. 493. [χρυσοσπλήνιον, of χρυσὸς, Gold, and σπλὴν, the ſpleen; q. d. a plant, the flowers of which are of a golden colour, and good againſt diſeaſes of the ſpleen.] Golden Saxifrage.

The Characters are,

The empalement is divided into four or five parts, which ſpread open, are coloured, and permanent. The flower hath no petals, but eight or ten ſtamina, which are ſhort, erect, and ſtand oppoſite to the angles of the empalement, terminated by ſingle ſummits: the germen is immerſed in the empalement, ſupporting two ſhort ſtyles, crowned by obtuſe ſtigma. The germen afterward becomes a capſule with two beaks, opening with two valves, and filled with ſmall ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's tenth claſs, intitled Decandria Digynia, the flowers having ten ſtamina and two ſtyles.

The Species are,

1. Chrysosplenium (*Alternifolium*) foliis alternis. Flor. Suec. 317. *Golden Saxifrage with alternate leaves.* Saxifraga aurea foliis pediculis oblongis inſidentibus. Raii Syn. Hiſt. 206. *Golden Saxifrage with leaves growing upon long foot-ſtalks.*

2. Chrysosplenium (*Oppoſitifolium*) foliis oppoſitis. Sauv. Monſp. 128. *Golden Saxifrage with oppoſite leaves.* Chryſoſplenium foliis amplioribus auriculatis. Tourn. Inſt. 146. *Golden Saxifrage with larger eared leaves.*

Theſe two plants are found growing wild in many parts of England, upon marſhy ſoils and bogs, as alſo in moiſt ſhady woods, and are ſeldom propagated in gardens; where, if any perſon has curioſity to cultivate them, they muſt be planted in very moiſt ſhady places, otherwiſe they will not thrive. They flower in March and April.

CIBOULS, or CHIBOULS. See Cepa.

CICER. Lin. Gen. Plant. 783. Tourn. Inſt. R. H. tab. 210. [This plant is called Cicer, of Κίκυς, ſtrength, becauſe it is ſaid to ſtrengthen: it is alſo called Arietaria, becauſe the ſeeds of it reſemble the head of a ram.] Cicer, or Chich Peaſe.

The Characters are,

The empalement of the flower is cut into five ſegments, four of which lie upon the ſtandard; the two middle, which are the longeſt, are joined, the other is under the keel. The flower is of the butterfly kind; the ſtandard is large, roundiſh, and plain; the wings are much ſhorter and obtuſe, the keel is ſhorter than the wings, and is ſharp-pointed. It hath ten ſtamina, nine of them are joined, and the tenth is ſeparate, terminated by ſingle ſummits. It hath an oval germen ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a turgid ſwelling pod of a rhomboidal figure, incloſing two roundiſh ſeeds, with a protuberance on their ſide.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, from the flower having ten ſtamina joined in two bodies.

There is but one Species of this genus, viz.

Cicer (*Arietinum*) foliolis ſerratis. Hort. Cliff. 370. *Chich Peaſe with ſawed leaves.* Cicer ſativum. C. B. P. 347. *Garden Chich Peaſe.*

There is a variety of this with a red ſeed, which differs from it in nothing but the colour.

It is much cultivated in Spain, being one of the ingredients in their olios, and is there called Garavance; it is alſo cultivated in France, but in England it is rarely ſown.

This plant is annual, ſhooting out ſeveral hairy ſtalks from the root, which are about two feet long; garniſhed with long winged leaves of a grayiſh colour, compoſed of ſeven or nine pair of ſmall roundiſh leaves (or lobes) terminated by an odd one, which are ſawed on their edges. From the ſide of the branches come out the flowers, ſometimes one, at other times two together. They are ſhaped like thoſe of Peaſe, but are much ſmaller and white, ſtanding on long foot-ſtalks; theſe are ſucceeded by ſhort hairy pods, including two ſeeds in each, which are the ſize of common Peaſe, but have a little knob or protuberance on one ſide.

The ſeeds of this plant may be ſown in the ſpring, in the ſame manner as Peaſe, making drills with a hoe, about an inch and a half deep, in which the ſeeds ſhould be ſown at about two inches aſunder, then with a rake draw the earth into the drill to cover the ſeeds. The drills ſhould be made at three feet diſtance from each other, that there may be room for their branches to ſpread, when the plants are fully grown, as alſo to hoe the ground between them, to keep it clean from weeds, which is all the culture theſe plants require.

This plant flowers in June, and the ſeeds ripen in Auguſt; but unleſs the ſeaſon proves warm and dry, the plants decay in this country before the ſeeds are ripe.

CICHORIUM. Lin. Gen. Plant. 825. Tourn. Inſt. R. H. tab. 272. [κιχώριον, or κιχόρειον, of κιχέω, to find, becauſe found every where in walking.] Succory.

The CHARACTERS are,

The flower hath a common ſcaly empalement, which at firſt is cylindrical, but is afterward expanded; the ſcales are narrow, ſpear-ſhaped, and equal. The flower is compoſed of many hermaphrodite florets, which are plain, uniform, and ſtand circularly, each having one petal, which is tongue-ſhaped, and cut into five ſegments. They have five ſhort hairy ſtamina, terminated by five-cornered cylindrical ſummits. The germen is ſituated under the petal, ſupporting a ſlender ſtyle, crowned by two turning ſtigmas: the germen afterward becomes a ſingle ſeed, incloſed with a down, and ſhut up in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis. The plants of this ſection have only hermaphrodite fruitful florets.

The SPECIES are,

1. CICHORIUM (*Intybus*) floribus geminis ſeſſilibus, foliis runcinatis. Flor. Suec. 650. *Succory with two flowers ſitting cloſe to the ſtalk.* Cichorium ſylveſtre ſive officinarum. C. B. P. 126. *Wild Succory.*
2. CICHORIUM (*Spinoſum*) caule dichotomo ſpinoſo floribus axillaribus ſeſſilibus. Hort. Cliff. 388. *Succory with a prickly forked ſtalk.* Cichorium ſpinoſum. C. B. P. 126. *Prickly Succory.*
3. CICHORIUM (*Endivia*) floribus ſolitariis pedunculatis, foliis integris, crenatis. Hort. Cliff. 389. *Succory with ſingle flowers on foot-ſtalks, and entire crenated leaves.* Cichorium latifolium, ſive endivia vulgaris. C. B. P. 125. *Broad-leaved Succory, or common Endive.*
4. CICHORIUM (*Criſpum*) floribus ſolitariis pedunculatis, foliis fimbriatis, criſpis. *Succory with ſingle flowers on foot-ſtalks, and fringed curled leaves.* Endivia criſpa. C. B. P. 125. *Curled Endive.*

The firſt ſort grows naturally by the ſides of roads and in ſhady lanes, in many parts of England: this has been ſuppoſed to be no other way differing from the garden Succory, but by the latter being cultivated in gardens; indeed, moſt of the writers on botany, have confounded the two ſorts together; for the Garden Succory which is deſcribed in moſt of the old books, I take to be the broad-leaved Endive, which is the third ſort here enumerated, for I have many years cultivated both ſorts in the garden, without finding either of them alter. There is an eſſential difference between theſe, for the wild Succory hath a perennial creeping root, whereas the other is at moſt but a biennial plant; and if the ſeeds of the latter are ſown in the ſpring, the plants will flower and produce ſeeds the ſame year, and periſh in autumn, ſo that it may rather be called annual. The wild Succory ſends out from the roots long leaves, which are jagged to the midrib, each ſegment ending in a point; from between theſe ariſe the ſtalks, which grow from three to four feet high, garniſhed with leaves, ſhaped like thoſe at the bottom, but are ſmaller, and embrace the ſtalks at their baſe. Theſe branch out above into ſeveral ſmaller ſtalks, which have the ſame leaves, but ſmaller and leſs jagged; the flowers are produced from the ſide of the ſtalks, which are of a fine blue colour; theſe are ſucceeded by oblong ſeeds, incloſed in a down. It flowers in June and July, and the ſeeds ripen in September.

The ſecond ſort grows naturally on the ſea-coaſts in Sicily and the iſlands of the Archipelago. This ſends out from the root many long leaves, which are indented on their edges, ſpreading flat on the ground; from between theſe ariſe the ſtalks, which have very few leaves, and thoſe ſmall and entire: the ſtalks are divided in forks upward, from between theſe come out the flowers, which are of a pale blue, and are ſucceeded by ſeeds ſhaped like thoſe of the common ſort; the ends of the ſmaller branches are terminated by ſtar-like ſpines, which are very ſharp. The plant is biennial with us in England, and in cold winters is frequently killed. It flowers and ſeeds about the ſame time with the former ſort, and may be treated in the ſame way as the Endive.

The broad leaved Succory or Endive, differs from the wild ſorts in its duration, the root always periſhing after it has ripened ſeeds: the leaves are broader, rounder at the top, and not laciniated on the ſides as the leaves of the wild; the branches are more horizontal, and the ſtalks never riſe ſo high.

This ſort is not much cultivated in the Engliſh gardens at preſent, for the curled Endive being tenderer, and not ſo bitter, is generally preferred to it. The broad-leaved and curled Endive has been ſuppoſed to be only varieties from each other, which hath accidentally been produced by culture; but from having cultivated both near forty years, I could never find that they ever altered, otherwiſe than by the curled ſort coming more or leſs curled; the leaves of this ſort have only a few ſlight indentures on their edges, and the ſtalks grow more erect, having but few leaves upon them. This, when blanched, has a bitter taſte, which has occaſioned its being generally neglected in England, but in Italy it is ſtill cultivated in their gardens.

All the ſorts of Succory are eſteemed aperitive and diuretic, opening obſtructions of the liver, and good for the jaundice; it provokes urine, and cleanſes the urinary paſſages of ſlimy humours, which may ſtop their paſſage.

The curled Endive is now much cultivated in the Engliſh gardens, being one of the principal ingredients in the ſallads of autumn and winter, for which purpoſe it is continued as long as the ſeaſons will permit. I ſhall therefore give directions for the managing of this plant, ſo as to have it in perfection during the autumn and winter months.

The firſt ſeaſon for ſowing of theſe ſeeds is in May, for thoſe which are ſown earlier in the year, generally run up to ſeed, before they have arrived to a proper ſize for blanching; and it frequently happens, that the ſeeds ſown in May in the rich ground near London, will run to ſeeds the ſame autumn; but in ſituations which are colder, they are not ſo apt to run up, therefore there ſhould be ſome ſeeds ſown about the middle or latter end of that month. The ſecond ſowing ſhould be about the middle of June, and the laſt time in the middle of July. From theſe three different crops, there will be a ſupply for the table during the whole ſeaſon; for there will be plants of each ſowing, very different in their growth, ſo that there will be three different crops from the ſame beds.

When the plants come up they muſt be kept clean from weeds, and in dry weather duly watered, to keep them growing till they are fit to tranſplant, when there ſhould be an open ſpot of rich ground prepared to receive the plants, in ſize proportionable to the quantity intended. When the ground is well dug and levelled, if it ſhould be very dry, it muſt be well watered to prepare it to receive the plants; then the plants ſhould be drawn up from the ſeed-bed carefully, ſo as not to break their roots, drawing out all the largeſt plants, leaving the ſmall ones to get more ſtrength; which, when they have room to grow, by taking away the large ones, they will ſoon do. As the plants are drawn up, they ſhould be placed with their roots even, all the ſame way, and every handful as they are drawn, ſhould have the tops of their leaves ſhortened, to make them of equal length: this will render the planting of them much eaſier, than when the plants are promiſcuouſly mixed, heads and tails: then the ground ſhould be marked out in rows at one foot aſunder, and the plants ſet ten inches diſtant in the rows, cloſing the earth well to their roots, and let them be well watered; and repeat this every other evening, till the plants have taken good root, after which they muſt be kept clean from weeds.

When the plants of the ſeed-bed have been thus thinned, they ſhould be well cleaned from weeds and watered, which will encourage the growth of the remaining plants, ſo that in ten days or a fortnight after, there may be another thinning made of the plants, which ſhould be tranſplanted in the ſame manner. And at about the ſame diſtance of time, the third and laſt drawing of plants may be tranſplanted.

Thoſe plants which were the firſt tranſplanted, will be fit to blanch by the latter end of July at fartheſt; and if they are properly managed, in three weeks or a month, they will be ſufficiently blanched for uſe, which will be as ſoon as theſe ſallads are commonly required; for during the continuance of good Cos Lettuce, few perſons care for Endive in their ſallads; nor, indeed, is it ſo proper for warm weather. If any of the plants ſhould put out flower-ſtems, they ſhould be immediately pulled up and carried away, being good for nothing, ſo ſhould not be left to incommode the neighbouring plants. As the quantity of roots neceſſary for the ſupply of a middling family is not very great, ſo there ſhould not be too many plants tied up to blanch at the ſame time, therefore the largeſt ſhould be firſt tied, and in a week after thoſe of the next ſize; ſo that there may be three different times of blanching the plants, on the ſame ſpot of ground. But as in ſome large families there is a great conſumption of this herb for ſoups, ſo the quantities of plants ſhould be proportionably greater, at each time of planting and blanching. The manner of blanching is the next thing to be treated of, therefore in order to this you ſhould provide a parcel of ſmall Oſier twigs (or baſs mat) to tie up ſome of the largeſt heads to blanch; which ſhould be done in a dry afternoon, when there is neither dew nor rain to moiſten the leaves in the middle of the plants, which would occaſion their rotting ſoon after their being tied up. The manner of doing it is as follows, viz. You muſt firſt gather up all the inner leaves of the plant in a regular order, into one hand, and then take up thoſe on the outſide that are ſound, pulling off and throwing away, all the rotten and decayed leaves which lie next the ground; obſerving to place the outſide leaves all round the middle ones, as near as poſſible to the natural order of their growth, ſo as not to croſs each other: then having got the whole plant cloſe up in your hand, tie it up with the twig, baſs, &c. at about two inches below the top, very cloſe; and about a week after go over the plants again, and give them another tie about the middle of the plant, to prevent the heart leaves from burſting out on one ſide; which they are ſubject to do, as the plants grow, if not prevented this way.

In doing of this you need only tie up the largeſt plants firſt, and ſo go over the piece once a week, as the plants increaſe in their growth; by which means you will continue the crop longer, than if they were all tied up at one time: for when they are quite blanched, which will be in three weeks or a month after tying, they will not hold ſound and good above ten days or a fortnight, eſpecially if the ſeaſon proves wet: therefore it is that I would adviſe to ſow at three or four different ſeaſons, that you may have a ſupply as long as the weather will permit. But in order to this, you muſt tranſplant all the plants of the laſt ſowing under warm walls, pales, or hedges, to ſcreen the plants from froſt; and if the winter ſhould prove very ſharp, you ſhould cover them with ſome Peaſe haulm, or ſuch other light covering, which ſhould be conſtantly taken off in mild weather: theſe borders ſhould alſo be as dry as poſſible, for theſe plants are very ſubject to rot, if planted in a moiſt ſoil in winter.

Although I before directed the tying up of the plants to blanch them, yet this is only to be underſtood for the two firſt ſowings; for after October, when the nights begin to be froſty, thoſe plants which are ſo far above ground will be liable to be much prejudiced thereby, eſpecially if they are not covered in froſty weather; therefore the beſt method is, to take up your plants of the latter ſowings in a very dry day, and with a large flat-pointed dibble, plant them into the ſides of trenches of earth, which ſhould be laid very upright, planting them ſideways, on the ſouth ſide of the trenches, towards the ſun, with the tops of the plants only out of the ground, ſo that the haſty rains may run off, and the plants be kept dry, and ſecured from froſts.

The plants thus planted, will be blanched fit for uſe in about a month or five weeks time, after which it will not keep good more than three weeks, before it will decay; you ſhould therefore continue planting ſome freſh ones into trenches every fortnight or three weeks, that you may have a ſupply for the table; and thoſe which were laſt tranſplanted out of the ſeed beds, ſhould be preſerved till February, before they are planted to blanch; ſo that from this you may be ſupplied until the beginning of April, or later: for at this laſt planting into the trenches, it will keep longer than in winter, the days growing longer; and the ſun, advancing with more ſtrength, dries up the moiſture much ſooner than in winter, which will prevent the rotting of theſe plants; but if the weather ſhould prove froſty, theſe latter plantations of Endive ſhould be covered with mats and ſtraw to preſerve it, otherwiſe the froſt will deſtroy it, but the coverings muſt always be taken off when the weather is favourable.

When your Endive is blanched enough for uſe, you muſt dig it up with a ſpade; and after having cleared it from all the outſide green and decayed leaves, you ſhould waſh it well in two or three different waters to clear it the better from ſlugs, and other vermin, which commonly ſhelter themſelves amongſt the leaves thereof, and then you may ſerve it up to the table with other ſallading.

But in order to have a ſupply of good ſeeds for the next ſeaſon, you muſt look over thoſe borders where the laſt crop was tranſplanted, before you put them into the trenches to blanch; and make choice of ſome of the largeſt, ſoundeſt, and moſt curled plants, in number according to the quantity of ſeeds required: for a ſmall family, a dozen of good plants will produce ſeeds enough; and for a large, two dozen or thirty plants.

Theſe ſhould be taken up and tranſplanted under a hedge or pale, at about eighteen inches diſtance, in one row about ten inches from the hedge, &c. This work ſhould be done in the beginning of March, if the ſeaſon is mild, otherwiſe it may be deferred a fortnight longer. When the flower-ſtems begin to advance, they ſhould be ſupported with a packthread, which ſhould be faſtened to nails driven into the pale, or to the ſtakes of the hedge, and run along before the ſtems, to draw them upright cloſe to the hedge or pale, otherwiſe they will be liable to break with the ſtrong winds. Obſerve alſo to keep them clear from weeds, and about the beginning of July your ſeeds will begin to ripen; therefore, as ſoon as you find the ſeeds are quite ripe, you muſt cut off the ſtalks, and expoſe them to the ſun upon a coarſe cloth to dry; and then beat out the ſeeds, which muſt be dried, and put up in bags of paper, and preſerved for uſe in ſome dry place. But I would here caution you, not to wait for all the ſeeds ripening upon the ſame plant; for if ſo, all the firſt ripe and beſt of the ſeeds will ſcatter and be loſt before the other are near ripe; ſo great a difference is there in the ſeeds of the ſame plant being ripe.

The wild Succory (of which there are ſome varieties in the colour of the flowers) is ſeldom propagated in gardens; it growing wild in unfrequented lanes and dunghills in divers parts of England, where the herb women gather it, and ſupply the markets for medicinal uſe.

CICUTA properly ſignifies an hollow intercepted between two knots, of the ſtalks or reeds of which the ſhepherds uſed to make their pipes, as Virgil ſings;

Eſt mihi diſparibus ſeptem compacta Cicutis
Fiſtula——

CICUTA. Lin. Gen. Plant. 316. Sium. Raii Syn. 212. Water Hemlock.

The Characters are,

It is a plant with an umbellated flower; the principal umbel is compoſed of ſeveral ſmaller (called rays;) theſe are equal, roundiſh, and briſtly: the great umbel hath no involucrum, but the ſmaller have, which are compoſed of many ſhort leaves. The flowers have each five oval petals nearly equal, which turn inward; they have five hairy ſtamina, which are longer than the petals, terminated by ſingle ſummits. The germen is ſituated below the flower, ſupporting two ſlender ſtyles, which are permanent and longer than the petals, crowned by ſtigmas in form of a head. The germen afterward becomes a roundiſh channelled fruit dividing into two parts, containing two oval ſeeds, plain on one ſide and convex on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs of plants, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles. The title of this genus has been generally applied to the common Hemlock, which grows naturally on the banks by highways, in moſt parts of England. But to that plant Dr. Linnæus has applied the old title of Conium, and added this title to the poiſonous Water Hemlock deſcribed by Webfer.

The Species are,

1. Cicuta (*Viroſa*) umbellis oppoſitis foliis, petiolis marginatis. Lin. Sp. Plant. 255. *Hemlock with umbels oppoſite to the leaves, and obtuſe marginated foot-ſtalks.* Sium erucæ folio. C. B. P. 154. *Sium with a Rocket leaf.* Cicuta aquatica Geſneri. J. B. 111. 2. p. 175. *Water Hemlock of Geſner.*
2. Cicuta (*Maculata*) foliorum ſerraturis mucronatis, petiolis membranaceis, apice bilobis. Lin. Sp. Plant. 256. *Hemlock with pointed ſerratures to the leaves, and membranaceous foot-ſtalks ending in two lobes.* Angelica Virginiana foliis acutioribus, ſemine ſtriato minore, cumini ſapore & odore. Mor. Hiſt. 3. p. 281. *Virginia Angelica with pointed leaves, and a ſmall channelled ſeed, having the taſte and ſmell of Cumin.*
3. Cicuta (*Bulbifera*) ramis bulbiferis. Lin. Sp. 367. *Hemlock, whoſe branches bear bulbs.* Ammi foliorum lacinulis capillaribus, caule angulato. Flor. Virg. 31.

The firſt ſort grows naturally in ſtanding waters in many parts of England, ſo is never propagated in gardens; for unleſs there is a conſiderable depth of ſtanding water for the plants to root in, they will not grow. I have ſeveral times tranſplanted theſe plants into ponds, where they have grown one ſummer, but have not continued through the winter.

It grows near four feet high, with a branching hollow ſtalk, garniſhed with winged leaves. The ſtalks are terminated by umbels of yellowiſh flowers, which are ſucceeded by ſmall channelled ſeeds like thoſe of Parſley. It flowers in June and July, and the ſeeds ripen in autumn.

The ſecond ſort grows naturally in North America, from whence the ſeeds have been brought to England, where the plants are preſerved in botanic gardens for the ſake of variety. This is propagated by ſeeds, which ſhould be ſown in autumn in a ſhady border, where the plants will come up in the ſpring, and require no other care but to keep them clean.

The third ſort is a native of North America. This is ſometimes preſerved in botanic gardens for variety, but being a plant of no great beauty or uſe, is ſeldom allowed a place in other gardens. It is propagated by ſeeds, which ſhould be ſown in autumn, and the plants afterward treated as thoſe of the ſecond ſort.

CICUTARIA. See Ligusticum.

CINARA. See Cynara.

CINERARIA, Sea Ragwort.

The Characters are,

It has a ſimple empalement, compoſed of many ſmall equal leaves. The flower is radiated. The diſk is compoſed of many hermaphrodite florets, which are funnel-ſhaped, cut into five ſegments at the top; theſe have five ſlender ſtamina, crowned by cylindrical ſummits, and an oblong germen, ſupporting a very ſlender ſtyle, crowned by two erect ſtigmas. The germen afterward becomes a narrow four-cornered ſeed, covered with downy hairs. The female florets which compoſe the rays are tongue-ſhaped, indented at their points; theſe have an oblong germen with two ſtyles, and have ſeeds like the hermaphrodite florets, which are included in the empalement.

This genus of plants is ranged in the ſecond order of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua, the flowers being compoſed of hermaphrodite and female florets, which are both fruitful.

The Species are,

1. Cineraria (*Geifolia*) pedunculis ramoſis, foliis reniformibus ſuborbiculatis ſublobatis dentatis petiolatis. Lin. Sp. 1242. *Ragwort with branching foot-ſtalks, kidney-ſhaped, orbicular, indented leaves upon foot-ſtalks.* Jacobæa Africana, hederæ terreſtris folio, repens. Hort. Amſt. 2. p. 145.
2. Cineraria (*Maritima*) floribus paniculatis, foliis pinnatifidis tomentoſis, laciniis ſinuatis, caule fruteſcente. Lin. Sp. 1244. *Sea Ragwort with a ſhrubby ſtalk, woolly wing-pointed leaves, and flowers growing in panicles.* Jacobæa maritima. C. B. P. 131. *Sea Ragwort.*
3. Cineraria (*Amelloides*) pedunculis unifloris, foliis ovatis oppoſitis, caule ſuffruticoſo. Lin. Sp. 1245. *Ragwort with an under ſhrub ſtalk, oval leaves placed oppoſite, and foot-ſtalks with one flower.* After caule ramoſo ſcabro perenne, foliis ovatis ſeſſilibus, pedunculis nudis unifloris. Fig. pl.
4. Cineraria (*Othonnites*) pedunculis unifloris, foliis oblongis indiviſis ſubdentatis petiolatis alternis nudis. Lin. Sp. 1244. *Ragwort with oblong undivided leaves ſlightly indented, and foot-ſtalks with one flower.* Jacobæa Africana fruteſcens, craſſis & ſucculentis foliis. Hort. Amſt. 2. p. 147.
5. Cineraria (*Tomentoſa*) foliis pinnato-ſinuatis dentatis ſubtus tomentoſis, floribus paniculatis, caule fruteſcente. *Ragwort with ſinuated, wing-ſhaped, indented leaves, downy on their under ſide, flowers in panicles, and a ſhrubby ſtalk.* Jacobæa maritima latifolia. C. B. P. 69.

There are ſeveral other ſpecies of this genus than are here enumerated, but being plants of little uſe or beauty are omitted, as they are rarely cultivated in gardens.

The firſt ſort grows naturally at the Cape of Good Hope. The root of this is compoſed of many ſmall fibres; the ſtalks are weak, ſo trail on the ground, if they are not ſupported; but if they are will riſe four feet high, dividing into many branches, garniſhed with roundiſh kidney-ſhaped leaves, crenated on their edges; the flowers are produced at the extremity of the branches in ſmall cluſters; they are yellow, and in ſhape like thoſe of the common Ragwort, which are ſucceeded by ſeeds, crowned with down.

This ſort is eaſily propagated by cuttings, which, if planted in a ſhady border during the ſummer months, and duly watered, will put out roots in a month or five weeks; ſoon after which it will be proper to tranſplant them into pots, becauſe their roots are very apt to ſpread in the full ground; ſo when the plants are taken up, many of their roots are torn off, whereby the plants are endangered. This is alſo often the caſe of the plants in pots. When they are not often removed, their roots will ſhoot through the holes in the bottom of the pots into the ground, and the plants will grow luxuriantly; but when the pots are removed, and thoſe roots torn off, the plants are often killed thereby. As this plant grows naturally at the Cape of Good Hope, it is too tender to live through the winters in England in the open air; yet if it is nurſed tenderly, it is very apt to draw up weak, and thereby is deſtroyed; therefore the ſureſt method to preſerve it, is to make young plants annually from cuttings, and to place them in a common hot-bed frame in winter, where they may enjoy the full air in mild weather, but be ſcreened from the froſt, and in ſummer place them abroad with other of the hardier ſorts of exotic plants.

The ſecond ſort grows naturally on the ſea-coaſts in ſome parts of England and Wales, in particular warm ſpots, but in the ſouth of France and Italy, it is very common. This hath many ligneous ſtalks, which riſe two or three feet high, dividing into many branches, which have a white downy bark, and are garniſhed with very woolly leaves ſix or eight inches long, deeply ſinuated, and jagged on their borders into many winged points; they are downy on both ſides. The ſtalks which ſupport the flowers are a foot or more in length, having two or three ſmall leaves on each, ſhaped like thoſe below, and are terminated by many yellow flowers growing in panicles, ſhaped like thoſe of common Ragwort; theſe appear in June, July, and Auguſt, and are ſucceeded by ſeeds, which ripen the beginning of October.

This ſort is alſo eaſily propagated by planting cuttings or ſlips of it on a ſhady border during the ſummer months, obſerving to water them duly. When theſe are well rooted, they ſhould be planted in a dry rubbiſhing ſoil, where they will reſiſt the cold of our ordinary winters very well, and continue many years; but in rich moiſt ground, the plants are often ſo very luxuriant in ſummer, as to be killed in winter when there is much froſt.

The third ſort grows naturally at the Cape of Good Hope. This hath branching ſtalks, which are ſhrubby, and riſe from two to three feet high, garniſhed with oval leaves placed oppoſite: the foot-ſtalks of the flowers are long, naked, and ſupport one blue flower at the top, whoſe rays are reflexed; theſe appear great part of the year, and thoſe which blow in ſummer are ſucceeded by compreſſed ſeeds crowned with down.

This may be propagated by ſowing the ſeeds on a bed of light earth the beginning of April, and when the plants are fit to remove, they ſhould be part of them planted in pots, that they may be ſheltered in winter under a hot-bed frame; the remainder may be planted cloſe to a warm wall in poor ground, where, if the winter proves favourable, they will live; but if theſe fail, thoſe in the frame will be ſecured. It may alſo be propagated by cuttings, in the ſame manner as the laſt mentioned.

The fourth ſort hath ſhrubby branching ſtalks, which riſe three or four feet high, garniſhed with oblong, thick, undivided leaves, of a glaucous colour. The flowers are produced on branching foot-ſtalks, ariſing toward the end of the branches; they are yellow, ſhaped like thoſe of the other ſorts, but are rarely ſucceeded by ſeeds in England. This is eaſily propagated by cuttings any time in ſummer: the plants, when rooted, muſt be planted in pots, that they may be removed into ſhelter in winter, for they will not live abroad in England. It grows naturally at the Cape of Good Hope.

The fifth ſort grows naturally on the ſea coaſts of Italy and Sicily. This has great reſemblance to the ſecond ſort, but the ſtalks are more woody, riſe higher, and do not branch ſo much. The leaves are broader, not ſo much ſinuated, and are of a black green colour on their upper ſide. The flowers are produced in ſmaller bunches on the top of the foot-ſtalks, and are like thoſe of the ſecond ſort, but are rarely ſucceeded by ſeeds in England, nor are the plants ſo hardy, therefore ſhould be ſheltered in winter. It is eaſily propagated by cuttings during the ſummer months, in the ſame way as the ſecond ſort.

CIRCEA. Lin. Gen. Plant. 24. Tourn. Inſt. R. H. 301. tab. 155. [It is ſaid to be ſo called from Circe, the famous enchantreſs, ſaid to have enchanted Ulyſſes and his companions. Boerhaave ſuppoſes it to be ſo called, becauſe the fruit of this plant takes hold of peoples cloaths, and by this means draws them to it, as the enchantreſs Circe was wont to do by her enchantments.] Enchanter's Nightſhade.

The Characters are,

The empalement of the flower is compoſed of two oval concave leaves: the flower hath two heart-ſhaped petals, which are equal and ſpread open; it hath two erect hairy ſtamina, terminated by roundiſh ſummits. The germen is ſituated under the flower, ſupporting a ſlender ſtyle, crowned by an obtuſe bordered ſtigma. The empalement afterward becomes a rough oval capſule with two cells opening lengthways, each containing a ſingle oblong ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, intitled Diandria Monogynia, the flower having two ſtamina and one ſtyle.

The Species are,

1. Circea (*Lutetiana*) caule erecto, racemis pluribus. Lin. Sp. Plant. 9. *Enchanter's Nightſhade, with an upright ſtalk and many ſpikes of flowers.* Circea lutetiana. Lob. Icon. 266. *Common Enchanter's Nightſhade.*
2. Circea (*Alpina*) caule adſcendente, racemo unico. Lin. Sp. Plant. 9. *Enchanter's Nightſhade, with an aſcending ſtalk and a ſingle ſpike.* Circea minima. Col. p. 2. 80. *Leaſt Enchanter's Nightſhade.*

The firſt ſort grows naturally in ſhady woods, and under hedges, in many parts of England. This plant hath a creeping root, by which it multiplies greatly. The ſtalks are upright, and riſe a foot and a half high, garniſhed with heart-ſhaped leaves placed oppoſite, upon very long foot-ſtalks: theſe are of a dark green on their upper ſide, but are pale on their under ſide. The ſtalks are terminated by looſe ſpikes of flowers, which are branched out into three or four ſmall ſpikes. The flowers are ſmall and white, having but two petals, oppoſite to which are ſituated the two ſtamina. After the flowers fall away, the empalement of the flower becomes a rough capſule, incloſing two oblong ſeeds.

The ſecond ſort grows at the foot of mountains in many parts of Germany. It alſo grows naturally in a wood near the Hague, from whence I brought it to England. This ſort ſeldom riſes more than ſix or eight inches high, with a ſlender ſtalk, garniſhed with leaves ſhaped like thoſe of the former ſort, but ſmaller, and are indented on their edges. The flowers are produced on ſingle looſe ſpikes at the top of the ſtalks, which are ſmaller than thoſe of the former ſort, but of the ſame form and colour. Theſe plants flower in June, and their ſeeds ripen in Auguſt; but they both multiply exceedingly by their creeping roots, ſo are ſeldom kept in gardens, unleſs for the ſake of variety.

If the roots are planted in any ſhady moiſt part of a garden, they will increaſe faſt enough without any care.

CIRCULATION of the ſap. See Sap.

CIRRI are thoſe fine ſtrings or fibres put out from the ſtalks of plants, by which ſome plants faſten themſelves to walls, pales, or trees, in order to their ſupport, as Ivy, &c.

CIRSIUM. See Carduus.

CISSAMPELOS. Lin. Gen. Plant. 993. Caapeba. Plum. Nov. Gen. 33. tab. 29.

The Characters are,

It is male and female in different plants; the male flowers have no empalement; they have four oval plain petals, and a wheel-ſhaped nectarium in the diſk, with four ſmall ſtamina joined together, crowned by plain ſummits. The female flowers have neither empalement or corolla; inſtead of petals, there is a large nectarium, whoſe membranes ſtand round the hairy oval germen, which afterward becomes a ſucculent berry, incloſing a ſingle ſeed.

This genus of plants is ranged in the twelfth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Monodelphia, the male and female flowers being on different plants, and the male flowers have four ſtamina, which are joined in one body.

The Species are,

1. Cissampelos (*Pariera*) foliis peltatis cordatis emarginatis. Lin. Sp. 1473. *Ciſſampelos with target heart-ſhaped leaves which are indented at their top.* Caapeba folio orbiculari, & umbilicato lævi. Plum. Nov. 33. *Caapeba with a round, ſmooth, umbilicated leaf.*
2. Cissampelos (*Caapeba*) foliis baſi petiolatis integris. Lin. Sp. 1473. *Ciſſampelos with leaves having foot-ſtalks, and entire at their baſe.* Caapeba folio orbiculari non umbilicato. Plum. Nov. Gen. 33. *Caapeba with a round leaf not umbilicated, called Velvet Leaf in America.*

Theſe plants grow naturally in the warmeſt parts of America, where they twiſt themſelves about the neighbouring ſhrubs, and riſe to the height of five or ſix feet. The firſt ſort hath round heart-ſhaped leaves, whoſe foot-ſtalks are ſet within the baſe of the leaf, reſembling an ancient target; theſe are hairy on their under ſide, and have pretty long ſlender foot-ſtalks. Toward the upper part of the ſtalks the flowers come out from the wings of the leaves; thoſe of the male plants grow in ſhort ſpikes or cluſters, and are of a pale herbaceous colour; but the female flowers are produced in long looſe racemi from the ſide of the ſtalks, and are ſucceeded by a ſingle pulpy berry incloſing a ſingle ſeed.

The ſecond ſort hath round heart-ſhaped leaves, which are extremely woolly and ſoft to the touch; theſe have their foot-ſtalks placed at the baſe between the two ears; the flowers of this come out in bunches from the ſide of the ſtalks, in the ſame manner as the firſt. The ſtalks and every part of the plant is covered with a ſoft woolly down.

The ſeeds of both theſe plants were ſent me from Jamaica, by the late Dr. Houſtoun, which ſucceeded in the Chelſea garden, where the plants produced their flowers for ſeveral years; and the fruit of the firſt ſort were produced, but theſe would not grow, though they ſeemed to be perfectly ripened; but the plants grew at ſome diſtance from the male, ſo were probably not impregnated.

Theſe plants are propagated by ſeeds, which ſhould be ſown upon a hot-bed in the ſpring; and the plants muſt afterward be treated in the ſame way as other tender exotics, keeping them conſtantly in the bark-ſtove, otherwiſe they will not live in this country.

The firſt ſort is ſuppoſed to be the Pareira, whoſe root has been ſo much eſteemed as a diuretic. But by a ſpecimen which I received from the late Dr. Houſtoun, under the title of Pariera, it ſhould rather be ranged under the genus of Smilax.

CISSUS, Wild Grape.

The Characters are,

It hath a ſmall many-leaved empalement, and four concave petals to the flower, with a large nectarium at the border of the germen, and four ſtamina the length of the corolla inſerted in the nectarium, crowned by roundiſh ſummits. The germen is four-cornered, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an acute ſtigma. The cover of the flower afterward becomes a berry incloſing one roundiſh ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flowers having four ſtamina and one ſtyle.

The Species are,

1. Cissus (*Cordifolia*) foliis cordatis integerrimis. Lin. Sp. 170. *Wild Grape with entire heart-ſhaped leaves.* Vitis folio ſubrotundo, uva corymboſa cæruleo. Plum. Gen. 18.
2. Cissus (*Sicyoides*) foliis ovatis nudis ſetaceo ſerratis. Lin. Sp. 170. *Wild Grape with oval leaves which are ſawed.* Bryonia alba geniculato, violæ foliis, baccis e viridi-purpuraſcentibus. Sloan. Hiſt. Jam. 1. p. 106.
3. Cissus (*Acida*) foliis ternatis oblongis carnoſis inciſis. Lin. Sp. 170. *Wild Grape with trifoliate leaves, which are oblong, fleſhy, and cut on their edges.* Vitis trifolia minor corymboſa, acinis nigrioribus turbinatis. Plum. Sp. 18.
4. Cissus (*Trifoliata*) foliis ternatis ſubrotundis ſubdentatis. Lin. Sp. 170. *Wild Grape with roundiſh trifoliate leaves, which are ſlightly indented.* Bryonia alba triphylla maxima. Sloan. Hiſt. Jam. 1. p. 106.

Theſe plants all of them grow naturally in the iſland of Jamaica, and in ſome of the other iſlands in the warm parts of America, where they ſend out ſlender branches, having tendrils at their joints, by which they faſten to the neighbouring trees, buſhes, and any other ſupport, mounting to a conſiderable height. The firſt ſort produces bunches of fruit, which are frequently eaten by the negroes, but are chiefly food for birds and wild fowl, as indeed are moſt of the fruit of the other ſorts, as they all grow in the uncultivated parts.

The plants are preſerved in ſome of the European gardens, more for the ſake of variety, than for uſe or beauty, as they rarely produce either fruit or flowers in moderate climates. They are propagated either by laying their flexible branches down in pots of earth, where they will put out roots in four or five months, or by planting cuttings in pots filled with light earth, which ſhould be plunged into a moderate hot-bed of tanners bark, covering the pots cloſely with hand-glaſſes to exclude the outer air: the cuttings muſt be frequently refreſhed with water, but not too much given at each time. When theſe or the layers are well rooted, they ſhould be carefully taken up, and each planted in a ſmall pot filled with light earth, and plunged into the hot-bed of tan, where they ſhould conſtantly remain, being too tender to thrive in England, but with this care. Therefore they ſhould be ſhifted into larger pots when it is neceſſary, and their branches muſt be ſupported with ſtakes, to prevent them from trailing over the neighbouring plants; and in warm weather the plants ſhould have free air admitted to them daily. With this treatment they will thrive very well.

CISTUS. Lin. Gen. Plant. 598. Tourn. Inſt. R. H. 259. tab. 136. [It is ſo called from Κιστὸς, or Κισσὸς, *Gr.* Ivy, becauſe its ſmall ſeminal veſſel is incloſed in a ciſta, or little cheſt.] Rock-roſe.

The Characters are,

The flower hath a five-leaved empalement which is permanent, two of the middle alternate leaves being ſmaller than the other. The flower hath five large roundiſh petals which ſpread open; it hath a great number of hairy ſtamina, which are ſhorter than the petals, and are terminated by ſmall roundiſh ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſingle ſtyle the length of the ſtamina, crowned by a plain orbicular ſtigma. The germen afterward becomes an oval cloſe capſule, having in ſome five, and others ten cells, filled with ſmall roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flowers having many ſtamina and but one ſtyle.

The Species are,

1. Cistus (*Piloſus*) arboreſcens exſtipulatis foliis ovatis, petiolatis hirſutis. Lin. Sp. 736. *Tree Rock-roſe with oval leaves, whoſe foot-ſtalks are hairy.* Ciſtus mas major, folio rotundiore. J. B. 2. 2. *Greater male Ciſtus, or Rock-roſe, with a rounder leaf.*
2. Cistus (*Incanus*) arboreſcens exſtipulatis foliis ſpatulatis tomentoſis rugoſis, inferioribus baſi vaginantibus connatis. Hort. Cliff. 205. *Tree Rock-roſe with ſpatule-ſhaped, woolly, rough leaves, which are joined at their baſe.* Ciſtus mas 2 folio longiore incano. J. B. 2. 2.
3. Cistus (*Breviorifolius*) arboreſcens, foliis ovato-lanceolatis, baſi connatis, hirſutis, rugoſis, pedunculis florum longioribus. *Tree Rock-roſe with oval ſpear-ſhaped leaves, joined at their baſe, which are hairy and rough, and longer foot-ſtalks to the flowers.* Ciſtus mas folio breviore. C. B. P. 464.
4. Cistus (*Luſitanicus*) arboreſcens, foliis ovatis, obtuſis, villoſis, ſubtus nervoſis rugoſis, floribus amplioribus. *Tree Rock-roſe, with oval, obtuſe, hairy leaves, which are nervous and rough on their under ſide, and larger flowers.* Ciſtus mas Luſitanicus, folio ampliſſimo incano. Tourn. Inſt. 259.
5. Cistus (*Hiſpanicus*) arboreſcens villoſus, foliis lanceolatis, viridibus, baſi connatis, floribus ſeſſilibus, calycibus acutis. *Hairy-tree Rock-roſe with green ſpear-ſhaped leaves joined at their baſe, flowers ſittin cloſe, and ſharp-pointed empalements.*
6. Cistus (*Ladaniferus*) arboreſcens exſtipulatus, foliis lanceolatis, ſuprà lævibus, petiolis baſi coalitis vaginantibus. Hort. Cliff. 205. *Tree Rock-roſe with ſpear-ſhaped leaves, ſmooth on their upper ſide, and their foot-ſtalks joining like ſheaths.* Ciſtus ladanifera Hiſpanica incana. C. B. P. 467.
7. Cistus (*Albidus*) arboreſcens exſtipulatus foliis ovato-lanceolatis tomentoſis incanis, ſeſſilibus ſubtrinerviis. Sauv. Monſp. 150. *Tree Rock-roſe with oval, ſpear-ſhaped, woolly leaves, ſitting cloſe to the ſtalks.* Ciſtus mas folio oblongo incano. C. B. P. 464.
8. Cistus (*Salvifolius*) arboreſcens exſtipulatus, foliis ovatis petiolatis utrinque hirſutis. Hort. Cliff. 205. *Rock-roſe with oval hairy leaves, having foot-ſtalks.* Ciſtus fœmina, folio ſalviæ, ſupina humiſparſa. C. B. P. 466.
9. Cistus (*Creticus*) arboreſcens exſtipulatus, foliis ſpatulato-ovatis petiolatis enerviis ſcabris, calycinis lanceolatis. Lin. Sp. 738. *Tree Rock-roſe with oval ſpatule-ſhaped rough leaves without veins, having foot-ſtalks.* Ciſtus ladanifera Cretica flore purpureo. Tourn. Cor. 19. *Gum-bearing Ciſtus of Crete with a purple flower.*
10. Cistus (*Oleæfolius*) fruticoſus, foliis lineari-lanceolatis, hirſutis, ſeſſilibus, floribus terminalibus. *Shrubby Rock-roſe with narrow, ſpear-ſhaped, hairy leaves, ſitting cloſe to the branches, and flowers terminating the ſtalks.* Ciſtus ~~ledon~~ foliis oleæ ſed anguſtioribus. C. B. P. 167.
11. Cistus (*Laurifolius*) arboreſcens exſtipulatus foliis oblongo-ovatis petiolatis, trinerviis ſupra glabris. *Tree Rock-roſe with oblong oval leaves, having foot-ſtalks, ſmooth above, and the foot-ſtalks joined at their baſe.* Ciſtus ledon foliis laurinus. C. B. P. 476.
12. Cistus (*Cordifolius*) foliis oblongo-cordatis, glabris, petiolis longioribus, caule fruticoſo. *Rock-roſe with oblong, heart-ſhaped, ſmooth leaves, longer foot-ſtalks, and a ſhrubby ſtalk.*
13. Cistus (*Monſpelienſis*) arboreſcens exſtipulatus, foliis lineari-lanceolatis, ſeſſilibus, utrinque villoſis, trinerviis. Hort. Cliff. 205. *Tree Rock-roſe with linear ſpear-ſhaped leaves ſitting cloſe to the branches, hairy on both ſides, having three nerves.* Ciſtus ladanifera Monſpelienſum. C. B. P. 467.
14. Cistus (*Salicifolius*) arboreſcens, foliis lineari-lanceolatis, ſubtus incanis, trinerviis, petalis ſubrotundis. *Tree Rock-roſe with narrow ſpear-ſhaped leaves, hoary on their under ſide, having three nerves with roundiſh petals.* Ciſtus ladanifera Hiſpanica, ſalicis folio, flore albo, maculâ punicante inſignito. Tourn. Inſt. R. H. 260. *Spaniſh Gum-bearing Ciſtus with white flowers ſpotted with purple.*
15. Cistus (*Populifolius*) arboreſcens exſtipulatus, foliis cordatis lævibus acuminatis petiolatis. Hort. Cliff. 205. *Tree Rock-roſe with heart-ſhaped ſmooth leaves, having foot-ſtalks.* Ciſtus ledon foliis populi nigræ major. C. B. P. 467.
16. Cistus (*Criſpus*) arboreſcens exſtipulatus, foliis lanceolatis pubeſcentibus trinerviis undulatis. Hort. Cliff. 206. *Rock-roſe with ſpear-ſhaped, hairy, waved leaves, having three veins.* Ciſtus mas, foliis chamædryos. C. B. P. 464.
17. Cistus (*Halimifolius*) foliis ovatis, incanis, infernè petiolatis, ſupernè coalitis, caule fruticoſo. *Rock-roſe with oval hoary leaves, thoſe beneath having foot-ſtalks, and the upper ones joined at their baſe, and a ſhrubby ſtalk.* Ciſtus Halimi, folio 1. Cluſ. Hiſt. 1. p. 71. *Ciſtus with Sea Purſlane leaves.*
18. Cistus (*Longifolius*) foliis lineari-lanceolatis, incanis petiolatis, floribus racemoſis caule fruticoſo. *Rock-roſe with narrow ſpear-ſhaped leaves, having foot-ſtalks which are hoary, flowers growing in cluſters, and a ſhrubby ſtalk.* Ciſtus folio halimi longiore incano. J. B. 2. 5.

Theſe plants all grow naturally in the ſouth of France, in Spain, and Portugal, from whence their ſeeds have been brought to England, where moſt of the ſorts are now cultivated in the nurſeries for ſale. The firſt ſort hath a ſtrong woody ſtem, covered with a rough bark, which riſes three or four feet high, dividing into many branches, ſo as to form a large buſhy head; garniſhed with oval hairy leaves, placed oppoſite, and ſit cloſe to the branches, having ſeveral ſmaller leaves of the ſame form, riſing from the ſame joint. The flowers are produced at the end of the branches, four or five ſtanding together, almoſt in form of an umbel, but rarely more than one is open at the ſame time; theſe are compoſed of five large roundiſh petals of a purple colour, which ſpread open like a Roſe, having a great number of ſtamina, ſurrounding the oval germen in the center, terminated by ſmall, roundiſh, yellow ſummits; theſe flowers are but of ſhort duration, generally falling off the ſame day they expand; but there is a ſucceſſion of freſh flowers every day for a conſiderable time. After the flowers are paſt, the germen ſwells to an oval ſeed-veſſel, ſitting in the empalement, which is hairy; theſe capſules have ten cells, which are full of ſmall roundiſh ſeeds. This ſort flowers in May and June, and the ſeeds ripen in autumn; and there is generally more flowers produced in September and October, if the autumn proves favourable, and where the plants are protected from froſt, they frequently produce ſome flowers all the winter ſeaſon.

The ſecond ſort differs from the firſt in the ſhape of the leaves, which are longer and whiter; thoſe on the lower part of the branches are oval, and join at their baſe, ſurrounding the ſtalks, but the upper leaves are ſpear-ſhaped and diſtinct; the flowers are larger, and of a paler purple colour. This flowers and ripens ſeeds at the ſame time with the firſt.

The third ſort differs from both the former, in having ſhorter and greener leaves, which are joined at their baſe, and are hairy. The foot-ſtalks of the flowers are much longer, and the flowers are ſmaller, but of a deeper purple. This flowers and ſeeds at the ſame time with the two former, and the ſhrubs grow as large as the firſt ſort.

The fourth ſort hath much larger and rounder leaves than either of the former, which are hairy, and ſmooth on their upper ſide, but rough, and full of veins on their under; the branches are white, hairy, and the flowers are very large, and of a light purple colour. This flowers at the ſame time with the former.

The fifth ſort doth not riſe ſo high as either of the former, but ſends out branches near the root, which are hairy and erect, garniſhed with ſpear-ſhaped leaves, of a dark green colour, which join at their baſe, ſurrounding the ſtalk. At each joint comes out a very ſlender branch, having three pair of ſmall leaves of the ſame ſhape with the other, terminated by a ſingle flower; the ends of the branches have three or four flowers ſitting cloſe without foot-ſtalks. The flowers are of a deep purple colour, and like thoſe of the firſt. This flowers at the ſame time with the other ſorts.

The ſixth ſort riſes to the height of five or ſix feet, with a ſtrong woody ſtalk, ſending out many hairy branches, garniſhed with ſpear-ſhaped leaves, ſmooth on their upper ſide, but veined on their under, having ſhort foot-ſtalks, which join at their baſe, where they form a ſort of ſheath to the branch. The flowers come out at the end of the branches, which are large, of a light purple colour, and reſembling thoſe of the fourth ſort.

The ſeventh ſort hath erect branches, which come out from the lower part of the ſtalk, and are woolly; garniſhed with oblong hoary leaves, covered with a white down, which are ſmooth above, but veined on their under ſide, joining at their baſe where they ſurround the ſtalk; the flowers are produced at the end of the branches, which are of a bright purple colour, and large. This flowers at the ſame time with the other ſorts.

The eighth ſort hath a ſlender ſmooth ſtalk, covered with a brown bark, which never riſes more than three feet high, ſending out many horizontal weak branches, which ſpread wide, garniſhed with ſmall oval leaves, which are hairy, ſtanding upon ſhort foot-ſtalks. The flowers come out at the wings of the leaves, upon long naked foot-ſtalks; theſe are white, and ſomewhat ſmaller than thoſe of the other ſorts. This flowers in June, July, and Auguſt.

The ninth ſort grows naturally in the iſlands of the Archipelago; this is the plant which produces the labdanum, as is hereafter mentioned; it riſes three or four feet high, with a woody ſtalk, ſending out many lateral branches, covered with a brown bark, garniſhed with oval, ſpear-ſhaped, hairy leaves, with waved borders; theſe in warm ſeaſons ſweat a glutinous liquid, which ſpreads on the ſurface of the leaves, is very clammy and ſweet ſcented. The flowers come out at the end of the branches, on ſhort hairy foot-ſtalks; they are of a deep purple colour, and about the ſize of a ſingle Roſe; theſe appear in June and July.

The tenth ſort riſes with a ſhrubby ſtalk about four feet high, the branches are very hairy, glutinous, grow erect, and are garniſhed with long, narrow, hairy leaves, ending in points, of a deep green on both ſides, having a deep longitudinal furrow on their upper ſide, made by the midrib, which is prominent, the flowers ſtand upon long foot-ſtalks at the end of the branches, which are of a pale ſulphur colour, having a bordered empalement, which is cut into five acute parts at the top. This flowers in June, July, and Auguſt, and the ſeeds ripen in autumn.

The eleventh ſort riſes with a ſtrong woody ſtem to the height of five or ſix feet, ſending out many erect branches, garniſhed with ſpear-ſhaped leaves ending in points; theſe are thick, white on their under ſide, of a dark green above, and very glutinous in warm weather. The flowers are produced at the end of the branches, upon long naked foot-ſtalks, which branch on their ſides into ſmall foot-ſtalks, each ſuſtaining one large white flower, having a hairy empalement. This ſort flowers in June and July.

The twelfth ſort riſes with a ſmooth ſhrubby ſtalk four or five feet high, ſending out many ſlender ligneous branches, covered with a ſmooth brown bark; garniſhed with oblong heart-ſhaped leaves, which are ſmooth, and have long foot-ſtalks. The flowers are produced at the end of the branches, ſtanding upon pretty long foot-ſtalks; they are white, and appear in June, July, and Auguſt, but rarely produce any ſeeds in England.

The thirteenth ſort riſes with a ſlender ſhrubby ſtalk, from three to four feet high, ſending out many branches from the bottom upward, which are hairy, garniſhed with ſpear-ſhaped leaves, of a very dark green colour, having three longitudinal veins in each, and in warm weather are covered with a glutinous ſweet-ſcented ſubſtance, which exſudes from their pores. The flower-ſtalks which come out at the end of the branches, are long, naked, and ſuſtain many white flowers, riſing above each other; their empalements are bordered, and end in ſharp points. This flowers at the ſame time with the laſt mentioned.

The fourteenth ſort riſes with a woody ſtem to the height of five or ſix feet, ſending out many ſide branches from the bottom, the whole length; theſe are ſmooth, covered with a reddiſh brown bark, garniſhed with narrow ſpear-ſhaped leaves, whitiſh on their under ſide, of a dark green above, having three longitudinal veins. The flowers are produced at the end of the branches, on ſhort foot-ſtalks, and are compoſed of five very large, roundiſh, white petals, each having a large purple ſpot at their baſe. The whole plant exſudes a ſweet glutinous ſubſtance in warm weather, which hath a very ſtrong balſamic ſcent, ſo as to perfume the circumambient air to a great diſtance. This flowers in June, July, and Auguſt.

There is a variety of this with white flowers, having no purple ſpots, which is in all other reſpects the ſame with this.

The fifteenth ſort hath a ſtiff, ſlender, woody ſtalk, which ſends out many branches the whole length, and riſes to the height of ſix or ſeven feet; the leaves are large, heart-ſhaped, and of a light green colour; theſe ſit cloſe to the branches, having many nerves; the flowers are produced at the end of the branches, upon naked foot-ſtalks; they are white, and ſoon drop off. This flowers in June and July, and is at preſent pretty rare in the Engliſh gardens.

The ſixteenth ſort hath weak, ſlender, woody branches, which ſpread horizontally, ſo ſeldom riſe more than two or three feet high, garniſhed with ſpear-ſhaped hairy leaves, which are indented on their edges, and have three longitudinal veins running through them; the flowers are white, coming out upon naked foot-ſtalks from the wings of the leaves; theſe are ſucceeded by roundiſh blunt ſeed-veſſels, having ſeveral cells, filled with angular ſeeds. This flowers in June and July, and the ſeeds ripen in Auguſt and September.

The ſeventeenth ſort hath an upright ſhrubby ſtalk, which riſes four or five feet high, ſending out many branches from the ground upward, ſo as to form a large buſh. The branches are channelled and hoary. The leaves are oval, ſtanding oppoſite; thoſe on the lower part of the branches have foot-ſtalks, but upward they coaleſce at their baſe, and ſurround the ſtalk; they are very white. The foot-ſtalks of the flowers which riſe at the end of the branches, are a foot in length, naked, hairy, and put out two or four ſhorter foot-ſtalks on the ſide, each ſupporting three or four flowers. The flowers are large, of a bright yellow colour, but of ſhort duration; their empalements are hairy, and ſharp-pointed. This flowers in June and July, and at preſent is but in few Engliſh gardens.

The eighteenth ſort hath been long preſerved in the Engliſh gardens; this riſes with a ſlender woody ſtalk three or four feet high, ſending out many ſlender branches, garniſhed with narrow, ſpear-ſhaped, hoary, waved leaves; from the wings of the leaves come out ſlender branches, which have two or three pair of ſmall leaves, terminated by looſe bunches of flowers, each ſtanding on a ſlender foot-ſtalk. The flowers are of a dirty ſulphur colour, and appear in June and July, but are never ſucceeded by ſeeds in this country.

This ſort will not live abroad in the winter, ſo is always placed in a green-houſe, where, by its hoary leaves, which continue all the year, it makes a variety.

All the various kinds of Ciſtus are very great ornaments to a garden; their flowers are produced in great plenty, which though but of a ſhort duration, yet are ſucceeded by freſh ones almoſt every day for above two months ſucceſſively; theſe flowers are many of them about the bigneſs of a middling Roſe, but ſingle, and of different colours; the plants continue their leaves all the year.

Theſe plants are all of them, except the laſt, hardy enough to live in the open air in England, unleſs in very ſevere winters, which often deſtroys many of them, ſo that a plant or two of each ſort may be kept in pots, and ſheltered in winter, to preſerve the kinds; the reſt may be intermixed with other ſhrubs, where they will make a pretty diverſity; and in ſuch places where they are ſheltered by other plants, they will endure the cold much better than where they are ſcattered ſingly in the borders. Many of theſe plants will grow to the height of five or ſix feet, and will have large ſpreading heads, provided they are permitted to grow uncut; but if they are ever trimmed, it ſhould be only ſo much as to prevent their heads from growing too large for their ſtems; for whenever this happens, they are apt to fall on the ground, and appear unſightly.

Theſe ſhrubs are propagated by ſeeds, and alſo from cuttings; but the latter method is ſeldom practiſed, unleſs for thoſe ſorts which do not produce ſeeds in England; theſe are the twelfth, ſeventeenth, and eighteenth ſorts; all the others generally produce plenty of ſeeds, eſpecially thoſe plants which came from ſeeds; for thoſe which are propagated by cuttings, are very ſubject to become barren, which is alſo common to many other plants.

The ſeeds of theſe plants may be ſown in the ſpring upon a common border of light earth, where the plants will come up in ſix or ſeven weeks, and, if they are kept clear from weeds, and thinned where they are too cloſe, they will grow eight or ten inches high the ſame year; but as theſe plants, when young, are liable to injury from hard froſt, therefore they ſhould be tranſplanted when they are about an inch high, ſome into ſmall pots filled with light earth, that they may be removed into ſhelter in winter, and the others into a warm border, at about ſix inches diſtance each way; thoſe which are potted, muſt be ſet in a ſhady ſituation till they have taken new root; and thoſe planted in the border muſt be ſhaded every day with mats till they are rooted, after which the latter will require no other care but to keep them clean from weeds till autumn, when they ſhould have hoops placed over them, that they may be covered in froſty weather; thoſe in the pots may be removed into an open ſituation, ſo ſoon as they have taken new root, where they may remain till the end of October, but during the ſummer they muſt be ſhifted into larger pots, and be frequently watered; the end of October they ſhould be placed under a hot-bed frame to ſcreen them from the cold in winter, but, at all times, when the weather is mild, they ſhould be fully expoſed to the open air, and only covered in froſts: with this management, the plants will thrive much better than when they are more tenderly treated.

The above method is what the gardeners generally practiſe; but thoſe who are deſirous to have their plants come forward, ſhould ſow the ſeeds on a moderate hot-bed in the ſpring, which will bring up the plants very ſoon; but theſe muſt have plenty of air when they appear, otherwiſe they will draw up very weak; when the plants are fit to remove, they ſhould be each planted into a ſeparate ſmall pot, and plunged into a very moderate hot-bed, obſerving to ſhade them till they have taken freſh root; then they muſt have plenty of air admitted to them every day in good weather, to prevent their drawing up weak; and by degrees they muſt be hardened, ſo as to be removed into the open air the beginning of June, and then they may be treated in the ſame manner as is before directed for the other ſeedling plants. By the bringing of the plants forward in the ſpring in this method, they will grow to the height of two feet, or more, the firſt ſummer, and have many lateral branches, ſo will be ſtrong enough to plant abroad the following ſpring, and moſt of them will flower the ſame ſummer; whereas thoſe which are ſown in the full ground, rarely flower till the year after; nor will they be ſo ſtrong, or capable to reſiſt the cold of the ſecond winter, as thoſe which have been brought forward.

In the ſpring following, theſe plants may be turned out of the pots, with all the earth preſerved to their roots, and planted in the places where they are to remain (for they are bad plants to remove when grown old,) obſerving to give them now and then a little water, until they have taken freſh root; after which time, they will require no farther care than to train them upright in the manner you would have them grow; but thoſe plants which were at firſt planted into a border in the open ground, ſhould be arched over, and covered with mats in froſty weather, during the firſt winter, but may be tranſplanted abroad the ſucceeding ſpring. In removing of theſe plants, you ſhould be careful to preſerve as much earth about the roots as you can; and if the ſeaſon ſhould prove hot and dry, you muſt water and ſhade them until they have taken freſh root, after which they will require no other culture than was before directed.

Theſe plants may alſo be propagated by cuttings, which ſhould be planted in May or June, upon a bed of light earth, keeping them ſhaded with mats, and frequently refreſhed with water, until they have taken root; which will be in about two months time, when you may tranſplant them into pots filled with good freſh light earth, and they ſhould be ſet in a ſhady place until they have taken root, then they may be expoſed to the open ſun until October, when you ſhould remove them into ſhelter the firſt winter; but the ſucceeding ſpring you may plant them abroad, as was before directed for the ſeedling plants.

The fourteenth and fifteenth ſorts are by much the moſt beautiful of all theſe Ciſtus's; the flowers, which are as big as a large Roſe, are of a fine white, with a deep purple ſpot on the bottom of each leaf. Theſe plants alſo abound with a ſweet glutinous liquor, which exſudes through the pores of the leaves in ſo plentiful a manner in hot weather, that the ſurfaces of the leaves are covered therewith; from this plant Cluſius thinks might be gathered great quantities of the ladanum which is uſed in medicine, in the woods in Spain, where he ſaw vaſt quantities of this ſhrub growing.

But it is from the ninth ſort, which Monſ. Tournefort ſays, the Greeks, in the Archipelago, gather this ſweet gum; in the doing of which (Bellonius ſays) they make uſe of an inſtrument like a rake without teeth, which they call ergaſtiri; to this are tied many thongs of raw and untanned leather, which they rub gently on the buſhes that produce ladanum, ſo that the liquid moiſture may ſtick upon the thongs, after which they ſcrape it off with knives; this is done in the hotteſt time of the day, for which reaſon the labour of gathering this ladanum is exceſſive, and almoſt intolerable, ſince they are obliged to remain on the mountains for whole days together, in the very heat of ſummer, or the dog days; nor is there any perſon almoſt that will undertake this labour, except the Greek monks.

Monſ. Tournefort alſo relates the ſame in his travels, where he ſays, that the ſhrubs which produce the ladanum grow upon dry ſandy hillocks; and that he obſerved ſeveral country fellows in their ſhirts and drawers, that were bruſhing the ſhrubs with their whips; the ſtraps whereof, by being drawn over the leaves of the plant, licked up a ſort of odoriferous balſam ſticking upon the leaves, which he ſuppoſes to be part of the nutritious juice of the plant, which exſudes through the pores of the leaves, where it remains like a fattiſh dew, in ſhining drops as clear as turpentine.

When the whips are ſufficiently laden with this greaſe, they take a knife, and ſcrape it clean off the ſtraps, and make it up into a maſs of cakes of different ſizes; this is what comes to us under the name of ladanum, or labdanum. A man that is diligent, will gather three pounds two ounces per day, or more, which they ſell for a crown on the ſpot; this work is rather unpleaſant than laborious, becauſe it muſt be done in the hotteſt time of the day, and in the greateſt calm; and yet the pureſt ladanum is not free from filth, becauſe the winds of the preceding days have blown duſt upon theſe ſhrubs, which, by the glewy ſubſtance upon the ſurfaces of the leaves, is thereby detained and mixed therewith. But to add weight to this drug, they knead it up with a very fine blackiſh ſand, which is found in thoſe parts, as if nature herſelf was minded to teach them how to adulterate this commodity. It is no eaſy thing to diſcover this cheat, when the ſand has been well blended with the ladanum; in order to which you muſt chew it for ſome time, to find whether it crackles between the teeth, and if it doth, you muſt firſt diſſolve it, and then ſtrain it, in order to purify away what has been added to it.

CITHAREXYLUM. Lin. Gen. Plant. 678. Fiddle-wood.

The CHARACTERS are,

The empalement of the flower is bell-ſhaped, of one leaf, indented in five parts. The flower is of one leaf, funnel-ſhaped, divided at the top into five equal parts, which ſpread open. It hath four ſtamina which adhere to the tube, two of them being longer than the other, terminated by oblong ſummits with two lobes. In the center is ſituated the roundiſh germen, ſupporting a ſlender ſtyle, crowned by an obtuſe double-headed ſtigma. The germen afterward becomes a capſule with two cells, each having a ſingle ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia; the plants of this ſection have two long, and two ſhort ſtamina, and the ſeeds are included in a capſule.

The SPECIES are,

1. CITHAREXYLUM (*Cinereum*) ramis angulatis, foliis ovato-lanceolatis venis candicantibus. *Fiddle-wood with angular branches, and oval ſpear-ſhaped leaves, having white veins.* Citharexylum arbor laurifolia Americana, foliorum venis latis candicantibus. Pluk. Almag. 108. *Fiddle-wood with oval ſpear-ſhaped leaves, which are veined, indented, and placed by threes, angular branches, and flowers growing in looſe bunches. This is the common Fiddle-wood of America.*

2. CITHAREXYLUM (*Album*) foliis oblongo-ovatis, integris, oppoſitis, ramis angulatis, floribus ſpicatis. *Fiddle-wood with oblong, oval, entire leaves growing oppoſite, angular branches, and flowers growing in ſpikes.* Berberis fructu arbor maxima baccifera, racemoſa, foliis integris obtuſis, flore albo pentapetalo odoratiſſimo, fructu nigro monopyreno. Sloan. Cat. Jam. 170. *Fiddle-wood, or Fidelle-wood.*

The firſt ſort grows common in moſt of the iſlands in the Weſt-Indies, where it riſes to a great height, and becomes a very large timber-tree; the wood of which is greatly eſteemed for buildings, being very durable.

This hath an upright trunk fifty or ſixty feet high, ſending out branches on every ſide, which have ſeveral angles, or ribs, running longitudinally, garniſhed by three oval ſpear-ſhaped leaves at every joint, ſtanding in a triangle, upon ſhort foot-ſtalks. The leaves are about four inches long, and one or two broad, of a lively green colour, pretty much notched on their edges, having ſeveral deep veins running from the midrib to the edges, which are of a white colour on their upper ſide, and very prominent on their under. The flowers come out from the ſides, and alſo at the end of the branches, in looſe bunches, which are ſucceeded by ſmall pulpy berries, incloſing two ſeeds in each.

The ſecond ſort is a native of the ſame iſlands with the firſt. This is alſo a very large tree, whoſe timber is greatly valued in America, for buildings, being very durable; and from thence I have been informed the French gave it the title of Fidelle-wood, which the Engliſh have rendered Fiddle-wood; and ſome have ſuppoſed that the wood was uſed for making thoſe muſical inſtruments, which is a great miſtake.

This tree riſes with a ſtrong upright trunk to the height of ſixty feet or more, ſending out many angular branches, ſtanding oppoſite, which are covered with a looſe whitiſh bark, (from whence the inhabitants give it the name of white Fiddle-wood,) garniſhed with oval oblong leaves, ſtanding oppoſite, on ſhort foot-ſtalks; theſe are of a lucid green, and are rounded at their ends. The flowers come out in long looſe ſpikes, toward the end of the branches, which are white, and ſmell very ſweet; theſe are followed by ſmall, roundiſh, pulpy berries, each incloſing a ſingle ſeed.

The firſt ſort hath been long preſerved in ſome of the curious gardens in England, for the ſake of variety. The leaves continuing through the year, and being of a fine green colour, make a pretty variety in the ſtove during the winter ſeaſon: this may be propagated either by ſeeds, or cuttings; the latter is the uſual method in England, where the ſeeds are not produced; but when ſeeds can be obtained from abroad, the plants which riſe from them are much better than thoſe raiſed from cuttings.

The ſeeds of this ſort ſhould be ſown in ſmall pots early in the ſpring, and plunged into a freſh hot-bed of tanners bark, and treated in the ſame manner as other exotic ſeeds, which are brought from hot countries. If the ſeeds are freſh, the plants will appear in ſix or ſeven weeks, and in about one month more will be fit to tranſplant; when this is done, the plants ſhould be carefully ſeparated, ſo as not to tear, or break off their roots, and each planted in a ſmall pot filled with light freſh earth, and plunged into the hot-bed again, obſerving to ſhade them till they have taken freſh root; after which they ſhould have a large ſhare of air admitted to them in warm weather, and muſt be frequently watered; in autumn the plants ſhould be removed into the bark-ſtove, where it will be proper to keep them the firſt winter, till they have obtained ſtrength; then they may be afterward kept in a dry ſtove in winter, and in the middle of ſummer they may be expoſed in the open air for two or three months, in a warm ſituation, with which management the plants will make better progreſs than when they are more tenderly treated.

If the cuttings of theſe plants are planted in ſmall pots during the ſummer months, and plunged into a moderate hot-bed, they will take root, and may afterward be treated in the ſame manner as the ſeedling plants.

The ſeeds of the ſecond ſort were ſent me by William Williams, Eſq; from Jamaica, which have ſucceeded in the phyſic garden at Chelſea; but as the plants have not yet flowered, I can give no other account of them, than what is before-mentioned; however, they ſeem to be full as hardy as thoſe of the firſt ſort, and make full as great progreſs. The leaves of this ſort continue all the year, and having a gloſſy green colour, make a pretty appearance in the winter ſeaſon.

CITRUS. Lin. Gen. Plant. 807. Citreum. Tourn. Inſt. R. H. 620. tab. 395, 396. The Citron-tree.

The CHARACTERS are,

The empalement of the flower is of one leaf, indented in five parts. The flower hath five oblong, thick petals, which ſpread open, and are a little concave; it hath ten ſtamina, which are not equal, and join in three bodies at their baſe, terminated by oblong ſummits. The oval germen in the center ſupports a cylindrical ſtyle, crowned by a globular ſtigma; the germen afterward becomes an oblong fruit, with a thick fleſhy ſkin filled with a ſucculent pulp, having many cells, each containing two oval hard ſeeds.

Dr. Linnæus has joined the Aurantium and Limon to this genus, making them only different ſpecies of the ſame genus; but all the varieties of Citron which

I have examined, have but ten ſtamina in their flowers, whereas thoſe of the Orange have more, ſo that theſe may be ſeparated on that difference; but Tournefort adds, as a diſtinguiſhing character to this genus, the appendix which grows to the foot-ſtalk of the leaf. However, I ſhall not ſo cloſely follow Linnæus, in joining thoſe things together, which have by all the writers on botany and gardening been kept ſeparate, leſt I ſhould render this work unintelligible to thoſe who have not made botany their ſtudy.

The Species are,

1. Citrus (*Medica*) fructu oblongo, majori, mucronato, cortice craſſo rugoſo. *Citron with a larger, oblong, pointed fruit, having a thick rough rind.* Malum Citreum dulci medulla. Fer. Heſp. 72. *The Sweet Citron.*
2. Citrus (*Tuberoſa*) fructu oblongo, cortice tuberoſa rugoſo. *Citron with an oblong fruit, having a rough knobbed rind.* Malum Citreum vulgare. Fer. Heſp. 57. *The common Citron.*

There are ſeveral varieties of this fruit, with which the Engliſh gardens have been ſupplied from Genoa, where is the great nurſery for the ſeveral parts of Europe for this ſort, as alſo Orange and Lemon-trees; and the gardeners who cultivate them there, are as fond of introducing a new variety to their collection, as the nurſery-men in England are of a new Pear, Apple, Peach, &c. ſo that the varieties being annually increaſed, as are many of our fruits from ſeeds, there is like to be no end of the vatiety of theſe, nor of the Orange and Lemon-trees.

The fruit of the Citron is ſeldom eaten raw, as thoſe of the Orange, but they are generally preſerved, and made into ſweetmeats, which are by ſome perſons greatly eſteemed; and as theſe are kept till winter and ſpring, when there is a ſcarcity of fruit for furniſhing out the deſert, they are the more valuable; but unleſs the ſeaſons are warm, and the trees are well managed, the fruit rarely ripens in England. Some of the faireſt fruit which I have ſeen growing in England, were in the gardens of his late grace the Duke of Argyle, at Whitton, where the trees were trained againſt a ſouth wall, through which there are flues contrived for warming the air in winter, and glaſs-covers to put over them when the weather begins to be cold. In this place the fruit were as large, and perfectly ripe, as they are in Italy or Spain.

The ſeveral ſorts of Citrons are cultivated much in the ſame manner as the Orange-tree, to which I ſhall refer the reader, to avoid repetition; but ſhall only remark, that theſe are ſomewhat tenderer than the Orange, and ſhould therefore have a warmer ſituation in winter, otherwiſe they are very ſubject to caſt their fruit. They ſhould alſo continue a little longer in the houſe in the ſpring, and be carried in again ſooner in the autumn; as alſo have a warmer and better defended ſituation in the ſummer, though not too much expoſed to the ſun in the heat of the day.

And as their leaves are larger, and their ſhoots ſtronger, than thoſe of the Orange, they require a little more water in the ſummer; but in winter they ſhould have but little water at each time, which muſt be the oftener repeated. The ſoil ought to be much the ſame as for the Orange-tree, but not quite ſo ſtrong.

The common Citron is much the beſt ſtock to bud any of the Orange or Lemon kinds upon, it being the ſtraiteſt and freeſt growing tree. The rind is ſmoother, and the wood leſs knotty, than either the Orange or Lemon; and will take either ſort full as well as its own kind, which is what none of the other ſorts will do: and theſe ſtocks, if rightly managed, will be very ſtrong the ſecond year after ſowing, capable to receive any buds, and will have ſtrength to force them out vigorouſly; whereas it often happens, when theſe buds are inoculated into weak ſtocks, they frequently die, or remain till the ſecond year before they put out; and thoſe that ſhoot the next ſpring after budding, are oftentimes ſo weak as hardly to be fit to remain, being incapable to make a ſtrait handſome ſtem, which is the great beauty of theſe trees.

CITRUL. See Pepo.

CLARY. See Sclarea.

CLAYTONIA. Gron. Flor. Virg. Lin. Gen. Plant. 253.

The Characters are,

The flower hath a two-leaved oval empalement, with a tranſverſe baſe: it hath five oblong oval petals, which are indented at the top, and five awl-ſhaped recurved ſtamina, which are ſhorter than the petals, terminated by oblong ſummits. In the center is ſituated an oval germen, ſupporting a ſingle ſtyle, crowned by a trifid ſtigma. The germen afterward becomes a roundiſh capſule, having three cells, opening with three elaſtic valves, and filled with round ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and but one ſtyle.

The Species are,

1. Claytonia (*Virginica*) foliis linearibus. Lin. Sp. Plant. 294. *Claytonia with very narrow leaves.* Ornithogalo affinis Virginiana, flore purpureo pentapetaloide. Pluk. Alm. 272.
2. Claytonia (*Siberica*) foliis ovatis. Lin. Sp. Plant. 294. *Claytonia with oval leaves.* Limnia. Act. Stockh. 1746.

The firſt ſort grows naturally in Virginia, from whence it was ſent by Mr. Clayton to England, and received its title from him.

It hath a ſmall tuberous root, which ſends out low ſlender ſtalks in the ſpring, about three inches high, which have each two or three ſucculent narrow leaves about two inches long, of a deep green colour. At the top of the ſtalk are four or five flowers produced, ſtanding in a looſe bunch; theſe are compoſed of five white petals which ſpread open, and are ſpotted with red on their inſide; after theſe fall away, the germen becomes a roundiſh capſule divided into three cells, which are filled with roundiſh ſeeds. The flowers appear in April, and the ſeeds ripen in June, ſoon after which the plant decays to the root.

The ſecond ſort grows naturally in Siberia. This is a low plant, ſeldom riſing more than two or three inches high; the root is tuberous, ſending out three or four oval leaves; the foot-ſtalk of the flower ariſes immediately from the root, ſuſtaining two or three ſmall white flowers of the ſame ſhape with thoſe of the firſt ſort, ſo make but little figure in a garden.

The plants are both propagated by ſeeds, and alſo from offſets ſent out from the roots: the ſeeds ſhould be ſown upon a ſhady border of light earth, or in pots filled with the like mould, ſoon after they are ripe; for if they are kept out of the ground till ſpring, the plants will not come up till the next year; whereas thoſe which are ſown early in the autumn, will grow the following ſpring, ſo that a whole year is gained. When the plants come up, they will require no other care but to keep them clean from weeds; and in the autumn, if ſome old tanners bark is ſpread over the ſurface of the ground, it will ſecure the roots from being injured by froſt; which, if it ſhould prove very ſevere, might injure the young plants, but in mild winters they will not require protection.

The beſt time to tranſplant the roots is about Michaelmas, when they are inactive; but as they are ſmall, if great care is not taken in opening the ground, the roots may be buried and loſt; for they are of a dark colour, ſo are not eaſily diſtinguiſhed from the ground.

CLAVICLE [Claviculus, *Lat.*] a claſper or tendril.

CLEMATIS. Lin. Gen. Plant. 616. Clematitis. C. B. P. 300. [Κληματὶς, of Κλῆμα, a twig or claſper, &c. becauſe it climbs up trees with claſpers, like thoſe of Vines. Hence it is called Virgultum ductile, Ranunculus obſequioſus; and alſo Antrogenomene, and Flammula, as though producing a carbuncle; for the leaves being bruiſed, and applied to the ſkin, burn it into carbuncles, as it is in the peſtilence;

lence; and Flammula, becauſe if one leaf be cropped in a hot day in the ſummer ſeaſon, and bruiſed, and preſently put to the noſtrils, it will cauſe a ſmell and pain like a flame.] Virgin's Bower.

The CHARACTERS are,

The flowers have no empalement; they have each four looſe oblong petals, with a great number of ſtamina, which are ſhorter than the petals, and the ſummits adhere to their ſide. They have many germen, which are roundiſh and compreſſed; the awl-ſhaped ſtyle, which is longer than the ſtamina, is crowned by a ſingle ſtigma. The germina afterward become ſo many roundiſh compreſſed ſeeds, with the ſtyle ſitting on their top, and are collected into a head, the ſtyles of the ſeveral ſpecies being of various forms.

This genus of plants is ranged in the ſeventh ſection of Linnæus's thirteenth claſs, intitled Polyandria Polygynia, the flowers of this ſection having many ſtamina and ſeveral ſtyles.

The SPECIES are,

1. CLEMATIS (*Recta*) foliis pinnatis, foliolis ovato-lanceolatis, integerrimis, caule erecto. Hort. Cliff. 225. *Clematis with winged leaves, whoſe lobes are oval, ſpear-ſhaped, entire, and an upright ſtalk.* Clematitis ſive flammula ſurrecta alba. J. B. 2. 127. *Upright white Climber.*
2. CLEMATIS (*Integrifolia*) foliis ſimplicibus, ovato-lanceolatis. Hort. Cliff. 225. *Clematis with ſingle leaves, which are oval and ſpear-ſhaped.* Clematitis cærulea erecta. C. B. P. 300. *Upright blue Climber.*
3. CLEMATIS (*Hiſpanica*) foliis pinnatis, foliolis lanceolatis, acutis, integerrimis, caule erecto. *Clematis with winged leaves, whoſe lobes are ſpear-ſhaped, pointed, and entire, and an upright ſtalk.* Clematitis Hiſpanica ſurrecta altera & humilior flore albicante. H. R. Par.
4. CLEMATIS (*Vitalba*) foliis pinnatis, foliolis cordatis, ſcandentibus. Hort. Cliff. 225. *Clematis with winged leaves, whoſe lobes are heart-ſhaped and climbing.* Clematitis latifolia integra. J. B. 2. p. 125. *Climber with broad entire leaves, commonly called Viorna, or Traveller's Joy.*
5. CLEMATIS (*Canadenſis*) foliis ternatis, foliolis cordatis, acutis, dentatis, ſcandentibus. *Clematis with trifoliate, heart-ſhaped, pointed leaves, which are indented, and climbing.* Clematitis Canadenſis latifolia & triphylla. Sar. *Broad-leaved Canada Climber.*
6. CLEMATIS (*Flammula*) foliis inferioribus, pinnatis, laciniatis, ſummis ſimplicibus, integerrimis, lanceolatis. Hort. Cliff. 225. *Clematis whoſe lower leaves are winged and jagged, and the upper ones ſingle, ſpear-ſhaped, and entire.* Clematitis ſive flammula repens. C. B. P. 300. *Creeping Climber.*
7. CLEMATIS (*Cirrhoſa*) cirrhis ſcandens foliis ſimplicibus. Hort. Cliff. 226. *Clematis with climbing tendrils, and ſimple leaves.* Clematitis peregrina, foliis pyri inciſis. C. B. P. 300. *Foreign Climber with cut Pear-ſhaped leaves.*
8. CLEMATIS (*Viticella*) foliis compoſitis decompoſitiſque, foliolis ovatis, integerrimis. Hort. Cliff. 225. *Clematis with compound and decompounded leaves, whoſe ſmall leaves are oval and entire.* Clematitis cærulea vel purpurea repens. C. B. P. 300. *Single blue Virgin's Bower.*
9. CLEMATIS (*Alpina*) foliis compoſitis ternatis ternatiſque, foliolis acutis ſerratis. *Clematis with compound leaves, whoſe lobes are ſharply ſawed.* Clematitis Alpina geranii folio. C. B. P. 300. *Alpine Climber with a Crane's-bill leaf.*
10. CLEMATIS (*Viorna*) foliis compoſitis decompoſitiſque, foliolis quibuſdam trifidis. Flor. Virg. 62. *Clematis with compound and decompounded leaves, ſome of whoſe lobes are trifid.* Clematis purpurea repens, petalis florum coriaceis. Raii Hiſt. 1928. *Creeping purple Climber, with coriaceous petals to the flower.*
11. CLEMATIS (*Orientalis*) foliis compoſitis, foliolis inciſis angulatis lobatis cuneiformibus, petalis interne villoſis. Lin. Sp. 765. *Clematis with compound leaves, whoſe ſmall leaves are cut into angular wedge-ſhaped lobes, and the inſide of the petals are hairy.* Clematitis Orientalis folio apii, flore ex viridi flaveſcente, poſterius reflexo. Tourn. Cor. 20. *Eaſtern Climber with a Smallage leaf, and a reflexed, greeniſh, yellow flower.*
12. CLEMATIS (*Sibirica*) foliis compoſitis & decompoſitis, foliolis ternatis, ſerratis. Gmel. *Climber with compound and decompounded leaves, whoſe ſmall leaves are ſawed and trifoliate.*
13. CLEMATIS (*Dioica*) foliis ternatis, integerrimis, floribus diocis. *Three-leaved Climber, with entire leaves, having three lobes, and male and female flowers on the ſame plant.* Clematis foliis ternis. Sloan. Cat. 84. *Three-leaved Climber.*
14. CLEMATIS (*Americana*) foliis ternatis, foliolis cordato-acuminatis, integerrimis, floribus corymboſis. *Three-leaved Climber with heart-ſhaped pointed lobes, which are entire, and flowers collected in round bunches.* Clematitis Americana triphylla, foliis non dentatis. Houſt. MSS.
15. CLEMATIS (*Criſpa*) foliis ſimplicibus, ternatiſque, foliolis integris trilobiſve. Lin. Sp. Plant. 543. *Climber with ſingle and trifoliate leaves, whoſe ſmall leaves are either entire, or have three lobes.* Clematis flore criſpo. Hort. Elth. 86. *Climber with a curled flower.*

The firſt ſort grows naturally in the ſouth of France, Italy, Auſtria, and ſeveral parts of Germany, but hath been long cultivated in the Engliſh gardens for ornament. This hath a perennial root. The ſtalks are upright, about three or four feet high, garniſhed with winged leaves ſtanding oppoſite, which are compoſed of three or four pair of lobes, terminated by an odd one; they are oval, ſpear-ſhaped, and entire: the flowers are produced in large looſe panicles at the top of the ſtalks; theſe are compoſed of four white petals, which ſpread open; and the middle is occupied by a great number of ſtamina, ſurrounding five or ſix germen, which afterward become ſo many compreſſed ſeeds, each having a long tail or beard ſitting on the top. It flowers in June, and the ſeeds ripen in September.

The ſecond ſort grows naturally in Hungary and Tartary, but hath been long an inhabitant in the Engliſh gardens. The root of this is perennial, ſending up many ſlender upright ſtalks, from three to four feet high, garniſhed with oppoſite ſingle leaves at each joint, having ſhort foot-ſtalks; the leaves are near four inches long, and an inch and an half broad in the middle, of a bright green, ſmooth, and entire, ending in a point: the flowers come out from the upper part of the ſtalks, ſtanding upon very long naked foot-ſtalks, each ſupporting a ſingle blue flower, compoſed of four narrow thick petals which ſpread open, and many hairy ſtamina ſurrounding the germina in the center. After the flowers are paſt, the germen become ſo many compreſſed ſeeds, each having a tail or beard. It flowers and ſeeds at the ſame time with the former ſort.

The third ſort is very like the firſt, from which it differs in having but two or three pair of lobes in each leaf, which are narrower and ſtand farther aſunder: the ſtalks are ſhorter, and the flowers larger.

The fourth ſort grows naturally in the hedges, in moſt parts of England. This hath a tough climbing ſtalk, ſending out claſpers, by which it faſtens to the neighbouring buſhes and trees, and ſometimes riſes more than twenty feet high, ſending out many ſide branches, ſo as often to cover all the trees and buſhes of the hedge. This puts out many bunches of white flowers in June, which are ſucceeded by ſeveral flat ſeeds joined in a head, each having a long twiſted tail ſitting on the top, which is covered with long white hairs; and in autumn, when the ſeeds are near ripe, they appear like beards, from whence the country people call it Old Man's Beard. The branches of this being very tough and flexible, are uſed for tying up faggots; from whence, in ſome countries, it is called Bindwith.

There are two varieties of this, one with indented leaves, which is the moſt common, and the other hath entire leaves; but as theſe are ſuppoſed to ariſe accidentally from ſeeds, they are not diſtinguiſhed by later botaniſts.

The fifth ſort grows naturally in moſt parts of North America, from whence the ſeeds have been brought to Europe. This is in its firſt appearance very like the laſt ſort, but the leaves are broader, and grow by threes on the ſame foot-ſtalk, whereas thoſe of the former have five or ſeven lobes in each leaf. The flowers appear at the ſame time with the former, but the ſeeds do not ripen in England, unleſs the ſeaſon is very warm. There is little beauty in this ſort.

The ſixth ſort hath a climbing ſtalk like the fourth; the lower leaves of this are winged, and deeply cut on their edges, but the upper leaves are ſingle, ſpear-ſhaped, and entire. The flowers of this ſort are white, and appear in June or July. This grows naturally in the ſouth of France, and in Italy.

The ſeventh ſort grows naturally in Spain and Portugal. This hath a climbing ſtalk, which will riſe to the height of eight or ten feet, ſending out branches from every joint, whereby it becomes a very thick buſhy plant; the leaves are ſometimes ſingle, at other times double, and frequently trifoliate, being indented on their edges. Theſe keep their verdure all the year: oppoſite to the leaves come out claſpers, which faſten themſelves to the neighbouring ſhrubs, by which the branches are ſupported, otherwiſe they would fall to the ground. The flowers are produced from the ſide of the branches; theſe are large, of an herbaceous colour, and appear always about the end of December, or beginning of January, which being a ſeaſon when few perſons viſit gardens for information, theſe flowers have eſcaped their notice, ſo that many have ſuppoſed this ſort doth not produce flowers in England; and the flowers being nearly the ſame colour of the leaves, thoſe who have been more conſtant viſitors of gardens, have paſſed by this plant, without noticing the flowers; but for many years together, it hath produced plenty of flowers in the garden at Chelſea, and always at the ſame ſeaſon.

The ſeventh ſort is cultivated in the nurſery-gardens for ſale, and is known by the title of Virgin's Bower. There are four varieties of it which are preſerved in the gardens of the curious, and have been by ſome treated as ſo many diſtinct ſpecies; but as their only differences conſiſt either in the colour of their flowers, or the multiplicity of their petals, they are now only eſteemed as ſeminal variations; but as they are diſtinguiſhed by the nurſery-gardeners, I ſhall juſt mention them.

1. Single blue Virgin's Bower.
2. Single purple Virgin's Bower.
3. Single red Virgin's Bower.
4. Double purple Virgin's Bower.

Theſe have no difference in their ſtalks or leaves, ſo that the ſame deſcription will fit them all, excepting the colours or multiplicity of petals in their flowers. The ſtalks of theſe plants are very ſlender and weak, having many joints, from whence come out ſide branches, which are again divided into ſmaller. If theſe are ſupported, they will riſe to the height of eight or ten feet, and are garniſhed with compound winged leaves, placed oppoſite at the joints. Theſe branch out into many diviſions, each of which hath a ſlender foot-ſtalk, with three ſmall leaves, which are oval and entire: from the ſame joint, generally four foot-ſtalks ariſe, two on each ſide; the two lower have three of theſe diviſions, ſo that they are each compoſed of nine ſmall leaves or lobes; but the two upper have only two oppoſite leaves on each, and between theſe ariſe three ſlender foot-ſtalks, each ſupporting one flower. The flowers have each four petals, which are narrow at their baſe, but are broad at the top and rounded: in one they are of a dark worn-out purple, in another blue, and the third of a bright purple or red colour. The double ſort, which is common in the Engliſh gardens, is of the worn-out purple colour: but the foreign catalogues mention double flowers of both the other colours, which may probably be found in ſome of their gardens; but as I have not ſeen them myſelf, I have not noticed them. The double flowers have no ſtamina or germen, but in lieu of them, there is a multiplicity of petals, which are narrow, and turn inward at the top.

Theſe plants grow naturally in the woods in Spain and Portugal, but have been long cultivated in the Engliſh gardens for ornament. They flower in June and July, but they ſeldom ripen ſeeds in England, and the double ſort continues to the end of Auguſt.

The ninth ſort grows naturally on the Alps, and other mountains in Italy. I received it from mount Baldus, where it grows in plenty. This hath a ſlender climbing ſtalk, which riſes three or four feet high, ſupporting itſelf by faſtening to the neighbouring plants or ſhrubs. The leaves of this are compoſed of nine lobes or ſmall leaves, three ſtanding upon each foot-ſtalk, ſo that it is what the former writers ſtile a nine-leaved plant. The flowers come out at the joints of the ſtalk, in the ſame manner as the common Travellers Joy, which are white, ſo make no great appearance. This ſort flowers in May.

The tenth ſort grows naturally in Virginia and Carolina, from both of theſe countries I have received the ſeeds. This hath many ſlender ſtalks, garniſhed with compound winged leaves at each joint, and are generally compoſed of nine leaves, ſtanding by threes, like thoſe of the eighth ſort, but the ſmall leaves or lobes of this are nearly of a heart-ſhape. The flowers of this ſtand upon ſhort foot-ſtalks, which come out from the wings of the leaves, one on each ſide the ſtalk. The flowers are compoſed of four thick petals, which are purple on their outſide, and blue within. They appear in July, and if the autumn proves warm, the ſeeds will ripen in September.

The eleventh ſort was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the royal garden at Paris, where they ſucceeded and perfected ſeeds, ſo that moſt of the gardens in Europe have been furniſhed with the ſeeds from thence: this hath weak climbing ſtalks, which faſten themſelves by their claſpers, to any plants or ſhrubs which ſtand near them, and thereby riſe to the height of ſeven or eight feet, garniſhed with compound winged leaves, conſiſting of nine ſmall leaves (or lobes) which are angular and ſharp-pointed. The flowers come out from the wings of the leaves, which are of a yellowiſh green, and the petals are reflexed backward; they come out in April and May, and in warm ſeaſons the ſeeds will ripen very well, if the plants have a good ſituation.

The twelfth ſort grows naturally in Siberia, from whence the ſeeds were ſent to the imperial garden at Peterſburgh, where they ſucceeded and produced ſeeds, part of which were ſent me in the year 1753. Theſe grew, and the plants have flowered ſeveral years in the Chelſea garden. It hath weak climbing ſtalks which require ſupport, that riſe from four to ſix or eight feet high; the joints are far aſunder; at each of theſe come out two compound winged leaves, whoſe ſmall leaves or lobes are placed by threes; theſe are deeply ſawed on their edges, and terminate in ſharp points. The flowers come out from the wings of the leaves ſingle, ſtanding upon long naked foot-ſtalks, and are compoſed of four broad obtuſe petals, which ſpread open in form of a croſs, of a whitiſh yellow colour. In the center is placed ſeveral germen, ſurrounded by a great number of ſtamina, with flat compreſſed ſummits, of the ſame colour with the petals of the flower; after theſe are paſt, the germen become ſo many compreſſed ſeeds, each having a bearded tail. It flowers in February March and April, and the ſeeds ripen in July or Auguſt.

The thirteenth ſort was ſent me from Jamaica by the late Dr. Houſtoun. This hath ſlender climbing ſtalks, which faſten themſelves to the trees and ſhrubs which ſtand near them, and thereby riſe to the height of ten or twelve feet, garniſhed with trifoliate leaves, coming out on each ſide the ſtalk; the lobes are large, oval, and entire, having three longitudinal veins. The foot-ſtalks of the flowers ariſe at the ſame joints, cloſe to thoſe of the leaves, one on each ſide the ſtalks: theſe are long, naked, and grow horizontally, extending beyond the leaves before they divide and branch; then there comes out three or four pair of ſmall foot-ſtalks from the large one, each of which divides again into three ſmaller, each ſupporting a ſingle flower: the lower pair of theſe are extended four or five inches, the other gradually diminiſh to the top, ſo that they form a pyramidal thyrſe of flowers; theſe are white, and are compoſed of four narrow petals which are reflexed back, but the ſtamina all ſtand erect.

This hath been by ſome perſons ſuppoſed to be the ſame with the common Travellers Joy, but thoſe who have ſeen the two plants, cannot doubt of their being diſtinct ſpecies.

The fourteenth ſort was ſent me from Campeachy by the late Dr. Houſtoun. This hath ſtrong climbing ſtalks, which faſten themſelves by their claſpers to the neighbouring trees, whereby they are ſupported, and riſe to the height of twenty feet or more, garniſhed at each joint by trifoliate leaves, which are heart-ſhaped, pointed, and entire. The flowers come out on long, naked, branching foot-ſtalks, which riſe from the wings of the leaves; they are white, and collected into roundiſh bunches; theſe are ſucceeded by ſeeds ſhaped like thoſe of the common ſort, but have long curling beards to each, which are finely feathered.

The fifteenth ſort grows naturally in Carolina, from whence I received the ſeeds in the year 1726. This hath weak ſtalks which riſe near four feet high, and by their claſpers faſten themſelves to the neighbouring plants, whereby they are ſupported. The leaves come out oppoſite at the joints; theſe are ſometimes ſingle, at others trifoliate, and ſome of the leaves are divided into three lobes. The flowers come out ſingly from the ſide of the branches upon ſhort foot-ſtalks, which have one or two pair of leaves below the flower, which are oblong and ſharp-pointed. The flowers have four thick petals, like thoſe of the tenth ſort; theſe are of a purple colour, and their inner ſurface is curled, and hath many longitudinal furrows. This flowers in July, and the ſeeds ripen in September.

The three firſt ſorts have perennial roots, which multiply pretty faſt, but their ſtalks die down every autumn, and new ones ariſe in the ſpring, in which particular they differ from all the other ſpecies, therefore require different management, and are propagated in a different manner; therefore I ſhall firſt give directions for their culture.

Theſe plants are propagated either by ſeeds, or parting their roots; but the former being a tedious method (the plants ſeldom riſing until the ſecond year after ſowing, unleſs the ſeeds are ſown in the autumn ſoon after they are ripe, and are often two years more before they flower,) the latter is generally practiſed. The beſt ſeaſon for parting theſe roots is in October or February; either juſt before their branches decay, or before they riſe again in the ſpring.

They will grow almoſt in any ſoil or ſituation; but if the ſoil is very dry, they ſhould always be new planted in the autumn, otherwiſe their flowers will not be ſo ſtrong; but if the ſoil be wet, it is better to defer it until the ſpring. The roots may be cut through their crowns with a ſharp knife, obſerving to preſerve to every offſet ſome good buds or eyes; and then it matters not how ſmall you divide them, for their roots increaſe very faſt: but if you part them very ſmall, you ſhould let them remain three or four years before they are again removed, that their flowers may be ſtrong, and their roots multiplied in eyes, which in leſs time cannot be obtained.

Theſe plants are extreme hardy, enduring the cold of our ſevereſt winters in the open air, and are very proper ornaments for large gardens, either to be planted in large borders, or intermixed with other hardy flowers in quarters of flowering ſhrubs; where, by being placed promiſcuouſly in little open places, they fill up thoſe ſmall vacancies, and are agreeable enough. They begin to flower about the beginning of June, and often continue to produce freſh flowers until Auguſt, which renders them valuable, eſpecially ſince they require very little care in their culture; for their roots may be ſuffered to remain ſeveral years undiſturbed, where there is no want to part them, which will not in the leaſt prejudice them.

The fourth ſort is found wild in moſt parts of England, growing upon the ſides of banks under hedges, and extends its trailing branches over the trees and ſhrubs that are near it. This plant in the autumn is generally covered with ſeeds, which are collected into little heads, each of which having, as it were, a rough plume faſtened to it, hath occaſioned the country people to give it the name of Old Man's Beard. It is titled by Lobel and Gerard, Viorna; and by Dodonæus, Vitis alba: in Engliſh it is moſt commonly called Travellers Joy. This ſort is rarely cultivated in gardens, being too rambling, and having but little beauty.

The fifth and ſixth ſorts have no more beauty than the fourth, ſo are ſeldom preſerved in gardens, unleſs for the ſake of variety. They are both as hardy as the common ſort, and may be propagated either by ſeeds or laying down their branches.

The ſeventh ſort retains its leaves all the year, which renders it valuable. This was formerly preſerved in green-houſes in the winter, ſuppoſing it too tender to live in the open air in England; but now it is generally planted in the full ground, where the plants thrive much better than in pots, and produce plenty of flowers, which they never did when they were more tenderly treated; nor have I found that the plants have ſuffered from ſevere froſts; for thoſe which have been growing in the open air at Chelſea, more than fifty years, have reſiſted the greateſt cold without covering.

This ſort doth not produce ſeeds in England, ſo it is propagated by layers, and alſo from cuttings. If they are propagated by layers, it muſt be done in the beginning of October, when the ſhoots of the ſame year only ſhould be choſen for this purpoſe; for the older branches do not put out roots in leſs than two years, whereas the tender ſhoots will make good roots in one year: theſe muſt be pegged down into the ground, in the ſame manner as is uſually practiſed for other layers, to prevent their riſing. If the ſhoots have two inches of earth over them, it will be better than a greater depth; but then, a little old tanners bark ſhould be ſpread over the ſurface of the ground, to keep out the froſt; for as the plants generally begin flowering about Chriſtmas, ſo at the ſame time they are putting out roots, which being but juſt formed, may be injured by ſevere froſts: theſe layers will have ſtrong roots by the following autumn, when they may be taken from the old plant, and tranſplanted where they are deſigned to remain.

When they are propagated by cuttings, they ſhould be planted in March, in pots filled with good kitchen-garden earth, and plunged into a very moderate hot-bed, obſerving to ſhade them from the ſun in the day-time, and gently water them two or three times a week; and in leſs than two months they will have taken root, when they ſhould be gradually inured to the open air. The following ſummer they may be placed in any part of the garden till Michaelmas, and then they ſhould be turned out of the pots and planted in the full ground, either where they are deſigned to remain, or into a nurſery-bed, to grow a year longer to get ſtrength, before they are placed out for good.

All the varieties of Virgin's Bower are propagated by laying down their branches; for although the ſingle flowers ſometimes produce ſeeds in England, yet as theſe ſeeds, when ſown, generally remain a whole year in the ground before they vegetate, ſo the other being the more expeditious method of increaſing theſe plants, is generally practiſed: but in order to ſucceed, theſe layers ſhould be laid down at a different ſeaſon from the former ſort; for when they are laid in the autumn, their ſhoots are become tough, ſo rarely put out roots under two years; and after lying ſo long in the ground, not one in three of them will have made good roots; ſo that many have ſuppoſed theſe plants were difficult to propagate, but ſince they have altered their ſeaſon of doing it, they have found theſe layers have ſucceeded as well as thoſe of other plants.

The beſt time for laying down the branches is in the beginning of July, ſoon after they have made their firſt ſhoots, for it is theſe young branches of the ſame year, which freely take root; but as theſe are very tender, there ſhould be great care taken not to break them in the operation: therefore thoſe branches from which theſe ſhoots were produced, ſhould be brought down to the ground, and faſtened to prevent their riſing; then the young ſhoots ſhould be laid into the earth, with their tops raiſed upright, three or four inches above ground; and after the layers are placed down, if the ſurface of the ground be covered with moſs, rotten tanners bark, or other decayed mulch, it will prevent the ground from drying, ſo that the layers will not require watering above three or four times, which ſhould not be at leſs than five or ſix days interval; for when theſe layers have too much wet, the tender ſhoots frequently rot; or when the young fibres are newly put out, they are ſo tender, as to periſh by having much wet: therefore where the method here directed is practiſed, the layers will more certainly take root, than by any other yet practiſed.

As moſt of theſe plants have climbing branches, they ſhould be always planted where they may be ſupported, otherwiſe the branches will fall to the ground and appear unſightly; ſo that unleſs they are properly diſpoſed, inſtead of being ornaments to a garden, they will become the reverſe. Where there are arbours or ſeats, with trellis work round them, theſe plants are very proper to train up againſt it; or where any walls or other fences require to be covered from the ſight, theſe plants are very proper for the purpoſe; but they are by no means proper for open borders, nor do they anſwer the expectation, when they are intermixed with ſhrubs; for unleſs their branches have room to extend, they will not be productive of many flowers.

The ſort with double flowers is the moſt beautiful, ſo that ſhould be preferred to thoſe with ſingle flowers, of which a few only ſhould be planted for variety. They are all equally hardy, ſo are ſeldom injured by froſt, excepting in very ſevere winters, when ſometimes the very tender ſhoots are killed; but if theſe are cut off in the ſpring, the ſtems will put out new ſhoots.

The tenth, eleventh, and fifteenth ſorts are alſo very hardy plants, and have climbing branches, ſo may be diſpoſed in the ſame manner as the other: they are alſo propagated by layers, which will ſucceed, if performed at the ſame time, and in the ſame manner as is directed for them.

The other ſorts are natives of the warmeſt parts of America, ſo will not thrive in this country, unleſs they are preſerved in ſtoves; but as theſe are great ramblers and plants of no great beauty, they are ſeldom preſerved in Europe, but in botanic gardens for the ſake of variety. Theſe may be propagated by layers, in the ſame manner as the other ſorts; or may be raiſed from ſeeds, obtained from the countries where they naturally grow; but theſe muſt be treated in the ſame manner as other exotic plants from the ſame country.

CLEOME. Lin. Gen. Plant. 740. Sinapiſtrum. Tourn. Inſt. R. H. 231. tab. 116.

The Characters are,

The flower hath a four-leaved empalement which ſpreads open: it hath four petals which are inclined upward and ſpread open, the two lower being leſs than the other; in the bottom there are three mellous glands which are roundiſh, and are ſeparated by the empalement. It hath ſix or more ſtamina which are incurved, having riſing ſummits fixed to their ſide: it hath a ſingle ſtyle, ſupporting an oblong germen, which is of the ſame length as the ſtamina, and crowned by a thick ſtigma. The germen afterward becomes a long cylindrical pod, ſitting upon the ſtyle, having one cell, opening with two valves, and filled with roundiſh ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa; the plants of this ſection have in the flowers four long and two ſhort ſtamina, and their ſeeds are included in long pods.

The Species are,

1. Cleome (*Pentaphylla*) floribus gynandris, foliis quinatis caule inermi. Lin. Sp. 938. *Cleome with flowers having male and female parts, five leaves, and ſmooth ſtalks.* Sinapiſtrum Indicum, pentaphyllum flore carneo, minus, non ſpinoſum. H. L.
2. Cleome (*Ornithopodoides*) floribus hexandris, foliis ternatis, foliolis ovati-lanceolatis. Lin. Sp. Plant. 940. *Cleome with flowers having ſix ſtamina, trifoliate leaves, and ſpear-ſhaped lobes.* Sinapiſtrum Orientale, triphyllum, ornithopodii ſiliquis. Tourn. Cor. 17.
3. Cleome (*Luſitanica*) floribus hexandris, foliis ternatis, foliolis lineari-lanceolatis, ſiliquis bivalvibus. *Cleome with flowers having ſix ſtamina, trifoliate leaves, narrow ſpear-ſhaped lobes, and pods having two valves.* Sinapiſtrum Luſitanicum triphyllum, flore rubro. Tourn. Inſt. R. H. 231.
4. Cleome (*Viſcoſa*) floribus dodecandris, foliis quinatis ternatiſque. Flor. Zeyl. 241. *Cleome with flowers having twelve ſtamina, trifoliate and quinquefoliate leaves.* Sinapiſtrum Zeylanicum, triphyllon & pentaphyllon viſcoſum, flavo flore. Mart. Dec. 3.
5. Cleome (*Triphylla*) floribus hexandris, foliis ternatis, foliolo intermedio majori. *Cleome with flowers having ſix ſtamina, and trifoliate leaves, whoſe middle lobe is the largeſt.* Sinapiſtrum Indicum triphyllum, flore carneo non ſpinoſum. H. L.
6. Cleome (*Erucago*) floribus hexandris, foliis ſeptenis, caule ſpinoſo, ſiliquis pendulis. *Cleome with flowers having ſix ſtamina, leaves with ſeven lobes, a prickly ſtalk, and hanging pods.* Sinapiſtrum Ægyptiacum heptaphyllum, flore carneo, majus ſpinoſum. H. L.
7. Cleome (*Spinoſa*) floribus hexandris, foliis quinatis ternatiſque, caule ſpinoſo. *Cleome with flowers having ſix ſtamina, leaves compoſed of five and three lobes, and a prickly ſtalk.* Sinapiſtrum Indicum ſpinoſum, flore carneo, folio trifido vel quinquefido. Houſt. MSS.
8. Cleome (*Monophylla*) floribus hexandris, foliis ſimplicibus, petiolatis ovato-lanceolatis. Flor. Zeyl. 243. *Cleome with ſix ſtamina to the flowers, and ſix leaves, which are ovally ſpear-ſhaped.* Sinapiſtrum Zeylanicum viſcoſum, folio ſolitario, flore flavo, ſiliquâ tenui. Burm. Theſ. 217.

The firſt ſort grows naturally in Aſia, Africa, and America; I have received the ſeeds of it from Aleppo, and the coaſt of Guinea, and in the earth which came from the Weſt-Indies with other plants; this hath come up as a weed. It riſes with an herbaceous ſtalk about a foot high, garniſhed with ſmooth leaves, compoſed of five ſmall leaves or lobes, joining at their baſe to one center, and ſpread out like the fingers of a hand. The leaves on the lower part of the ſtalk ſtand upon long foot-ſtalks, which are gradually ſhortened to the top of the ſtalk, where they almoſt join it: the flowers are produced in looſe ſpikes at the end of the ſtalks and branches; theſe have four petals of a fleſh colour, which ſtand erect, ſpreading from each other; and below theſe are placed the ſtamina and ſtyle, which coaleſce at the bottom, and are ſtretched out beyond the petals, where they ſpread open; after the flower is paſt, the germen which ſits upon the ſtyle, becomes a taper pod, about two inches long, filled with round ſeeds. This is an annual plant, which dies ſoon after the ſeeds are ripe.

The ſecond ſort grows naturally in the Levant, from whence Dr. Tournefort ſent the ſeeds to the royal garden at Paris, and from thence moſt of the botanic gardens in Europe have been furniſhed with it: this riſes with an upright ſtalk about the ſame height as the firſt, garniſhed with leaves compoſed of three ſpear-ſhaped lobes, ſtanding upon ſhort foot-ſtalks; the flowers come out ſingly from the ſide of the ſtalks, and have four red petals, which ſtand in the ſame form as thoſe of the former ſort: theſe are ſucceeded by ſlender pods two inches long, which ſwell in every diviſion, where each ſeed is lodged, ſo as to appear like joints, as thoſe do of the Bird's-foot Trefoil; when the ſeeds are ripe, the whole plant decays. If the ſeeds of this are ſown in autumn the plants will flower in June, and their ſeeds will ripen in Auguſt, but thoſe which are ſown in the ſpring do not flower till July; ſo that unleſs the ſeaſon proves favourable, the ſeeds will not ripen: if the ſeeds of this ſort are permitted to ſcatter, the plants will come up without care, and require only to be thinned and kept clean from weeds, for they will not bear tranſplanting.

The third ſort grows naturally in Portugal and Spain, from whence I have received the ſeeds. This riſes with an herbaceous ſtalk about a foot and half high, ſending out a few ſhort ſide branches, which are garniſhed with leaves compoſed of three narrow lobes, ſtanding upon ſhort foot-ſtalks. The flowers come out ſingly from the ſide of the ſtalks, are of a deep red colour, and are ſucceeded by thick taper pods, filled with round ſeeds. This is an annual plant, which will thrive in the open air, and requires the ſame treatment as the former.

The fourth ſort grows naturally in the iſland of Ceylon, from whence the ſeeds were brought to Holland, where they ſucceeded, and the ſeeds were ſent me by the late Dr. Boerhaave; this riſes near two feet high, ſending out ſeveral ſide branches, garniſhed with leaves, ſome of which have five, and others three roundiſh lobes ſtanding upon ſhort hairy foot-ſtalks. The flowers come out ſingly at the foot-ſtalks of the leaves, they are of a pale yellow, and are ſucceeded by taper pods between two and three inches long, ending in a point, which are full of round ſeeds. The whole plant ſweats out a viſcous clammy juice. This is alſo an annual plant.

The fifth ſort was ſent me from Jamaica by the late Dr. Houſtoun, in the year 1730. This is an annual plant which riſes two feet high, ſending out many ſide branches, garniſhed with leaves, with one large ſpear-ſhaped lobe in the middle, and two very ſmall ones on the ſide; theſe ſit cloſe to the branches. The flowers come out ſingly from the ſide of the branches, upon long foot-ſtalks: theſe have four large fleſh-coloured petals, and ſix long ſtamina, which ſtand out beyond the petals; when the flowers fade, the germen which ſits upon the ſtyle becomes a taper pod four inches long, filled with round ſeeds.

The ſixth ſort was ſent me from Jamaica by the late Dr. Houſtoun, who found it growing naturally there in great plenty. It alſo grows naturally in Egypt. This riſes with a ſtrong thick herbaceous ſtalk two feet and a half high, dividing into many branches, which are garniſhed with leaves compoſed of ſeven long ſpear-ſhaped lobes, joining in a center at their baſe, where they ſit upon a long ſlender foot-ſtalk: juſt below the foot-ſtalk comes out one or two ſhort, thick, yellow ſpines, which are very ſharp. The flowers come out ſingly from the ſide of the branches, forming a long looſe ſpike at their extremities; this ſpike hath ſingle broad leaves, which half ſurround the ſtalks at their baſe, from the boſom of which, come out the foot-ſtalks of the flowers, which are two inches long, each ſuſtaining a large fleſh-coloured flower, whoſe ſtyle and ſtamina are extended two inches beyond the petals. After the flower is paſt, the germen, which ſits upon the ſtyle, becomes a thick taper pod five inches long, which hangs downward, and is filled with round ſeeds. This is alſo an annual plant, which periſhes ſoon after the ſeeds are ripe.

The ſeventh ſort was ſent me from the Havannah in the year 1731, by the late Dr. Houſtoun. This is alſo an annual plant, which riſes near two feet high, branching out on every ſide: the lower leaves are compoſed of five oblong lobes ſtanding upon long foot-ſtalks, but thoſe on the ſtalks and branches have but three lobes, and have ſhort foot-ſtalks: the main ſtalk and alſo the branches, are terminated by looſe ſpikes of purple flowers, each ſitting upon a ſlender foot-ſtalk, at the baſe of which is placed a ſingle oval leaf. The ſtalks are armed with ſlender ſtiff ſpines, which are ſituated juſt under the foot-ſtalks of the leaves; when the flowers fade, the germen becomes a taper pod, two inches long, filled with round ſeeds.

The eighth ſort grows naturally in Ceylon; this is an annual plant, which riſes with an herbaceous ſtalk a foot and half high, garniſhed with long, narrow, ſingle leaves, ſtanding alternately on the ſtalks; from the wings of the leaves come out the foot-ſtalks of the flower, each ſuſtaining a ſingle yellow flower, which is ſucceeded by a very ſlender taper pod.

All theſe plants except the ſecond and third ſorts, are natives of very warm countries, ſo will not thrive in England without artificial heat; therefore their ſeeds muſt be ſown upon a good hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be planted in ſeparate ſmall pots, filled with freſh light earth, and plunged into a freſh hot-bed, obſerving to ſhade them until they have taken freſh root; after which they ſhould have air admitted to them every day in proportion to the warmth of the ſeaſon, and their waterings ſhould be frequently repeated, but not given in too great plenty; when the plants have filled theſe ſmall pots with their roots, they ſhould be put into larger, and plunged again into a hot-bed to bring them forward; and in July, when they are too tall to remain longer in the hot-bed, they ſhould be removed into an airy glaſs caſe, where they may be ſcreened from cold and wet, but in warm weather may enjoy the free air. With this management the plants will flower ſoon after, and perfect their ſeeds in autumn. The ſecond and third ſorts may be ſown in the open borders of the garden, where they are deſigned to remain, for they do not require any artificial warmth.

CLEONIA, Portugal Self-heal.

The CHARACTERS are,

It hath a bilabiated empalement of one leaf, which is tubulous and angular; the upper lip is broad, plain, and indented in three parts; the under is ſhort and divided into two. The flower is of the grinning kind, with one petal; the upper lip is erect and divided into two parts, the lower is trifid, the middle ſegment having two lobes, the two lateral ſpread aſunder; it hath four ſtamina, the two lower being the longeſt, whoſe outer top of their ſummits form a croſs. It hath four germen, ſupporting a ſlender ſtyle with four ſtigma, having four equal briſtles; the germen afterward become four ſeeds, incloſed in the hairy empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, the flower having two long and two ſhort ſtamina, and are ſucceeded by naked ſeeds filling in the empalement.

This plant grows naturally in Spain and Portugal; it is annual, periſhing ſoon after it has ripened its ſeeds. It was formerly ranged under the genus of Bugula, Tournefort afterward titled it Clinopodium, and father Barrelier placed it with the Prunella, to which genus it is nearly related.

It is propagated by ſeeds, which, when ſown in the autumn the plants will come up the following ſpring: but the ſeeds which are ſown in the ſpring, frequently lie in the ground till the following autumn, and ſometimes till the next ſpring before they vegetate. When the plants come up and are fit to tranſplant, a few of them may be planted into a border where they may remain to produce their flowers and ſeeds, as they require but little culture; ſo a few plants may be allowed to have place in ſmall gardens, where they will not take much room.

CLETHRA. Gron. Fl. Virg. 43. Lin. Gen. Plant. 489.

The CHARACTERS are;

The flower hath a permanent empalement of one leaf, which is cut into five parts; it hath five oblong petals, which are longer than the empalement; it hath ten ſtamina which are as long as the petals, and are terminated by oblong erect ſummits; in the center is ſituated a roundiſh germen ſupporting a permanent erect ſtyle, crowned by a trifid ſtigma. The germen afterward becomes a roundiſh capſule incloſed by the empalement, having three cells, which are full of angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, the flowers having ten ſtamina, and one ſtyle.

We know but one SPECIES of this genus at preſent, viz.

CLETHRA (*Alnifolia*) Gron. Virg. 47. *There is no Engliſh title to this plant*, it is the Alnifolia Americana ſerrata, floribus pentapetalis albis in ſpicam diſpoſitis. Pluk. Alm. 18. *American Shrub with an Alder ſawed leaf, and white five-leaved flowers, diſpoſed in a ſpike.*

This ſhrub is a native of Virginia and Carolina, where it grows in moiſt places, and near the ſides of rivulets, riſing to the height of eight or ten feet, but in this country it rarely riſes to half that height: the leaves are in ſhape like thoſe of the Alder-tree, but are longer; theſe are placed alternately upon the branches: the flowers are produced at the extremity of the branches, in cloſe ſpikes: they are compoſed of five leaves, are white, and have ten ſtamina in each, which are nearly of the ſame length with the petals, this plant flowers in July, and when the autumn proves favourable, there are often ſome ſpikes of flowers again in October.

This is hardy enough to bear the open air in England, and is one of the moſt beautiful ſhrubs at the ſeaſon of its flowering; which is very little later than in its native country, being commonly in flower here by the beginning of July; and if the ſeaſon is not very hot, there will be part of the ſpikes in beauty till the beginning of Auguſt; and as moſt of the branches are terminated with theſe ſpikes of flowers, ſo when the ſhrubs are ſtrong, they make a fine appearance at that ſeaſon.

This will thrive much better in moiſt land than in dry ground, and requires a ſheltered ſituation, where it may be defended from ſtrong winds, which frequently break off the branches, where they are too much expoſed to its violence. It is propagated by layers, but they are generally two years before they get root, ſo that at preſent it is rare in England. The fineſt ſhrubs of this kind, which I have yet ſeen, are in the curious garden of his grace the late duke of Argyle, at Whitton near Hounſlow, where they thrive as well as in their native country. They may alſo be propagated by ſuckers, which are ſent out from their roots; if theſe are carefully taken off with fibres in the autumn, and planted into a nurſery-bed, they will be ſtrong enough in two years to tranſplant where they are to remain.

It may alſo be propagated by ſeeds, which muſt be procured from the countries where it grows naturally, for the ſeeds are not perfected in England. But as theſe ſeldom arrive here till ſpring, ſo when they are ſown at that ſeaſon, the plants will not come up till the following ſpring. Therefore the ſeeds ſhould be ſown in pots, and placed in a ſhady ſituation till autumn, then placed under a frame in winter; the plants will come up the next ſpring, and in autumn may be tranſplanted into a nurſery-bed, to get ſtrength before they are placed to remain for good.

CLIFFORTIA. Lin. Gen. Plant. 1004.

The name was given to this genus of plants by Dr. Linnæus, in honour of Mr. George Clifford of Amſterdam; a great collector of plants, and a patron of botaniſts, who has printed a folio book of the plants in his garden, with ſeveral copper-plates, exhibiting the figures of many of the moſt curious plants. We have no Engliſh name for it.

The CHARACTERS are;

It hath male and female flowers in different plants: the male flowers have a ſpreading empalement, compoſed of three ſmall, oval, concave leaves. It hath no petals, but a great number of hairy upright ſtamina, which are the length of the empalement, terminated by compreſſed, oblong, twin ſummits. The female flowers have a permanent empalement, compoſed of three leaves which are equal, ſitting upon the germen; theſe have no petals, but the oblong germen which is ſituated below the empalement, ſupports two long, ſlender, feathered ſtyles, terminated by a ſingle ſtigma; the germen afterward becomes an oblong taper capſule, with two cells crowned by the empalement, including one narrow taper ſeed.

This genus of plants is ranged in the tenth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Polyandria; the plants of this ſection and claſs have male and female flowers on different plants, and the male flowers have a great number of ſtamina.

The SPECIES are,

1. CLIFFORTIA (*Ilicifolio*) foliis ſubcordatis, dentatis. Lin. Sp. Plant. 1308. *Cliffortia with heart-ſhaped indented leaves.* Arbuſcula Afr. folio acuto ilicis caulem amplexo rigido. Boerh. Ind. alt. 2.
2. CLIFFORTIA (*Trifoliata*) foliis ternatis, intermedio tridentato. Prod. Leyd. 253. *Three-leaved Cliffortia, whoſe middle leaf is cut in three parts.* Myrica foliis ternatis, intermediis cuneiformibus tridentatis. Hort. Cliff. 456.
3. CLIFFORTIA (*Ruſcifolia*) foliis lanceolatis, integerrimis. Hort. Cliff. 463. *Cliffortia with ſpear-ſhaped leaves which are entire.* Frutex Æthiopicus conifer, fructu parvo, ſparſim intra folia ruſci, ſeminibus cylindraceis.

The firſt ſort grows naturally at the Cape of Good Hope, but hath been long cultivated in many of the Engliſh gardens; however it was not reduced to any genus, till Dr. Linnæus eſtabliſhed this, and gave it the title. By ſome former writers it was called Camphorata, to which genus it had no relation.

It riſes with a weak ſhrubby ſtalk four or five feet high, ſending out many diffuſed branches, which ſpread out on every ſide, requiring ſome ſupport: theſe are garniſhed with leaves, which are heart-ſhaped at their baſe, but broad at their ends, where they are ſharply indented. They are very ſtiff, of a grayiſh colour, and cloſely embrace the ſtalks with their baſe, and are placed alternate on the branches; from the boſom of theſe ariſe a ſingle flower, ſitting cloſe to the branch, having no foot-ſtalk. Before the empalement is ſpread open, it forms a bud, in ſhape and ſize of thoſe of the Caper; this empalement is compoſed of three green leaves, which afterwards ſpread open, and then the numerous ſtamina appear ſtanding erect; theſe, as alſo the inner ſurface of the empalement, are of a yellowiſh green colour. The flowers appear in June, July, and Auguſt, but the leaves continue in verdure through the year.

All the plants which I have ſeen of this ſort, either in the Engliſh or Dutch gardens, were male, nor have I heard of any female plants being in any of the European gardens.

This plant is eaſily propagated by cuttings, which may be planted in any of the ſummer months; if theſe are planted in ſmall pots filled with light earth, and plunged into a very moderate hot-bed they will ſoon take root, provided they are ſcreened from the ſun and duly watered; when they have taken root, they muſt be gradually inured to bear the open air, to which they ſhould be expoſed, to prevent their drawing up weak: therefore they ſhould be placed abroad till they have obtained ſome ſtrength, then they may be each tranſplanted into a ſeparate ſmall pot, and placed in the ſhade until they have taken freſh root; after which they may be placed with other of the hardy kinds of exotic plants in a ſheltered ſituation till October, when they ſhould be removed into the greenhouſe, or placed under a common hot-bed frame, where they may be ſcreened from the hard froſt, but enjoy the free air at all times when the weather is mild.

When the plants advance in height, their ſtems and branches muſt be ſupported, otherwiſe they will trail upon the ground. In ſummer they muſt be placed in the open air, with Myrtles and other hardy green-houſe plants; and in winter the plants may be treated in the ſame manner as thoſe, but muſt have little water in winter. This plant has endured the cold of our ordinary winters, when planted near a ſouth-weſt wall without covering, but in ſevere winters they are always deſtroyed.

The ſecond ſort is a native of the ſame country as the firſt; this hath very ſlender ligneous ſtalks, which muſt be ſupported, otherwiſe they will fall to the ground. Theſe ſend out ſlender branches on every ſide, which are cloſely garniſhed with trifoliate leaves ſtanding cloſe to the branches; the middle lobes of theſe are much larger than the two ſide, and are indented in three parts. The flowers of this come out from the boſom of the leaves, having very ſhort foot-ſtalks, and are ſhaped like thoſe of the firſt, but are ſmaller; theſe appear in July and Auguſt. Of this ſort we have only male plants in the Engliſh gardens, which can only be propagated by layers; and as theſe are two years before they take root, the plants are at preſent very rare in England. This ſort requires the ſame management as the firſt, and is equally hardy, but muſt not be over watered in winter. The leaves of this ſort continue green all the year, and being ſingularly ſhaped, they make a variety in the green-houſe during the winter ſeaſon.

The third ſort riſes with a weak ſhrubby ſtalk about four feet high, ſending out lateral branches, which are covered with a whitiſh bark, and are garniſhed with leaves, placed in cluſters without order; theſe are ſtiff, of the conſiſtence and colour of the Butchers Broom, but are narrower, and run out to a longer point. Between theſe cluſters of leaves the flowers come out in looſe bunches, theſe have a great number of yellowiſh ſtamina, included in a three-leaved empalement. We have only the male plant of this ſort, which is very difficult to propagate, ſo is very rare in Europe at preſent.

This plant is tenderer than either of the former ſorts, ſo ſhould be placed in a warm green-houſe in winter, and during that ſeaſon, they muſt have but little water. In the ſummer they may be expoſed to the open air in a ſheltered ſituation, but they ſhould not remain abroad too late in the autumn; for if there ſhould be much rain at that ſeaſon, it would endanger theſe plants if they are expoſed to it.

CLIMATE [of Κλίμα, *Gr.* an inclination,] is a part of the ſurface of the earth bounded by two circles parallel to the equator; ſo that the longeſt day in that parallel, neareſt to the pole, exceeds the longeſt day in that parallel neareſt to the equator by ſome certain ſpace of time, viz. half an hour, till you come to places ſituate nearly under the arctic circle; and a whole hour, or even ſeveral days when you go beyond it.

The antient Greek geographers reckoned only ſeven climates from the equator towards the north pole, and denominated them from ſome noted place, through which the middle parallel of the climate paſſed; but the moderns reckon up twenty-four.

The beginning of the climate is the parallel circle, wherein the day is the ſhorteſt.

The end of the climate is that wherein the day is the longeſt.

The climates therefore are reckoned from the equator to the pole; and are ſo many bands or zones, terminated by lines parallel to the equator; though in ſtrictneſs there are ſeveral climates in the breadth of one zone.

Each climate only differs from its contiguous ones, in that the longeſt day in ſummer is longer or ſhorter by half an hour in one place than the other.

As the climates commence from the equator, the firſt climate at its beginning has its longeſt day preciſely twelve hours long; at its end twelve hours and a half; the ſecond, which begins where the firſt ends, viz. at twelve hours and a half, ends at thirteen hours: and ſo of the reſt, as far as the polar circles.

Here what geographers call hour-climates terminate, and month-climates commence.

As an hour-climate is a ſpace compriſed between two parallels of the equator, in the firſt of which the longeſt day exceeds that in the latter by half an hour; ſo the month-climate is a ſpace between two circles parallel to the polar circles, whoſe longeſt day is longer or ſhorter than that of its contiguous one by a month, or thirty days.

The antients, who confined the climates to what they imagined the habitable part of the earth, only allowed of ſeven, as had been ſaid: the firſt they made to paſs through Meroe, the ſecond through Sienna, the third through Alexandria, the fourth through Rhodes, the fifth through Rome, the ſixth through Pontus, and the ſeventh through the mouth of the Boryſthenes.

The moderns, who have ſailed farther towards the poles, make thirty climates on each ſide; and becauſe the obliquity of the ſphere makes a little difference in the length of the longeſt day, ſome of them make the difference of the climate but a quarter of an hour inſtead of half an hour.

The term climate is vulgarly beſtowed on any country or region differing from another, either in reſpect of the ſeaſons, the quality of the ſoil, or even the manners of the inhabitants, without any regard to the length of the longeſt day.

CLINOPODIUM. Lin. Gen. Plant. 644. Tourn. Inſt. R. H. 194. tab. 92. Field Baſil.

The CHARACTERS are,

It hath an involucrum cut into many parts, is the length of the empalement, upon which the whorls ſit. The empalement is of one leaf, with a cylindrical tube, which is divided into two lips; the upper lip is broad, trifid, acute, and reflexed; the under lip is cut into two narrow ſegments, which turn inward. The flower is of the lip kind, with a ſhort tube enlarging to the mouth; the upper lip is erect, concave, and indented at the top, which is obtuſe; the under lip is trifid and obtuſe, the middle ſegment being broad and indented. It hath four ſtamina under the upper lip, two of which are ſhorter than the other, terminated by roundiſh ſummits; in the center is ſituated the quadripartite germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by a ſingle compreſſed ſtigma. The germen afterward become four oval ſeeds ſhut up in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia. The flowers of this claſs and ſection, have two long, and two ſhort ſtamina, which are ſucceeded by four naked ſeeds.

The SPECIES are,

1. CLINOPODIUM (*Vulgare*) capitulis ſubrotundis, hiſpidis, bracteis ſetaceis. Lin. Sp. Plant. 587. *Field Baſil with roundiſh prickly heads, and briſtly bractea.* Clinopodium Origano ſimile, elatius, majore flore. C. B. P. 225. *Common Engliſh Field Baſil.*
2. CLINOPODIUM (*Incanum*) foliis ſubtus tomentoſis, verticillis explanatis, bracteis lanceolatis. Lin. Sp. Plant. 588. *Field Baſil with leaves which are woolly on the under ſide, broad plain whorls, and ſpear-ſhaped bractea.* Clinopodium menthæ folio incanum, & odoratum. Hort. Elth. 87.
3. CLINOPODIUM (*Rugoſum*) foliis rugoſis, capitulis axillaribus, pedunculatis, explanatis, radiatis. Lin. Sp. Plant. 588. *Field Baſil with rough leaves, plain heads growing on the ſides of the ſtalks, which have foot-ſtalks, and are radiated.* Clinopodium rugoſum, capitulis ſcabioſæ. Hort. Elth. 88.
4. CLINOPODIUM (*Humile*) humile ramoſum, foliis rugoſioribus, capitulis explanatis. *Low branching Field Baſil with rougher leaves, and plain heads.* Clinopodium Americanum humile, foliis rugoſioribus. Dale.

5. **Clinopodium** (*Carolinianum*) caule erecto, non ramoſo, foliis ſubtus villoſis, verticillis paucioribus, bracteis calyce longioribus. *Field Baſil with an upright unbranching ſtalk, leaves hairy on their under ſide, fewer whorls, and bractea longer than the empalement.* Clinopodium Americanum, erectum, non ramoſum foliis longioribus, internodiis longiſſimis. Dale.

6. **Clinopodium** (*Ægyptiacum*) foliis ovatis rugoſis, verticillis omnibus diſtantibus, i. e. *Field Baſil with oval rough leaves, and the whorls of flowers ſtanding at a great diſtance.* Clinopodium Ægyptiacum, vulgari ſimile. Dill. *Ægyptian Field Baſil like the common.*

The firſt ſort grows naturally by the ſide of hedges and in thickets, in many parts of England; this hath a perennial fibrous root, which ſends up ſeveral ſtiff ſquare ſtalks a foot and a half high, from which come out a few lateral branches toward the top, garniſhed with oval hairy leaves, placed oppoſite; at the top of the ſtalks the flowers come out in round whorls, or heads; one of theſe terminate the ſtalk, and there is generally another which ſurrounds the ſtalk at the joint immediately below it. The flowers are ſometimes purple, at others white, for they vary from one colour to the other, when they are propagated by ſeeds, ſo that both colours are found naturally in the fields. The whorls (or heads) grow very cloſe, and each foot-ſtalk ſuſtains ſeveral flowers; each flower hath a tubular empalement, ending in five ſharp points, which ſtand erect; at the baſe of the empalement ſtand two briſtly ſpines, which Linnæus terms the bractea; theſe ſtand almoſt horizontal under the empalement. The flower is of the labiated, or lip kind, according to Tournefort, Ray, &c. which is now ſtyled ringent, or grinning, from the appearance which the upper part has to the mouth, or chaps of animals. The upper lip is broad and trifid, but the under is cut into two narrow ſegments; each flower is ſucceeded by four naked ſeeds, ſitting at the bottom of the empalement. This flowers in June.

The ſecond ſort grows naturally in Penſylvania and Carolina, from both of theſe countries I have frequently received the ſeeds; this hath a perennial root, which ſends up many ſquare ſtalks about two feet high, which put out a few ſhort ſide branches toward the upper part, garniſhed with oblong oval leaves, about the ſize of thoſe of Water Mint, ſtanding oppoſite, cloſe to the ſtalk; they are hoary, and ſoft to the touch, and have a ſtrong odour, between that of Marjoram and Baſil. The upper ſurface of the leaves is of a pale green, but their under ſide is hoary and woolly, they are ſlightly indented on their edges. The flowers grow in flat ſmooth whorls round the ſtalks, each ſtalk hath generally three of theſe whorls, the upper which terminates the ſtalk being ſmaller, the other two increaſing, ſo that the lower is the greateſt. The flowers are of a pale purple colour, and ſhaped like thoſe of the firſt ſort, but the ſtamina of this ſtands out beyond the petal, and the bractea at the baſe of the empalement are large, ſpear-ſhaped, and indented on their ſides. This plant is called Snake-weed in ſome parts of America, ſuppoſing it a remedy for the bite of rattle ſnakes. This flowers in July in England.

The third ſort grows naturally in Carolina, from whence the ſeeds were ſent me by the late Dr. Dale: this hath a perennial root, which ſends up ſeveral ſquare ſtalks, which are cloſely covered with browniſh hairs; theſe riſe between two and three feet high, garniſhed with leaves which are very unequal in their ſize, thoſe at the bottom, and alſo toward the top, being above three inches long, and one inch and a quarter broad, whereas thoſe in other parts of the ſtalk are not half ſo large; they are rough on their upper ſide, hairy below, and ſawed on their edges, ſtanding oppoſite: all the lower part of the ſtalk, but immediately below the foot-ſtalks of the flower-heads, there are three large leaves ſtanding round the ſtalks; between theſe ariſe two ſlender hairy foot-ſtalks, about three inches long, one on each ſide the ſtalk; theſe ſuſtain ſmall heads of flowers, ſhaped like thoſe of the ſcabious; they are white, ſhaped like thoſe of the other, but ſmaller; the bractea immediately under the empalement, ſpread out like rays. This plant flowers in September in this country, but never ripens its ſeeds here.

The ſeeds of the fourth ſort were ſent me from Carolina, by the late Dr. Dale; this hath ſome appearance of our common ſort, but the ſtalks do not grow more than half ſo high, and divide into many long ſide branches; the leaves are ſmaller and rougher, and the whorls of flowers are produced half the length of the branches, whereas the common ſort hath rarely more than two; the bractea at the baſe of the empalement is alſo much longer. This flowers in June and July, and hath a perennial root.

The fifth ſort was ſent me by the late Dr. Dale, from Carolina; this hath a perennial root, which ſends up ſtrait hairy ſtalks, almoſt round; the joints of theſe are four or five inches aſunder, at each of theſe come out two oblong leaves, hairy on their under ſide, ſtanding upon ſhort foot-ſtalks; at the bottom of theſe come out on each ſide a ſlender branch, half an inch long, having two or four ſmall leaves, ſhaped like the other. The flowers are produced in ſmall whorls, ſtanding thinly; theſe are white, and the bractea are longer than the empalement. This flowers in Auguſt.

The ſixth ſort is a native of Egypt, from whence the ſeeds were ſent to Europe, and the plants have for ſome years paſt grown in many curious gardens. It hath a perennial root; the ſtalks riſe a foot and an half high, garniſhed with oval leaves, having many tranſverſe deep furrows, of a dark green colour, placed oppoſite, at about five or ſix inches aſunder. There are commonly two or four ſide branches from the main ſtem, produced toward the bottom; and the whorls of flowers are produced at every joint toward the upper part of the ſtalks: theſe are pretty large and hairy. The flowers are ſomewhat larger than thoſe of the common Field Baſil, and are of a deeper colour, ſtretching a little more out of the empalement. The leaves of this have at firſt ſight much the ſame appearance; but when they are obſerved with attention, the difference is ſoon obſerved between the two ſorts: but the greateſt difference is in the leaves and whorls of flowers being placed at a greater diſtance, and the ſtalks growing ſparſedly in this ſpecies; nor do the plants continue ſo long as thoſe of the common ſort.

This ſort flowers in June, commonly a fortnight or three weeks before the common Field Baſil, and the ſeeds ripen in September; which, if permitted to ſcatter, the plants will come up in autumn; and if the winter proves favourable, they will live in the open air, provided they grow on a dry ſoil; but in moiſt ground they are frequently deſtroyed, eſpecially when the plants are young.

This plant approaches near to the Clinopodium Orientale Origani folio, flore minimo. Tour. Corol. 12. But by comparing this with a ſpecimen of that ſort from the Paris garden, I find the leaves of that are ſmoother, and placed much nearer together on the ſtalks than thoſe of this ſort; the flowers are ſmaller, ſo that it may be deemed a diſtinct ſpecies, as theſe differences are permanent, and do not alter in any of the plants which ariſe from the ſeeds.

Theſe plants may be propagated by ſeeds, and alſo by parting their roots; the latter is generally practiſed in England, becauſe few of the ſorts perfect their ſeeds here. The beſt time to tranſplant and part their roots is in autumn, that they may take root before winter. If theſe are planted in a dry ſoil, they are all, except the third ſort, hardy enough to thrive in the open air in England, and require no other care but to keep them clean from weeds, and every other year they may be tranſplanted and parted. The third ſort muſt be planted in pots, and in winter ſheltered under a frame, where the plants may enjoy the free air in mild weather, but ſcreened from froſt, otherwiſe they will not live in this country.

CLITORIA. Lin. Gen. Plant. 796. Ternatea. Tourn. Act. Reg. 1706. Clitorius. Dill. Hort. Elth. 76. We have no Engliſh title for this plant.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, which is tubular, erect, and indented in five parts at the top. The flower is of the butterfly kind, having a large ſpreading ſtandard, which is erect, and indented at the top; the two wings are oblong, obtuſe, and ſhorter than the ſtandard, which is cloſed. The keel is ſhorter than the wings; it is roundiſh and hooked; it hath ten ſtamina, nine of which are joined, and one ſtands ſeparate, which are terminated by ſingle ſummits. In the center is ſituated an oblong germen, ſupporting a riſing ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a long, narrow, compreſſed pod, with one cell, opening with two valves, incloſing ſeveral kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria; the flowers of this ſection have ten ſtamina, which compoſe two bodies.

The SPECIES are,

1. CLITORIA (*Ternatea*) foliis pinnatis. Hort. Cliff. 360. *Clitorea with winged leaves.* Ternatea flore ſimplici cæruleo. Tourn. Acad. Reg. Sc. 1706.
2. CLITOREA (*Braſiliana*) foliis ternatis, calycibus campanulatis ſolitariis. Hort. Upſal. 215. *Clitoria with trifoliate leaves, and a ſingle flower with a bell-ſhaped empalement.* Planta leguminoſa Braſiliana, Phaſeoli flore, flore purpureo maximo. Breyn. Cent. 78. tab. 32.
3. CLITORIA (*Virginiana*) foliis ternatis, calycibus campanulatis ſubgeminis. Flor. Virg. 83. *Three-leaved Clitoria with two flowers joined, whoſe empalements are bell-ſhaped.* Clitorius trifolius flore minore cæruleo. Hort. Elth. 90. tab. 76.
4. CLITORIA (*Mariana*) foliis ternatis, calycibus cylindricis. Lin. Sp. Plant. 753. *Clitoria with trifoliate leaves, and cylindrical empalements to the flowers.* Clitorius Marianus trifolius ſubtus glaucis. Pet. Hort. Sicc. 243.

The firſt ſort grows naturally in India; the ſeeds of this were firſt brought to Europe from Ternate, one of the Molucca Iſlands, and this induced Dr. Tournefort to give the title of Ternatea to this genus. There is a variety of this with white flowers, and another with large blue flowers, which make a fine appearance. The ſeeds which I received of the latter, produced all the plants with very double flowers, without the leaſt variation; but in cold ſeaſons the plants do not produce any pods here.

This riſes with a twining herbaceous ſtalk to the height of four or five feet, in the ſame manner as the Kidney-bean, and requires the like ſupport; for in the places where it grows naturally, it twiſts itſelf about the neighbouring plants; the ſtalks are garniſhed with winged leaves, compoſed of two or three pair of lobes, terminated by an odd one; theſe are of a beautiful green, and are placed alternate on the ſtalks; from the appendages of the leaves, come out the foot-ſtalks of the flower; each of theſe is encompaſſed by two very fine leaves about the middle, where they are bent, ſuſtaining a very large, gaping, beautiful flower, whoſe bottom part ſeems as if growing to the top.

The flowers have a green membranaceous empalement, which is cut into five parts. The ſtandard of the flowers is large, and is ſpread open very wide; and the flowers are of ſo deep a blue colour, as to ſtain paper, after having been many years dried, almoſt as blue as indigo; theſe flowers are ſucceeded by long ſlender pods, containing ſeveral kidney-ſhaped ſeeds.

The ſecond ſort grows naturally in the Braſils, from whence theſe ſeeds were brought to Europe. This hath a twining ſtalk like the former, which riſes five or ſix feet high, garniſhed at each joint with one trifoliate leaf, ſtanding upon a long foot-ſtalk. The flowers come out ſingly from the foot-ſtalk of the leaves, ſtanding upon pretty long foot-ſtalks, which are encompaſſed about the middle with two ſmall oval leaves; the flowers are very large, the ſtandard being much broader than that of the firſt ſort, and the two wings are larger; the flowers are of a fine blue colour, ſo make a fine appearance. The flowers appear in July, and in warm ſeaſons the ſeeds will ripen in autumn, ſoon after which the plants decay.

There is one with a double flower of this ſort, which I raiſed in the Chelſea garden ſome years paſt, from ſeeds ſent me from India; but the plants did not produce ſeeds here, and being annual, the ſort was loſt. The flowers of this were very beautiful.

The ſeeds of the third ſort were ſent me from the Bahama Iſlands; this ſends out from the root two or three ſlender twining ſtalks, which riſe to the height of ſix or ſeven feet, garniſhed at each joint with one trifoliate leaf, whoſe lobes are oblong and pointed. At the oppoſite ſide of the ſtalk, the foot-ſtalk of the flower ariſes, which is little more than an inch long, naked, and ſuſtains a ſingle flower, which is of a purple colour within, but of a greeniſh white on the outſide, not half ſo large as either of the former: theſe flowers are each ſucceeded by long, ſlender, compreſſed pods, ending in a point, which contain one row of roundiſh kidney-ſhaped ſeeds. This ſort flowers in July and Auguſt, and the ſeeds ripen in autumn.

The ſeeds of the fourth ſort were ſent me from Carolina, where the plants grow naturally. This riſes with a twining weak ſtalk about five feet high, garniſhed with trifoliate leaves like the former, whoſe lobes are narrower, and of a grayiſh colour on their under ſide; the flowers come out by pairs on the foot-ſtalks; their empalements are cylindrical. The flowers are ſmall, and of a pale blue colour within, but of a dirty white on the outſide. This flowers in Auguſt, but rarely ripens any ſeeds in England.

All theſe ſorts are annual with us in England, ſo that unleſs the ſeeds ripen, the ſpecies are loſt; and as the two ſorts with double flowers have not formed any pods in this country, ſo far as I have been able to learn, therefore the ſeeds of theſe muſt be procured from the countries where they naturally grow. Indeed theſe are ſuppoſed to be only varieties, which accidentally ariſe from the ſingle. If this be true, I cannot account for the ſucceſs of thoſe plants which grew at Chelſea, for they were all of the ſame double kind, without the leaſt variation; and this was not from a ſingle experiment, but in three different years when I received the ſeeds, the plants did all of them produce double flowers.

The ſeeds of theſe plants muſt be ſown upon a good hot-bed early in the ſpring; and when the plants are two inches high, they ſhould be carefully taken up, and each planted in a ſmall pot filled with light freſh earth, and plunged into a hot-bed of tanners bark, obſerving to ſhade them till they have taken freſh root, and refreſh them with water as they may require it. After they are well rooted in the pots, they muſt have air every day in proportion to the warmth of the ſeaſon, to prevent their drawing up weak; their waterings ſhould be repeated two or three times a week, but they ſhould not have too much at each time. As theſe plants have climbing ſtalks, they will ſoon grow too tall to remain under common frames, therefore they muſt then be removed into the ſtove, and plunged into the bark-bed; but if their roots have filled the pots, they ſhould be removed into larger, and afterward they muſt be treated in the ſame manner as other plants from the ſame countries.

CLUSIA. Lin. Gen. Plant. 577. Plum. Nov. Gen. 20. tab. 20. The Balſam-tree.

The CHARACTERS are,

It hath an imbricated empalement, compoſed of roundiſh concave leaves which ſpread open; it hath five or ſix large, roundiſh, concave, ſpreading petals. In the bottom is ſituated a globular nectarium, including the germen, which is pervious at the top, from which place the ſtigma ariſes.

It hath a great number of ſtamina, which are ſhorter than the petals, terminated by ſingle ſummits. The oblong oval germen is terminated by a plain ſtar-like ſtigma, with ſix obtuſe indentures. The germen afterward becomes an oval capſule, with ſix furrows, and ſix cells, opening with ſix valves, which ſpread in form of a ſtar, including many angular ſeeds fixed to a column, ſurrounded with pulp.

This genus of plants is ranged in the firſt ſection of Linnæus's twenty-third claſs, intitled Polygamia Monœcia, having male, female, and hermaphrodite flowers on the ſame plant.

The Species are,

1. Clusia (*Flava*) foliis aveniis corollis tetrapetalis. Jacq. Amer. 34. *Cluſia whoſe leaves have no veins, and the flower has four petals.* Terebinthus folio ſingulari, non alato, rotundo, ſucculento flore pallidè luteo. Sloan. Hiſt. Jam. 2. p. 97. *Commonly called Balſam-tree in America.*
2. Clusia (*Venoſa*) foliis venoſis. Lin. Sp. Plant. 510. *Cluſia with veined leaves.* Cluſia flore roſeo minor, fructu flaveſcente. Plum. Nov. Gen. 2.

There are three varieties of the firſt ſort, which differ in the ſize and colour of their flowers and fruit; one hath a white flower and ſcarlet fruit, another hath a Roſe flower and a greeniſh fruit, and a third hath a yellow fruit: but theſe are ſuppoſed to be only ſeminal variations, though Plumier has enumerated them as diſtinct ſpecies; but as the plants have not flowered in England, I can give no particular account of their difference: the ſingular beauty of the leaves of this plant, renders it worthy of a place in every collection of rare plants.

The firſt ſort is pretty common in the Britiſh Iſlands of America, where the trees grow to the height of twenty feet, and ſhoot out many branches on every ſide, garniſhed with thick, round, ſucculent leaves, placed oppoſite. The flowers are produced at the ends of the branches, each having a thick ſucculent cover: theſe are of different colours in different plants, ſome being red, others yellow, ſome white, and ſome green. After the flowers are paſt, they are ſucceeded by oval fruit, which are alſo of different colours in different plants: from every part of theſe trees there exſudes a ſort of turpentine, which is called in the Weſt Indies Hog-gum; becauſe they ſay, that, when any of the wild hogs are wounded they repair to theſe trees, and rub their wounded parts againſt the ſtems of them, till they have anointed themſelves with this turpentine, which heals their wounds. The turpentine of theſe trees is alſo greatly recommended for the cure of ſciaticas, by ſpreading it on a cloth, and applying it as a plaſter to the part affected.

The plants are at preſent very rare in Europe: there were ſome years ago ſome fine plants in the garden of Mr. Parker, near Croyden in Surry; theſe were brought over, growing in tubs of earth from Barbadoes, which is the beſt method of procuring them; for the ſeeds ſeldom ſucceed, and the young plants grow ſo ſlowly, as not to make any figure in ſome years; but in the bringing over the plants, great care ſhould be had, that they do not receive much wet; for as theſe plants have very ſucculent ſtems, moiſture will cauſe them to rot.

The plants are tender, ſo they muſt be conſtantly kept in the ſtove, otherwiſe they will not live through the winter in England; they muſt alſo be watered very ſparingly, eſpecially in winter, for they naturally grow in thoſe parts of the iſlands, where it ſeldom rains, therefore they cannot bear much moiſture.

They may be propagated by cuttings, which muſt be laid to dry when they are cut off from the plants for a fortnight or three weeks, that the wounded part may be healed over, otherwiſe they will rot. When the cuttings are planted, the pots ſhould be plunged into a hot-bed of tanners bark, and now and then gently refreſhed with water: the beſt time for planting theſe cuttings is in June or July, that they may be well rooted before the cold weather comes on in autumn. In winter theſe plants may be placed upon ſtands in the dry ſtove; but if in ſummer they are plunged into the tan-bed, they will make great progreſs, and their leaves will be large, in which conſiſts the great beauty of theſe plants.

The ſecond ſort was diſcovered by the late Dr. Houſtoun, growing naturally at Campeachy, from whence he ſent me ſome dried ſamples and ſeeds: this hath very large oval ſpear-ſhaped leaves, ending in points, which are placed alternate on the branches, and have ſeveral ribs, which go off from the midrib alternate, riſing upward to the ſide of the leaves; and alſo a great number of ſmall veins, running horizontally between theſe ribs. The borders of the leaves are ſawed, and their under ſides are of a ſhining brown colour. The branches are covered with a woolly down, and the flowers are produced in looſe ſpikes at the end of the ſhoots; theſe are ſmaller than thoſe of the former ſort, and are of a Roſe colour. This tree riſes to the height of twenty feet; it is propagated by ſeeds, which muſt be obtained from the countries where the trees naturally grow, for there can be little hopes of obtaining any of the ſeeds in Europe. The plants are tender, ſo muſt be placed in the tan-bed of the bark-ſtove, otherwiſe they will not thrive in this country; and they muſt be treated in the ſame manner as is directed for other tender plants from the ſame countries.

CLUTIA. This genus of plants was conſtituted by the learned Dr. Boerhaave, profeſſor of botany in the univerſity of Leyden, in honour of Augerius Clute, a curious botaniſt.

The Characters are,

It is male and female in different plants. The male flowers have a large ſpreading empalement, compoſed of five oval concave leaves; they have five heart-ſhaped petals, which are ſhorter than the empalement, and ſpread open. They have five exterior nectariums, which are ſituated in a circle at the bottom of the petals; and five interior, which are ſituated within the other, having ſmall apices with a mellous liquor, and five ſtamina ſituated in the middle of the ſtyle, which ſpread horizontally, terminated by roundiſh ſummits: theſe have no germen, but a long truncated ſtyle in the middle of the ſtamina. The female flowers have permanent empalements, and petals like thoſe of the male; theſe have five double exterior nectariums, but no interior; they have a roundiſh germen, ſupporting three bifid reflexed ſtyles the length of the petals, crowned by obtuſe ſtigma: the germen afterward becomes a globular capſule, with ſix furrows, and three cells, each containing a ſingle ſeed.

This genus of plants is ranged in the thirteenth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Gynandria. This ſection and claſs include thoſe plants which have the different ſexes on ſeparate plants, and the male flowers have their ſtamina adhering to the ſtyle.

The Species are,

1. Clutia (*Alaternoides*) foliis ſeſſilibus lineari-lanceolatis floribus ſolitariis erectis. Hort. Cliff. 500. *Clutia with linear ſpear-ſhaped leaves ſitting cloſe to the ſtalks, and ſolitary erect flowers.* Alaternoides Africana telephii legitimi imperati foliis. Hort. Amſt. 2.
2. Clutia (*Pulchella*) foliis ovatis integerrimis, floribus lateralibus. Lin. Sp. Plant. 1042. *Clutia with oval entire leaves, and flowers growing from the ſides of the branches.* Frutex Æthiopicus, portulace folio, flore ex albo vireſcente. Hort. Amſt. 1. p. 177.
3. Clutia (*Eleutheria*) foliis cordato lanceolatis. Flor. Zeyl. *Clutia with heart ſpear-ſhaped leaves.* Ricinus dulcis arboreſcens Americanus, populneâ fronde argenteâ. Pluk. Alm. 321.

The two firſt ſorts are natives of Africa, from whence they were brought to ſome curious gardens in Holland, and have ſince been communicated to moſt of the botanic gardens in Europe. The firſt ſort with male flowers has been long an inhabitant of ſome curious gardens in England; the other with female flowers has been lately introduced.

The ſecond ſort has alſo been ſome years in the Engliſh gardens, where we had not that ſort with male flowers till lately, when I was favoured with one by my learned friend Dr. Job Baſter, of Zirkzee in Holland.

The firſt ſort riſes with a ſhrubby ſtalk to the height of ſix or eight feet, putting out many ſide branches which grow erect; theſe are garniſhed with ſmall, linear, ſpear-ſhaped leaves, placed alternate, ſitting cloſe to the branches: they are of a grayiſh colour and entire. The flowers come out from the joints, at the ſetting on of the leaves: toward the upper part of the branches theſe are ſmall and of a greeniſh white; they appear in June, July, and Auguſt, but being ſmall make no great appearance.

The ſecond ſort riſes about the ſame height with the firſt, but hath a ſtronger ſtem; the branches are garniſhed with oval leaves, which are much larger than thoſe of the firſt ſort, ſtanding upon foot-ſtalks which are an inch long; they are of a ſea green, and entire; the flowers are like thoſe of the firſt ſort in ſhape and colour, but thoſe on the male plants are ſmaller, and grow cloſer together than thoſe of the female, but both are ſuſtained upon ſhort foot-ſtalks. Theſe flowers appear at the ſame time as thoſe of the firſt ſort, and the ſeeds ripen in autumn. I have raiſed ſeveral of theſe plants from ſeeds, which have all proved female, the ſame as the parent plant.

Theſe plants are eaſily propagated by cuttings during any of the ſummer months: if the cuttings are planted in ſmall pots, and plunged into a very moderate hot-bed, and ſhaded from the heat of the ſun in the middle of the day, they will ſoon take root, and ſhould then be inured to the open air, otherwiſe they will draw up very weak: afterward theſe plants may be each put into a ſeparate ſmall pot, and placed in a ſheltered ſituation, where they may remain until the middle of October, or later, if the weather continues mild, when they ſhould be removed into the green-houſe, and placed where they may have the free air in mild weather, for they only require to be protected from froſt, therefore require no warmth in winter; but if the green-houſe is ſhut up too cloſe, or the plants are much ſhaded by others, the tender ſhoots are ſubject to grow mouldy, which deſtroys more of theſe plants than the cold. In ſummer they muſt be placed abroad in a ſheltered ſituation, with other hardy exotic plants.

As theſe plants are always green, they look well in the green-houſe during the winter ſeaſon; and in ſummer, when they are placed in the open air with other exotic plants, they make a pretty variety.

The third ſort grows naturally in India, from whence the ſeeds were brought. This riſes with an upright ſhrubby ſtalk, not more than three or four feet high in England; but in the places where it grows naturally, it riſes upward of twenty feet high, and ſends out many branches at the top, ſo as to form a large ſpreading head: the branches are garniſhed with leaves, ſhaped like thoſe of the black Poplar, which are of a lucid green, and are placed alternate ſtanding upon ſlender foot-ſtalks. As theſe plants have not yet flowered in England, I can give no account of them, but the ſeed-veſſels are very like thoſe of the ſecond ſort.

This plant will live through the winter in an airy glaſs-caſe, without artificial heat; but in that ſituation they ſhould have very little water, for the plants abound with a milky juice like the Euphorbia, ſo muſt at no ſeaſon of the year have too much wet. If theſe plants, when young, are placed in a very moderate warmth in winter, it will greatly forward their growth, but they muſt not have too much heat, for that will force them too much; and when the plants have obtained ſtrength, they may be treated more hardily. This ſort may be propagated by cuttings during the ſummer ſeaſon; but the cuttings ſhould be laid in a dry place for a few days, when they are taken from the old plants, that their wounded parts may dry and be healed over before they are planted. Theſe muſt be planted in ſmall pots filled with light ſandy earth, and plunged into a moderate hot-bed of tanners bark; and if the ſeaſon is very warm, the glaſſes ſhould be ſhaded in the heat of the day, and raiſed up to admit freſh air to the cuttings every day; theſe muſt be ſparingly watered. When they have taken root, and begin to ſhoot, they muſt have a greater ſhare of air, and by degrees be inured to the open air; and when their roots have filled the pots, they ſhould be carefully parted, and each planted in a ſeparate pot of the ſame light ſandy earth; then they ſhould be placed on the back part of the ſtove, behind the other plants, where they may be ſcreened from the ſun till they have taken freſh root, after which they may be brought forward, and expoſed gradually to the open air. In the ſummer they ſhould have free air conſtantly in warm weather, but they muſt be ſcreened from heavy rain; and in winter placed in an airy glaſs-caſe, where they may enjoy the ſun, and during that ſeaſon have very little wet.

CLYPEOLA. Lin. Gen. Plant. 723. Jonthlaſpi. Tourn. Inſt. R. H. tab. 99. Treacle Muſtard.

The CHARACTERS are,

The flower hath a permanent empalement, compoſed of four oblong oval leaves. It hath four oblong entire petals, placed in form of a croſs, and ſix ſtamina which are ſhorter than the petals, two of which ſtanding oppoſite are ſhorter than the other, terminated by ſingle ſummits. In the center is ſituated a roundiſh compreſſed germen, ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes an orbicular pod, which is compreſſed, erect, and indented at the top, with a longitudinal fiſſure, opening in two cells, containing round compreſſed ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifteenth claſs, intitled Tetradynamia ſiliculoſa, the flower having four long and two ſhorter ſtamina, and the ſeeds growing in ſhort pods.

The SPECIES are,

1. CLYPEOLA (*Jonthlaſpi*) ſiliculis unilocularibus monoſpermis. Hort. Cliff. 329. *Clypeola with pods, having but one cell and a ſingle ſeed.* Jonthlaſpi minimum ſpicatum lunatum. Col. Ecp. 1. *Leaſt Buckler Muſtard with ſpiked flowers.*
2. CLYPEOLA (*Maritima*) ſiliculis bilocularibus ovatis diſpermis. Sauv. Monſp. 71. *Clypeola with oval pods having two cells and two ſeeds.* Thlaſpi Alyſſon dictum maritimum. C. B. P. 107.

This genus of plants was named Jonthlaſpi by Fabius Columna, and the ſame title was continued by Dr. Tournefort, and other late writers on botany before Dr. Linnæus, who has altered the name to this of Clypeola.

The firſt ſort is a low annual plant, which ſeldom riſes more than four inches high; the ſlender branches commonly lie proſtrate on the ground; theſe are garniſhed with ſmall leaves, narrow at their baſe, but are broader at their ends, where they are obtuſe. The flowers are produced in ſhort cloſe ſpikes at the extremity of the branches, which are ſmall, yellow, and compoſed of four petals, placed in form of a croſs; theſe are ſucceeded by orbicular compreſſed ſeed-veſſels, each having one cell, containing a ſingle ſeed. It flowers in June and July, and the ſeeds ripen in autumn.

The ſecond ſort is perennial. This ſends out from the root ſeveral ſlender branches, which divide again into many ſmaller, that lie proſtrate, garniſhed with very narrow hoary leaves, ſitting cloſe to the branches. The flowers are produced in ſpikes at the end of the branches; theſe are ſmall, yellow, and ſhaped like thoſe of the other ſort, but the ſpikes terminate in a roundiſh bunch. It flowers in June, and the ſeeds ripen in autumn.

Theſe two ſorts are low plants, which grow naturally in the ſouth of France, Spain, and Italy, and are preſerved in botanic gardens for the ſake of variety, but have little beauty; their leaves and ſtalks are of a hoary white, which is much lighter in the warm countries than in England; theſe are propagated by ſeeds, which ſhould be ſown upon a border of light earth where they are to remain, and will require no other culture, but to thin them if they come up too cloſe, and keep them clean from weeds. The ſeeds may be ſown either in the ſpring or autumn; thoſe which are ſown in autumn will grow much larger, and flower earlier than thoſe which are ſown in the ſpring, and from them there will be a greater certainty of having ripe ſeeds. If the ſeeds ſcatter, the plants will come up, and, if kept clean from weeds, they will thrive without farther care.

The ſecond ſort is a perennial plant, ſo ſhould be ſown upon a warm border and on a dry ſoil. This grows naturally on the borders of the ſea, in the ſouth of France and Italy; but when it is cultivated in a garden, if the ſoil is rich and moiſt, the plants generally grow luxuriant in ſummer, and are thereby too replete with moiſture, ſo that they are frequently killed by the froſt in winter; but when they grow on a poor, dry, gravelly ſoil, their ſtalks will be ſhort, ligneous, and tough, ſo will endure the cold of this climate, and continue ſeveral years. This is propagated by ſeeds, which ſhould be ſown where the plants are deſigned to remain; or if any of them are removed, it ſhould be done when the plants are young, for they do not bear tranſplanting well, when they are grown pretty large.

CNEORUM. Lin. Gen. Plant. 47. Chamelæa. Tourn. Inſt. R. H. 651. tab. 421. Widow-wail.

The Characters are,

The flower hath a ſmall permanent empalement, indented in three parts. It hath three narrow oblong petals, which are erect, and three ſtamina which are ſhorter than the petals, terminated by ſmall ſummits. In the center is ſituated an obtuſe three-cornered germen, ſupporting a firm erect ſtyle, crowned by a trifid ſpreading ſtigma. The germen afterward becomes a globular dry berry, with three lobes, having three cells, each containing one round ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, the flower having three ſtamina and one ſtyle.

We have but one Species of this genus, viz.

Cneorum (*Tricoccum*). Hort. Cliff. 18. Widow-wail. Chamelæa Tricoccos of Dodonæus and Caſpar Bauhin.

This is an humble ſhrub, which ſeldom riſes more than two feet and a half high in this country, but ſpreads out on every ſide with many lateral branches, ſo as to form a thick buſh. The ſtems are ligneous, and almoſt as hard as thoſe of the Box-tree, and the wood is of a pale yellow colour under the bark: the branches are garniſhed with thick ſtiff leaves, of an oblong oval ſhape, about an inch and a half long, and a quarter of an inch broad, of a dark green colour, having a ſtrong vein or rib through the middle. The flowers are produced ſingle from the wings of the leaves, toward the extremity of the branches, which are of a pale yellow colour, compoſed of three petals, which ſpread open, and a round germen at the bottom, having a ſingle ſtyle, which doth not riſe above half the length of the ſtamina, which are three in number, ſtanding erect, and are ſituated between the petals. After the flowers are fallen, the germen becomes a fruit, compoſed of three ſeeds joined together after the ſame manner as thoſe of Tithymalus or Spurge; theſe are firſt green, afterwards turn of a brown colour, and when ripe are black. The flowers begin to appear in May, and are ſucceeded by others during the ſummer months; and, when the autumn proves favourable, theſe ſhrubs will continue in flower till the end of October.

As this is a low evergreen ſhrub, it may be very ornamental, if placed in the front of plantations of evergreen trees and ſhrubs; for as the branches grow pretty compact, and are well garniſhed with leaves, it will hide the ground between the taller ſhrubs better than moſt other plants; and, being a durable ſhrub, will not want to be removed: it riſes better from ſcattered ſeeds, than if ſown with care.

This was formerly preſerved in green-houſes, and thought too tender to live in the open air in England; but of late years people have planted it in the full ground, where it reſiſts the cold of our ordinary winters very well, and is ſeldom injured but by extreme hard froſts; nor do theſe kill the plants which grow upon dry, rocky, or rubbiſhing ſoils, where their ſhoots are generally ſhort and firm; but in moiſt rich ground, where the ſhoots are more luxuriant, they are ſometimes injured.

It is propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, and then the plants will come up the following ſpring; whereas thoſe which are not ſown till the ſpring, will remain a year in the ground, and often miſcarry: theſe ſeeds may be ſown in a bed of common earth, covering them half an inch deep, and will require no other care but to keep the plants clear from weeds the following ſummer; and in the autumn following, the plants may be tranſplanted where they are to remain.

CNICUS. Lin. Gen. Plant. 833. Tourn. Inſt. R. H. 450. tab. 257. Bleſſed Thiſtle.

The Characters are,

The empalement of the flower is compoſed of many oval ſcales, placed over each other; thoſe toward the top are terminated by branching ſpines. The flower is compoſed of ſeveral hermaphrodite florets, which are uniform; theſe are funnel-ſhaped, and cut at the top into five equal ſegments, ſtanding erect, each having five ſhort hairy ſtamina, terminated by cylindrical ſummits. In the center is ſituated a ſhort germen, crowned with down, ſupporting a ſlender ſtyle, terminated by an oblong ſtigma. The germen afterward becomes a ſingle ſeed, crowned with down, and ſhut up in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Æqualis. The plants of this ſection have only hermaphrodite flowers, which are fruitful.

The Species are,

1. Cnicus (*Eriſithales*) caule erecto, foliis inferioribus laciniatis, ſuperioribus integris concavis. Hort. Cliff. 394. *Cnicus with an upright ſtalk, whoſe lower leaves are laciniated, the upper entire and concave.* Cnicus pratenſis, Acanthi folio, flore flaveſcente. Tourn. Inſt. 450.
2. Cnicus (*Spinoſiſſimus*) foliis amplexicaulibus, ſinuato-pinnatis, ſpinoſis, caule ſimplici, floribus ſeſſilibus. Lin. Sp. Plant. 826. *Cnicus with winged, ſinuated, prickly leaves embracing the ſtalk, and flowers ſitting cloſe on the top.* Cirſium Alpinum ſpinoſiſſimum, floribus ochro-leucis inter flaveſcentia folia congeſtis. Haller. tab. 20.
3. Cnicus (*Cernuus*) foliis cordatis, petiolis criſpis ſpinoſis amplexicaulibus, floribus cernuis. Hort. Upſal. 251. *Cnicus with heart-ſhaped leaves, having curled prickly foot-ſtalks which embrace the ſtalks, and a nodding flower.* Carduus foliis ex cordato-lanceolatis, margine ſerratis & ſpinoſis, ſquamis calycum membranaceis, laceris ſpinoſis, capitulis nutantibus. Flor. Sib. 2. p. 47.

The firſt ſort grows naturally in the northern parts of Europe. Mr. Ray found it growing on the Rhine near Baſil. This hath a perennial root, which ſends out many long jagged leaves, ſpreading on every ſide near the ground, ſo as to form a thick tuft; theſe are jagged almoſt to the midrib, in form of a winged leaf. The ſtalks are ſtriated, ſmooth, and riſe above four feet high, dividing at the top into ſmaller branches: the leaves which grow upon the ſtalks are entire, heart-ſhaped, concave, and embrace the ſtalks, and are ſawed on their edges, each indenture ending in a weak ſpine: the ſtalks are terminated by large heads of flowers, growing in cluſters; they are of a whitiſh yellow colour, and incloſed in a ſcaly empalement, and are ſucceeded by ſmall oblong ſeeds, crowned with a briſtly down. It flowers in June, and the ſeeds ripen in autumn.

This ſort may be propagated by ſeeds, or parting the roots; the latter is commonly practiſed where there are any of the plants, but the ſeeds are more eaſily conveyed to a diſtant place. The beſt time to part the roots is in autumn; it delights in ſhade, and requires no farther care but to keep it clean from weeds.

The ſecond ſort grows naturally on the Alps, and on the mountains of Auſtria. This riſes with an upright ſingle ſtalk near four feet high, garniſhed with ſinuated leaves, which are very prickly, and embrace the ſtalks with their baſe. The flowers are produced at the top of the ſtalk, ſurrounded by a cluſter of broad prickly leaves, ſitting cloſe to the ſtalk; they are of a whitiſh yellow, and appear at the ſame time with the former ſort. It is a perennial plant, which may be propagated in the ſame manner as the former, and requires a moiſt ſoil and a ſhady ſituation.

The third ſort grows naturally in Siberia, from whence the ſeeds were ſent to the imperial garden at Peterſburgh, where they ſucceeded, and produced ſeeds, part of which were ſent me by the profeſſor of botany; this hath a perennial root, compoſed of thick fleſhy fibres. The leaves which riſe immediately from the root are near a foot long, and near ſix inches broad in the middle, diminiſhing toward each end, and at a little diſtance from the baſe are much contracted, but are wider at the end; theſe have ſcarce any foot-ſtalks; they are of a deep green on their upper ſide, but white on their under, and ſharply ſawed on their edges. The ſtalks riſe more than ſix feet high, ſending out on each ſide ſmall branches above a foot long; the ſtalks are ſtriated, and of a reddiſh colour; they are garniſhed with heart-ſhaped leaves, which almoſt embrace the ſtalks with their baſe, and are of the ſame colour with thoſe below; each branch is terminated by one large globular head of yellowiſh flowers, included in a ſcaly empalement, each ſcale ending with a ſharp ſpine. This flowers in June, and the ſeeds ripen in autumn. It may be propagated in the ſame manner as the two former ſorts, but requires a moiſt ſoil and ſhady ſituation; and if the weeds are kept down, there will be no farther care required. The inhabitants of Siberia eat the tender ſtalks of this plant, when boiled, inſtead of other vegetables.

This is a perennial plant, which may be propagated by parting the roots: the beſt time for doing of this is in autumn, that the plants may get good root in winter; for thoſe which are tranſplanted in the ſpring, do not flower well the firſt year, unleſs they are planted in a moiſt ſoil. As theſe plants grow very large, they are not proper furniture for ſmall gardens, where they will take up too much room; for they ſhould not be planted nearer than four feet from each other, for if they are too near any other plants, they will rob them of their nouriſhment; for the roots of theſe extend to a great diſtance, ſo that two or three of theſe plants, for variety, are ſufficient for any garden, which may be planted at a diſtance from choicer plants.

It is alſo propagated by ſeeds, which may be ſown in the ſpring on a bed of common ground, in the ſame manner as the other ſorts; and will only require to be thinned, and kept clean from weeds till autumn, when they may be tranſplanted where they are deſigned to remain.

COA. See HIPPOCRATEA.

COAST-MARY. See TANACETUM.

COCCIGRIA. See RHUS.

COCHLEARIA. Lin. Gen. Plant. 720. Tourn. Inſt. R. H. 215. tab. 101. [ſo called of Cochleare, *Lat.* a ſpoon, becauſe the leaves of this plant are hollowed like a ſpoon.] Spoonwort, or Scurvy Graſs.

The CHARACTERS are,

The empalement of the flower is compoſed of four oval concave leaves. The flower hath four petals, placed in form of a croſs, which ſpread open, and are twice as large as the leaves of the empalement; it hath ſix ſtamina, four of which are longer than the other two; theſe are terminated by obtuſe compreſſed ſummits. The germen is heart-ſhaped, ſupporting a ſhort ſingle ſtyle, crowned by an obtuſe ſtigma: this afterward becomes a gibbous, heart-ſhaped, compreſſed pod, faſtened to the ſtyle, having two cells, in each of which are lodged four roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliculoſa. The flowers of this claſs have four long and two ſhort ſtamina, and thoſe of this ſection have very ſhort pods.

The SPECIES are,

1. COCHLEARIA (*Officinalis*) foliis radicalibus ſubrotundis, caulinis oblongis ſubſinuatis. Flor. Lapp. 256. *Scurvy Graſs whoſe lower leaves are roundiſh, and thoſe on the ſtalks oblong and ſinuated.* Cochlearia folio ſubrotundo. C. B. P. 110. *Round-leaved Scurvy Graſs.*
2. COCHLEARIA (*Anglica*) foliis ovato-lanceolatis, ſinuatis. Flor. Ang. 248. *Scurvy Graſs with oval ſpear-ſhaped leaves, which are ſinuated.* Cochlearia folio ſinuato. C. B. P. 110. *Sea Scurvy Graſs.*
3. COCHLEARIA (*Grænlandica*) foliis reniformibus, carnoſis integerrimis. Hort. Cliff. 498. *Scurvy Graſs with kidney-ſhaped leaves, which are fleſhy and entire.* Cochlearia minima ex montibus Walliæ. Sher. Boerh. Ind. alt. 2. p. 10.
4. COCHLEARIA (*Danica*) foliis haſtatis, angulatis. Flor. Suec. 196. *Scurvy Graſs with angular ſpear-ſhaped leaves.* Cochlearia Armorica. H. R. Par. *Daniſh, or Ivy-leaved Scurvy Graſs.*
5. COCHLERIA (*Armoracia*) foliis radicalibus lanceolatis, crenatis, caulinis inciſis. Hort. Cliff. 332. *Scurvy Graſs whoſe lower leaves are ſpear-ſhaped and crenated, and thoſe on the ſtalks jagged.* Raphanus Ruſticanus. C. B. P. 96. *Horſe Radiſh.*
6. COCHLEARIA (*Glaſtifolia*) foliis caulinis cordato-ſagittatis, amplexicaulibus. Hort. Cliff. 332. *Scurvy Graſs whoſe upper leaves are arrow-pointed, heart-ſhaped, and embrace the ſtalks.* Cochlearia altiſſima glaſti folio. Inſt. R. H. 216.

The firſt ſort grows naturally on the ſea-ſhore in the north of England, and in Holland, but is cultivated for uſe in the gardens near London. This is an annual plant, for the ſeeds are ſown, and the plants decay within the compaſs of one year, but the ſeeds ſhould be ſown early in autumn; this hath a fibrous root, from which ariſe many round ſucculent leaves, which are hollowed like a ſpoon; the ſtalks riſe from ſix inches to a foot high; theſe are brittle, and garniſhed with leaves, which are oblong and ſinuated. The flowers are produced in cluſters at the end of the branches, conſiſting of four ſmall white petals, which are placed in form of a croſs, and are ſucceeded by ſhort, roundiſh, ſwelling ſeed-veſſels, having two cells, divided by a thin partition; in each of theſe is lodged four or five roundiſh ſeeds. It flowers in April, and the ſeeds ripen in June, ſoon after which it decays.

This ſort is propagated in gardens for medicinal uſes, which is done by ſowing the ſeeds in July, ſoon after they are ripe, in a moiſt ſhady ſpot of ground; and when the plants are come up, they ſhould be thinned, ſo as to be left at about four inches diſtance each way. The plants that are taken out may be tranſplanted into other ſhady borders, if there is occaſion for them, otherwiſe they may be hoed out (as is practiſed for Onions, Carrots, &c.) and at the ſame time all the weeds may be hoed down, ſo as to clear the plants entirely from them, that they may have room to grow ſtrong. In the ſpring theſe plants will be fit for uſe; and thoſe that are ſuffered to remain will run up to ſeed in May, and perfect their ſeeds in June. If this plant is ſown in the ſpring, the ſeeds ſeldom grow well, therefore the beſt time is ſoon after they are ripe. The plants rarely live after producing ſeeds, ſo that it ſhould be ſown every year, to have it for uſe.

The Sea Scurvy Graſs is alſo uſed in medicine; but this grows in the ſalt marſhes in Kent and Eſſex, where the ſalt water overflows it almoſt every tide, and can rarely be made to grow in a garden, or at leaſt to laſt longer there than one year; but it being eaſily gathered in the places before-mentioned, the markets are ſupplied from thence by the herb-women, who make it their buſineſs to gather herbs.

This ſort differs from the firſt in the ſhape of its leaves, theſe being longer, and ſinuated on their edges. It flowers a little later in the ſeaſon; both theſe ſorts are uſed in medicine.

The little Welch Scurvy Graſs is a biennial plant, and may be preſerved in a garden, if planted in a ſtrong ſoil and a ſhady ſituation. This is preſerved in curious gardens of plants, but is not of any uſe in medicine, though it is by far the warmeſt and moſt pungent of all the ſorts. This grows plentifully in Muſcovy, as alſo in Davis's Streights.

The fourth ſort is a low trailing plant, whoſe ſtalks grow ſix inches long, and lie proſtrate on the ground; the leaves are angular, and in ſhape like thoſe of Ivy. This is found growing naturally in ſome parts of England, and is annual. It flowers and ſeeds about the ſame time as the firſt ſort.

The ſixth ſort is a biennial plant, which uſually grows about a foot and a half high, with upright ſtalks, garniſhed with angular heart-ſhaped leaves, embracing the ſtalks with their baſe; the flowers are produced in looſe ſpikes at the end of the branches; they are very ſmall, white, and are ſucceeded by ſhort ſwelling pods filled with round ſeeds. It flowers in May, and the ſeeds ripen in July and Auguſt. This may be propagated by ſeeds as the common ſort; and if ſown in autumn, will more certainly ſucceed than in the ſpring.

The Horſe Radiſh is propagated by cuttings or buds from the ſides of the old roots. The beſt ſeaſon for this work is in October or February; the former for dry lands, the latter for moiſt; the ground ſhould be trenched at leaſt two ſpits deep, or more if it will allow of it. The manner of planting it is as follows: provide yourſelf with a good quantity of offſets, which ſhould have a bud upon their crowns, but it matters not how ſhort they are; therefore the upper part of the roots which are taken up for uſe, may be cut off about two inches long with the bud to it, which is eſteemed the beſt for planting. Then make a trench ten inches deep, in which you ſhould place the offſets at about four or five inches diſtance each way, with the bud upward, covering them up with the mould that was taken out of the trench: then proceed to a ſecond trench in like manner, and continue the ſame till the whole ſpot of ground is planted. After this, level the ſurface of the ground even, obſerving to keep it clear from weeds, until the plants are ſo far advanced, as to be ſtrong enough to overbear and keep them down. With this management the roots of the Horſe Radiſh will be long and ſtrait, and free from ſmall lateral roots, and the ſecond year after planting will be fit for uſe. 'Tis true, they may be taken up the firſt year, but then the roots will be but ſlender; therefore it is the better way to let them remain until the ſecond year. The ground in which this is planted ought to be very rich, otherwiſe the roots will make but a ſmall progreſs.

COCOS. Lin. Gen. Plant. 1223. The Cocoa Nut.

The Characters are,

There are male and female flowers on the ſame tree. The univerſal ſpatha has one valve. The empalement conſiſts of three ſmall-coloured concave leaves; the flower has three oval ſpreading petals, and ſix ſtamina the length of the corolla, terminated by triangular ſummits. The germen is ſcarce diſcernible, ſupporting three ſhort ſtyles, crowned by obſolete ſtigma; theſe are barren. The female flowers are included in the like ſpatha. The empalement is three-leaved, which is coloured and permanent; they have three petals to the flowers, which are larger than the empalement, and an oval germen without a ſtyle, with a three-lobed ſtigma. The nut is large, triangular, and is perforated by three holes at the end.

This genus is placed by Linnæus in his appendix under the title of Monoica Hexandria, the ſame plants having hermaphrodite and female flowers, the hermaphrodite having ſix ſtamina.

We know but one Species of this genus, viz.

Cocos (*Nucifera*) frondibus pinnatis, foliolis enſiformibus replicatis. Jacq. Hiſt. 168. *Cocoa Nut with winged branches, whoſe ſmall leaves are ſword-ſhaped and folded.* Palma Indica coccifera anguloſa. C. B. P. 502.

This tree is cultivated in both Indies, but is generally ſuppoſed to grow naturally in the Maldives, and other deſart iſlands of the Eaſt-Indies. The trees grow to a great height in their native places, but their ſtems are compoſed of ſtrong fibres like net-work, which lie in ſeveral lamina over each other, out of which come the branches (or rather leaves,) which grow twelve or fourteen feet long. The midrib is garniſhed with ſword-ſhaped ſmall leaves, whoſe borders fold backward: the firſt leaves which puſh out from the nut when planted, are very different from thoſe which are afterward produced; for they are very broad, and have many folds in each: whereas, the after leaves have a ſtrong midrib, of great length, on which the ſmaller lobes are placed alternately; theſe lobes are from ſix to eight or nine inches long, and are almoſt triangular, having very ſharp points, and are very ſtiff. The flowers come out round the top of the trunk of the tree in large cluſters; they are incloſed in a large ſpatha or ſheath, and the nuts afterward are formed in large cluſters; theſe are included in large net-work covers, which adhere cloſely about them; the nut has a hard ſhell, with three holes at the upper end. The kernel is large, ſweet, and the lower part of the ſhell, when firſt taken from the tree, is filled with a pale liquor, which the inhabitants of the countries where the trees grow, call milk, and they are very fond of it. From this milk I have been informed by perſons of credit, there has been exceeding good arrack diſtilled in Jamaica.

The plants are propagated by planting the nuts in ſuch places where they are deſigned to remain; for the plants will not bear tranſplanting, unleſs it is performed while they are very young, for their roots ſhoot deep and wide; ſo that if theſe are cut or broken, the plants ſeldom ſurvive it, which is generally the caſe with moſt of the kind of Palms.

Where any perſons are deſirous of having a plant or two of this ſort, they ſhould procure ſome freſh nuts from the neareſt place of their growth, which, on their arrival in England, ſhould be buried in a warm bed of tanners bark, laying them on one ſide, that the young ſhoot which comes out from one of the three holes may not be injured by wet, covering them about ſix inches deep with the tan. In this ſituation, if the nuts are good, they will put out ſhoots in ſix weeks or two months, ſo ſhould be then carefully taken up, and each planted in a ſeparate pot filled with kitchen-garden earth, and plunged into the tan-bed in the ſtove, where the plants ſhould always remain, for they are too tender to thrive in any other ſituation; but as the plants advance in their growth, they ſhould be ſhifted into larger pots or tubs, being careful not to cut or tear their roots in the operation.

This is one of the moſt uſeful trees to the inhabitants of America, who make many neceſſary utenſils from the ſeveral parts of it. The outer cover of the nuts is made into cordage; the ſhells are converted into drinking bowls; the kernel of the nuts affords them a wholeſome food, and the milk a cooling liquor. The leaves of the tree are uſed for thatching of their houſes, and are alſo wrought into baſkets, and many other things which are made of Oſiers in Europe.

COCCOLOBA, Sea-ſide Grape.

The Characters are,

The empalement is of one leaf, cut into five parts, which ſpread open and are permanent. The flower has no corolla, but hath eight awl-ſhaped ſpreading ſtamina, terminated by roundiſh twin ſummits. It has an oval three-cornered germen, ſupporting three ſhort ſpreading ſtyles, crowned by ſimple ſtigmas. The empalement afterward becomes a thick berry, incloſing an oval-

pointed nut, with one cell, having a ſingle ſeed of the ſame form.

This genus of plants is ranged in the third ſection of Linnæus's eighth genera, intitled Octandria Trigynia, the flowers having eight ſtamina and three ſtyles.

The Species are,

1. Coccoloba (*Uvifera*) foliis cordato-ſubrotundis nitidis. Lin. Sp. 523. *Sea-ſide Grape with neat, roundiſh, heart-ſhaped leaves.* Guajabara racemoſa, foliis coriaceis ſubrotundis. Plum. Nov. Gen.
2. Coccoloba (*Rubeſcens*) foliis orbiculatis pubeſcentibus. Lin. Sp. 523. *Sea-ſide Grape with orbicular hairy leaves.* Scortea arbor Americana, ampliſſimis foliis averſa parte nervis extantibus. Pluk. Phyt. 222. f. 8.
3. Coccoloba (*Punctata*) foliis lanceolato-ovatis. Lin. Sp. 523. *Sea-ſide Grape with oval ſpear-ſhaped leaves.* Uvifera arbor Americana, fructu aromatico punctato. Pluk. Alm. 394.
4. Coccoloba (*Excoriato*) foliis ovatis, ramis quaſi excorticatis. Lin. Sp. 524. *Sea-ſide Grape with oval leaves, and the branches caſting their bark.* Guajabara alia racemoſa, foliis oblongis. Plum. Icon. 146. f. 1. *Called Mountain Grape.*
5. Coccoloba (*Tenuifolia*) foliis ovatis membranaceis. Amœn. Acad. 5. p. 397. *Sea-ſide Grape with oval membranaceous leaves.*

The firſt ſort riſes with many ligneous ſtems to the height of ten or twelve feet, having ſeveral knots or joints, covered with a gray bark: at each joint is ſet on one large, roundiſh, ſmooth leaf, a little indented at the top. The flowers come out from the foot-ſtalks of the leaves, in long bunches like thoſe of Currants; they have no petals, but the empalement is cut into five ſegments, including eight awl-ſhaped ſtamina, terminated by twin ſummits. The germen afterward becomes a ſucculent berry, including an oval-pointed nut, having one ſeed of the ſame form.

The ſecond ſort ſeldom riſes ſo high as the firſt, but divides into ſeveral lateral branches, garniſhed with large roundiſh leaves, having ſeveral deep veins; the flowers and fruit come out from the ſide of the branches in like manner as thoſe of the firſt, but are larger.

The third ſort is a lower ſhrub than either of the former; the leaves are oval and ſpear-ſhaped; the fruit is ſmaller, ſomewhat aromatic, and ſpotted; theſe proceed from the ſide of the branches in like manner as the former ſorts.

The fourth ſort grows to a much larger ſize than any of the other; the leaves of this are much larger, of an oblong oval form, very ſmooth, and of a lucid green: from the wings of the leaves, the flowers and fruit are produced, which are in form like thoſe of the other ſorts, but are larger.

The fifth ſort is of humbler growth than either of the former; the leaves are membranaceous, of an oval form; the flowers and fruit are ſmaller than thoſe of the other ſorts. Theſe plants all grow naturally in the warm iſlands of America; ſome of them on the ſea-ſhores, where they form very cloſe, almoſt impenetrable thickets; the fruit of the firſt ſort are frequently eaten by the inhabitants of the iſlands, but eſpecially by the negroes. Thoſe of the other ſorts are food for birds.

The plants of all the ſorts are eaſily propagated by ſeeds, when they can be obtained freſh from the places of their natural growth (for none of the ſorts have as yet produced either fruit or flowers in England.) The ſeeds ſhould be ſown in ſmall pots filled with earth from the kitchen-garden, and plunged into a hot-bed. If the ſeeds are good, and the bed of a proper temperature of warmth, the plants will appear in five or ſix weeks after, which will be fit to tranſplant in about a month after; when they ſhould be ſhaken out of the pots, ſeparating their roots carefully, and each planted in a ſeparate ſmall pot filled with the like earth, plunging them into a hot-bed of tanners bark, being careful to ſhade them in the day-time, until they have taken new root; after which they ſhould be treated in the ſame way as other tender exotic plants, which require to be kept conſtantly in the bark-ſtove.

CODLIN-TREE. See Malus.

COFFEA. Lin. Gen. Plant. 209. Juſſ. Act. Reg. Scien. 1713. Jaſminum. Com. Cat. The Coffee-tree.

The Characters are,

The flower hath a ſmall empalement divided into four parts, ſitting upon the germen. It hath one petal which is funnel-ſhaped, having a narrow cylindrical tube, which is much longer than the empalement, but is plain at the top, where it is indented in five parts. It hath five ſtamina which are faſtened to the tube, and are terminated by long ſlender ſummits. The roundiſh germen ſupports a ſingle ſtyle, crowned by two thick reflexed ſtigmas. The germen afterward becomes an oval berry, containing two hemiſpherical ſeeds, plain on one ſide, and convex on the other.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle; it hath been generally included in the genus of Jaſmines; but as the flowers of Jaſmine have but two ſtamina, ſo by Linnæus's ſyſtem, this is ſeparated and ranged in another claſs.

We have but one Species of this genus, viz.

Coffea (*Arabica.*) Hort. Cliff. 59. The Coffee-tree. Jaſminum Arabicum Caſtaneæ folio, flore albo odoratiſſimo, cujus fructus Coffea in officinis dicuntur nobis. Juſſ. Act. Par. 1713.

This tree is ſuppoſed to be a native of Arabia Felix, where it was firſt cultivated for uſe, and to this day, is the country from whence the beſt Coffee is brought to Europe, though the plant is now propagated in many parts of India and America; but the produce of thoſe countries being greatly inferior to that of Arabia, hath occaſioned its preſent diſrepute in England, ſo that it is ſcarce worth importing; but this might be remedied, if the Coffee planters in the Weſt Indies could be prevailed on to try a few experiments, which I ſhall hereafter propoſe, being founded on thoſe which have been made in England, upon the berries produced here. But I ſhall firſt treat of the plant, with its culture in England.

This is a low tree in the native country of its growth, where it ſeldom riſes more than ſixteen or eighteen feet high, but in England I have not ſeen any above ten or twelve. The main ſtem grows upright, and is covered with a light brown bark; the branches are produced horizontally and oppoſite, which croſs each other at every joint, ſo that every ſide of the tree is fully garniſhed with them: the lower branches being the longeſt, the others gradually decreaſing to the top, form a ſort of pyramid; the leaves are alſo produced oppoſite; theſe when fully grown, are about four or five inches long, and one inch and a half broad in the middle, decreaſing toward each end; the borders are waved, and the ſurface is of a lucid green. The flowers are produced in cluſters at the baſe of the leaves, ſitting cloſe to the branches; theſe are tubulous, ſpread open at the top, where they are divided into five parts, and are of a pure white, with a very grateful odour, but of ſhort duration: they are ſucceeded by oval berries, which are firſt green, when fully grown, they turn red, and afterward change to black when fully ripe; theſe have a thin pulpy ſkin, under which are two ſeeds joined, which are flat on the joined ſides, with a longitudinal furrow, and convex on their outer ſide.

As the Coffee-tree is an Evergreen, it makes a beautiful appearance at every ſeaſon in the ſtove, but particularly when it is in flower; and alſo when the berries are red, which is generally in the winter; ſo that they continue a long time in that ſtate, therefore there is ſcarce any plant that more deſerves a place in the ſtove than this.

It is propagated by the berries, which muſt be ſown ſoon after they are gathered from the trees, for if they are kept out of the ground a ſhort time they will not grow. I have frequently ſent the berries abroad by the poſt, but when they have been a fortnight in their journey they have all failed; and this has conſtantly happened every where, for the berries which were ſent from Holland to Paris did not grow, nor did thoſe which were ſent from Paris to England grow; ſo that wherever theſe trees are deſired, the young plants muſt be ſent, if it be at any diſtance from the place where they grow.

The berries ſhould be planted in ſmall pots, filled with light kitchen-garden earth, and plunged into a hot-bed of tanners-bark; the pots muſt be watered gently once or twice a week, but the earth muſt not be too moiſt, leſt it rot the berries. If the bed be of a proper temperature of warmth, the plants will appear in a month or five weeks time, and in about two months more will be fit to tranſplant. For as many of the berries will produce two plants, ſo the ſooner they are parted, the better their roots will be formed; for when they grow double till they have made large roots, they will be ſo intermixed and entangled, as to render it difficult to ſeparate them without tearing off their fibres, which will greatly prejudice the plants. When theſe are tranſplanted, they muſt be each put into a ſeparate ſmall pot, filled with the ſame earth as before, and plunged into the tan-bed again; which ſhould be ſtirred up to the bottom, and if required, ſome new tan ſhould be mixed with it, to renew the heat. Then the plants ſhould be gently watered, and the glaſſes of the hot-bed muſt be ſhaded every day till they have taken new root; after which the plants ſhould have free air admitted to them every day, in proportion to the warmth of the ſeaſon: during the ſummer they will require frequently to be refreſhed with water, but they muſt not have it in too great plenty: for if their roots are kept too moiſt, they are very ſubject to rot, then the leaves will ſoon decay and drop off, and the plants become naked; when this happens, they are ſeldom recovered again. The firſt ſign of theſe plants being diſordered, is, their leaves ſweating out a clammy juice, which attracts the ſmall inſects, that too frequently infeſt the plants in ſtoves; when they are not in health, theſe inſects cannot be deſtroyed, till the plants are recovered to vigour: for although the plants are ever ſo carefully waſhed and cleaned from them, yet they will be ſoon attacked by them again, if they are not recovered to health, for theſe inſects are never ſeen upon any of the plants while they are in perfect vigour; but when they are diſordered, they ſoon ſpread over all the leaves and tender parts of the plants, and multiply exceedingly; ſo that upon the firſt attack, the plants ſhould be ſhifted into freſh earth, and all poſſible care taken to recover them, without which all the waſhing and cleaning of the plants will be to little purpoſe. The diſorders attending the Coffee-trees, generally proceed from either being put into pots too large for them, nothing being of worſe conſequence than over potting them; or from the earth being too ſtiff, or over-hung by other plants, or being over watered. If theſe are properly taken care of, and the ſtove kept always in a proper temperature of heat, the plants will thrive, and produce plenty of fruit.

I have made trial of ſeveral compoſitions of earth for theſe plants, but have found none of them equal to that of a kitchen-garden, where the ſoil is naturally looſe, and not ſubject to bind; and if it has conſtantly been well wrought and properly dunged, this without any mixture is preferable to any other.

The plants ſhould not be too often tranſplanted, for that will greatly retard their growth. If they are new potted twice a year at moſt, it will be ſufficient; though unleſs the plants make great progreſs, they will not require to be removed oftener than once in a year, which ſhould be in ſummer, that they may have time to get good roots again before winter. During the warm weather in ſummer, theſe plants ſhould have a large ſhare of air, but they muſt not be wholly expoſed abroad at any ſeaſon: for although they may have the appearance of thriving in the open air during the heat of ſummer, yet when they are removed into the ſtove again, their leaves will fall off, and the plants will make but an indifferent appearance the following winter, if they ſhould ſurvive it: therefore it is the better method to keep them conſtantly in the ſtove, and admit a proportionable ſhare of air to them every day, according to the heat of the ſeaſon; they will require water two or three times a week in warm weather, but in the winter they muſt have it more ſparingly; and the ſtove in which they are placed, ſhould be kept to the heat aſſigned for the Ananas upon the botanical thermometors.

There has been ſome of theſe plants propagated by cuttings, and alſo from layers; but theſe are long before they make roots, and the plants ſo raiſed, are never ſo ſtrong and thriving as thoſe which ariſe from berries; therefore where the berries can be procured, it is much the beſt method to propagate the plants by ſeeds.

When the plants are tranſplanted, their roots ſhould not be too much cut or trimmed; the decayed or rotten fibres ſhould be pruned off, and thoſe which are cloſely matted to the ſide of the pots ſhould be trimmed, but not cut too near to the ſtem; for the old fibres do not put out new roots very kindly, eſpecially thoſe which are become tough, ſo that there ſhould always be a ſufficient number of young fibres left to ſupport the plants, till new ones are produced.

The Coffee plants were firſt carried from Arabia to Batavia by the Dutch, and from thence they were afterward brought to Holland, where great numbers of the plants were raiſed from the berries which thoſe plants produced, and from theſe moſt of the gardens in Europe have been furniſhed. A great number of theſe young plants, which were raiſed at Amſterdam, were ſent to Surinam by the proprietors of that iſland, where the trees were ſoon propagated in great plenty, and from thence the plants have been diſperſed to moſt of the iſlands in the Weſt Indies: for as the plants raiſed from the berries, produce fruit in two years from planting, and in the warm countries ſooner, ſo plantations of theſe trees may be ſoon made in any of thoſe countries, where the temperature of the air is proper for their production, but the trees will not grow in the open air any where if there is a winter: ſo that in all countries without the tropics, they cannot be expected to grow abroad.

The French have made great plantations of theſe trees in their ſettlements in the Weſt Indies, and alſo in the iſle of Bourbon, from whence they import great quantities of Coffee annually to France; which although greatly inferior in quality to the Arabian, yet it is conſumed, otherwiſe they would not continue that branch of commerce. In the Britiſh colonies of America, there have been ſome large plantations made of Coffee-trees: and it was propoſed to the parliament, ſome years paſt, to give a proper encouragement for cultivating this commodity in America, ſo as to enable the planters to underſell the importers of Coffee from Arabia. Accordingly there was an abatement of the duty payable on all the Coffee which ſhould be of the growth of our colonies in America, which at that time was ſuppoſed would be a ſufficient encouragement for the planters to improve this branch of commerce: but the productions of thoſe countries, being greatly inferior in quality to that of Arabia, hath almoſt ruined the project; and unleſs the planters can be prevailed on to try ſome experiments to improve its quality, there can be little hope of its becoming a valuable branch of trade; therefore I ſhall beg leave to offer my ſentiments on this article, and ſincerely wiſh what I have to propoſe may be found uſeful for the inſtruction of the Coffee planters; for as my opinion is founded upon experiments, ſo it is not mere theory or ſuppoſition.

The great fault of the Coffee which grows in America, and alſo in the iſle of Bourbon, is the want of flavour, or having a diſagreeable one. The berries are much larger than thoſe which are imported from Arabia, and conſequently have not ſo much ſpirit or flavour. This may be owing to ſeveral cauſes, the firſt is that of its growing in a ſoil too moiſt; which is always known to increaſe the ſize of fruit and vegetables, but their quality is greatly diminiſhed thereby. The ſecond is from the gathering of the berries too ſoon; for I have been credibly informed, that it is the conſtant practice of the planters, to gather the fruit when it is red: at which time the berries are much larger, and of greater weight, than thoſe which are permitted to ripen perfectly on the trees, which is not till they are turned black, and their outer pulp becomes dry, and the ſkins ſhrink: then the berries are much ſmaller than before, and the outer cover will eaſily ſeparate from the berry; which I have always been informed, has been the complaint of the planters, that this was with great difficulty and trouble effected. A third cauſe I imgine may be in the drying of the berries when gathered; which muſt be conſtantly attended to, for they cannot be too much expoſed to the ſun and air in the day time, but they muſt be every evening removed under cover, and carefully ſcreened from dews and rain; nor ſhould they be placed near any ſort of liquid or moiſture, for theſe berries are very ſubject to imbibe moiſture, and thereby acquire the flavour of the liquid; or if it be pure water, the berries will be enlarged, and the flavour diminiſhed by it, as from many experiments I can affirm: for a bottle of rum being placed in a cloſet, in which a caniſter of Coffee berries cloſely ſtopped, was ſtanding on a ſhelf at a conſiderable diſtance, in a few days had ſo impregnated the berries, as to render them very diſagreeable; the ſame alſo has happened by a bottle of ſpirits of wine ſtanding in the ſame cloſet with Coffee and Tea, both which were in a few days ſpoiled by it. Therefore from many experiments of this nature, which I have made with Coffee, it appears to me that it ſhould never be brought over in ſhips freighted with rum, nor ſhould the berries be laid to dry in the houſes where the ſugars are boiled, or the rum diſtilled. I have alſo been informed by a gentleman who has a very good eſtate in Jamaica, and who has lived many years in that iſland, that the planters frequently boil the Coffee berries before they are dried. As this information comes from a gentleman of great ſkill and veracity, ſo I cannot doubt of the fact; and if ſo, this alone is ſufficient to ſpoil the beſt Coffee in the world; ſo that I am at a loſs to gueſs the reaſon for this practice, which, as it appears to me, can only be intended to increaſe the weight, therefore muſt be imputed to avarice, the bane of every public good.

There was ſome time paſt an imperfect account printed in the papers, of the cauſe why the American Coffee was not ſo good as that which comes from Arabia; in which it is ſuppoſed, that the goodneſs of the latter proceeded from the length of time which the berries had been kept: therefore the author propoſes that the American Coffee berries ſhould be many years kept, which he ſays will render them equally good. This is contrary to all the experience I have had, or can learn, from thoſe who have ſeen the whole progreſs of Coffee in Arabia, with their manner of drying and packing it to ſend abroad; for two gentlemen who had lived there ſome years aſſured me, that the berries, when firſt gathered, were much better than thoſe which are kept any time. And a curious gentleman who reſided in Barbadoes two years, alſo told me, that he never drank better Coffee in any part of the world, than what he made from the freſh berries which he gathered himſelf, and roaſted as he had occaſion for them; which is alſo confirmed by the trials which have been made with the berries which grow in the ſtoves in England, which make a better flavoured liquor, than the beſt Arabian Coffee berries which can be procured in England; therefore I wiſh thoſe who are inclinable to cultivate theſe trees in America, would make choice of a ſoil rather dry than moiſt, in which the trees will not make ſo great progreſs as thoſe which grow in a wet ſoil, nor will the produce be ſo great; but as the quality of the produce will be ſo much improved, it will certainly be of greater advantage to them.

The next thing is, to permit the berries to remain ſo long upon the trees, till their ſkins are ſhrivelled and turned very black; which it is true will greatly diminiſh their weight, but then the commodity will be more than double the value of that which is gathered ſooner.

When the berries are fully ripe, they ſhould be gathered, or rather ſhaken from the trees, when they are perfectly dry, and ſpread abroad upon cloths in the ſun to dry, carrying them every evening under cover, to prevent the dews from falling on them, or the rain if any ſhould happen: and when they are perfectly dry, they ſhould be carefully packed up in cloths or bags, three or four times double, and conſequently kept in a dry ſituation: and when they are ſhipped for England, it ſhould be on board thoſe veſſels which have no rum, leſt the Coffee ſhould imbibe the flavour, which cannot be prevented when ſtowed in the ſame place. For ſome years paſt, a Coffee ſhip from India had a few bags of pepper put on board, the flavour of which was imbibed by the Coffee, and the whole cargo ſpoiled thereby.

As the quantity of Coffee now conſumed in Britain is very much increaſed of late years, ſo it will certainly be worthy of public conſideration, how far it may be neceſſary to encourage the growth of it in the Britiſh colonies: and certainly it deſerves the attention of the inhabitants of thoſe colonies, to improve this commodity to the utmoſt of their power; and not to have ſo much regard to the quantity, as to the quality of it; for although the former may appear to have the advantage of the latter in point of profit, yet the goodneſs of every commodity muſt always claim the preference, and thereby will be found of more laſting advantage to the cultivator.

COIX. Lin. Gen. Plant. 927. Lachryma Jobi. Tourn. Inſt. R. H. 531. tab. 306. Job's Tears.

The CHARACTERS are,

It hath male and female flowers on the ſame plant; the male flowers are diſpoſed in a looſe ſpike; the chaff of theſe have two valves, incloſing two flowers, the valves are oblong and bearded; the petal has two oval valves, the length of the chaff, with narrow beards: theſe have each three hairy ſtamina, terminated by oblong four-cornered ſummits. There are a few female flowers ſituated at the baſe of the male ſpike in the ſame plant, theſe have bivalvular chaff; the valves are roundiſh, thick, and ſmooth; the petal hath two oval valves, the outer being larger and bearded at both ends. They have a ſmall oval germen, ſupporting a ſhort ſtyle divided into two parts, crowned by two horned ſtigmas which are longer than the flower, and covered with fine hairs; the germen afterward becomes a hard, roundiſh, ſmooth ſeed.

This genus of plants is ranged in the third ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Triandria. The plants of this claſs have male and female flowers on the ſame plant, and the flowers of this ſection have three ſtamina.

The SPECIES are,

1. COIX (*Lachryma Jobi*) ſeminibus ovatis. Hort. Cliff. 434. *Coix with oval ſeeds.* Lachryma Jobi. Cluſ. Hiſt. p. 2. *Job's Tears.*
2. COIX (*Angulatis*) ſeminibus angulatis. Hort. Cliff. 438. *Coix with angular ſeeds.* Lachryma Jobi Americana altiſſima, Arundinis folio & facie. Plum. Cat.

The firſt ſort grows naturally in the iſlands of the Archipelago, and is frequently cultivated in Spain and Portugal, where the poor inhabitants grind the grain to flour in a ſcarcity of corn, and make a coarſe ſort of bread of it.

This is an annual plant, which ſeldom ripen its ſeeds in England, unleſs the ſeaſon proves very warm; from a thick fibrous root is ſent out two or three jointed ſtalks, which riſe near three feet high, garniſhed with ſingle, long, narrow leaves at each joint, reſembling thoſe of the Reed; at the baſe of the leaves come out the ſpikes of flowers, ſtanding on ſhort foot-ſtalks; theſe ſpikes are compoſed of male flowers only, and below them is ſituated one or two female flowers; the male flowers decay ſoon after they have ſhed their farina; but the germen of the female flowers ſwell to a large oval ſeed, which is hard, ſmooth, and of a gray colour, greatly reſembling the ſeeds of Gromwel, from whence this plant has been by ſeveral writers titled Lithoſpermum.

Thoſe who are deſirous to cultivate this plant in England, may procure the ſeeds from Portugal, theſe ſhould be ſown on a moderate hot-bed in the ſpring, to bring the plants forward, and afterward tranſplant them on a warm border, allowing each two feet room at leaſt, and when the plants have taken root, they will require no farther care, but to keep them clean from weeds. Theſe will flower about Midſummer, and in warm ſeaſons, the ſeeds will ripen at Michaelmas. There is a variety of this with much broader leaves, which I received from Smyrna ſome years paſt, which did not perfect ſeeds here, ſo I cannot ſay whether it is only a variety, or a different ſort from this.

The ſecond ſort will grow to the height of ſeven or eight feet, and the ſtems become hard, like the Reed, or Indian Corn: theſe branch out, and produce ſeveral ſpikes of flowers; but this ſort will not live in the open air in England, therefore ſhould be plunged into the bark-ſtove, where it will live through the winter, and produce ripe ſeeds the ſecond year; and may be continued longer, if deſired.

COLCHICUM. Lin. Gen. Plant. 415. Tourn. Inſt. R. H. 348. tab. 181, 182. [So called from Colchos, a province of the Levant (now called Mingrelia, becauſe this plant was formerly very common in that place.] Meadow Saffron.

The CHARACTERS are,

The flower hath neither empalement or ſpatha; it hath one petal, riſing with an angular tube from the root, which is divided at the top into ſix oval, concave, erect ſegments; it hath ſix ſtamina which are ſhorter than the petal, terminated by oblong ſummits having four valves. The germen is ſituated in the root, ſupporting three ſlender ſtyles the length of the ſtamina, crowned by reflexed channelled ſtigmas; the germen afterward becomes a capſule with three lobes, having a ſeam on the inſide, dividing it into three cells, which contain ſeveral roundiſh rough ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſixth claſs, intitled Hexandria Trigynia, the flower having ſix ſtamina and three ſtyles.

The SPECIES are,

1. COLCHICUM (*Autumnale*) foliis planis lanceolatis, erectis. Hort. Cliff. 140. *Colchicum with plain, erect, ſpear-ſhaped leaves.* Colchicum commune. C. B. P. 67. *Common Meadow Saffron.*
2. COLCHICUM (*Montanum*) foliis linearibus, patentiſſimis. Lin. Sp. Plant. 342. *Meadow Saffron with very narrow ſpreading leaves.* Colchicum Montanum anguſtifolium. C. B. P. 68. *Narrow-leaved Mountain Meadow Saffron.*
3. COLCHICUM (*Variegatum*) foliis undulatis patentibus. Hort. Cliff. 140. *Meadow Saffron with waved ſpreading leaves.* Colchicum Chionenſe, floribus fritillariæ inſtar teſſulatis, foliis undulatis. Mor. Hiſt. 2. p. 341. *Meadow Saffron of Chios, with chequered flowers like Fritillary, and waved leaves.*
4. COLCHICUM (*Teſſulatum*) foliis planis patentibus. *Colchicum with plain ſpreading leaves.* Colchicum floribus fritillariæ inſtar teſſulatis, foliis planis. Mor. Hiſt. 2. p. 341. *Meadow Saffron, with chequered flowers like Fritillary, and plain leaves.*

There is a greater variety of theſe flowers than any here enumerated, which differ in the colour of their flowers, and other little accidents, which are not laſting, ſo muſt not be ranged as diſtinct ſpecies. But as many of them are cultivated in flower-gardens, I ſhall beg leave to mention thoſe varieties, which are frequently propagated by floriſts. Theſe are moſt of them ſeminal variations from the firſt ſort.

The moſt common Meadow Saffron hath a purpliſh flower.
The Meadow Saffron with white flowers.
Meadow Saffron with ſtriped flowers.
Broad-leaved Meadow Saffron.
Striped-leaved Meadow Saffron.
Many flowered Meadow Saffron.
Meadow Saffron with double purpliſh flowers.
Meadow Saffron with double white flowers.
Meadow Saffron with many white flowers.

The firſt ſort grows naturally both in the weſt and north of England. I have obſerved it in great plenty in the meadows near Caſtle Bromwich, in Warwickſhire, in the beginning of September. The country people call the flowers Naked Ladies, becauſe they come up naked, without any leaves or cover. This hath a bulbous root, about the ſize and ſhape of thoſe of the Tulip, but not ſo ſharp-pointed at the top, the ſkins or cover is alſo of a darker colour. Theſe bulbs are renewed every year, for thoſe which produce the flowers decay, and new roots are formed above. The flowers come out in autumn; theſe ariſe with long ſlender tubes from the root, about four inches high, ſhaped like thoſe of the Saffron, but larger; they are of a pale purple colour, and divided into ſix parts at the top, which ſtand erect; the number of flowers is generally in proportion to the ſize of the roots, from two to ſeven or eight: in March the green leaves appear, theſe are commonly four to a full grown root; they are folded over each other below, but ſpread open above ground, ſtanding croſs-ways: they are of a deep green, and when fully grown, are five or ſix inches long, and one and a half broad. The ſeed-veſſel comes out from between the leaves in April, and the ſeeds ripen in May, ſoon after which the leaves decay.

The other varieties of this, are ſuppoſed to have accidentally riſen from the ſeeds of this; ſo that thoſe who are deſirous to obtain a variety of theſe flowers, ſhould propagate them from ſeeds, by which method there may be a greater variety raiſed.

The ſecond ſort grows naturally on the mountains in Spain and Portugal. This hath a ſmaller root than the firſt, and a darker coat; the flowers appear in Auguſt or September; theſe are cut into ſix long narrow ſegments, of a reddiſh purple colour, having ſix yellow ſtamina. The leaves of this ſort come up ſoon after the flowers decay, and continue green all the winter, like the Saffron; theſe are long, narrow, and ſpread on the ground; in June theſe decay like the firſt ſort.

The third and fourth ſorts grow naturally in the Levant, but are commonly cultivated in the Engliſh gardens. Theſe flower at the ſame time as the firſt ſort, and the green leaves come up in the ſpring. The root of one of theſe ſpecies, is ſuppoſed to be the Hermodactyl of the ſhops.

Theſe are all very pretty varieties for a flower-garden, producing their flowers in autumn, when few other plants are in beauty; and are therefore, by ſome, called Naked Ladies. The green leaves come up in the ſpring, which are extended to a great length in May, then the green leaves begin to decay; ſoon after which time, is the proper ſeaſon to tranſplant their roots; for if they are ſuffered to remain in the ground till Auguſt, they will ſend forth freſh fibres; after which time it will be too late to remove them. The roots may be kept above ground until the beginning of Auguſt; at which time, if they are not planted, they will produce their flowers as they lie out of the ground, but this will greatly weaken their roots. The manner of planting their roots being the ſame as TULIPS, &c. I ſhall forbear mentioning it here, referring the reader to that article: and alſo for ſowing the ſeeds, by which means new varieties may be obtained, I ſhall refer to the article XIPHION; where will be proper directions for this work.

COLD ſignifies ſomething devoid of heat, or which does not contain in it any particles of fire; according to which definition, cold is a mere negative term. And this is agreeable to the ſentiments of moſt of our modern philoſophers, who ſuppoſe cold to conſiſt in a mere privation or diminution of heat.

Others much on the ſame principle, define cold, to be that ſtate of the minute parts of a body, wherein they are agitated more ſlowly and faintly than thoſe of the organs of feeling. And in this ſenſe, cold is a mere term of relation: and hence the ſame body becomes liable to be perceived hot or cold, as the particles of it are in greater or leſſer degree of motion than thoſe of the ſenſible organ.

Heat is ſuppoſed to conſiſt in a particular motion of the parts of the body; and hence the nature of cold, which is its oppoſite, is eaſily deducible; for we find that cold extinguiſhes, or rather abates heat. Whence it ſeems to follow, that thoſe bodies are cold, which check and reſtrain the motion of the particles, wherein heat conſiſts.

There are three kinds of bodies that can do this; viz. either thoſe whoſe particles are perfectly at reſt; or thoſe whoſe particles are indeed agitated, but with leſs violence than thoſe of the hot body to which they are applied; or, laſtly, ſuch whoſe particles have a motion proper for exciting the ſenſation of heat, but move with a different determination, ſo as to retard and change the motion of the particles of the organ.

Hence three different kinds of cold, or cold bodies, do proceed.

The 1ſt, That cold is common to all hard bodies; which conſiſts in the reſt of their parts.

The 2d is, That which riſes from plunging any part of the body in water; which conſiſts in this, that the parts of our præcordia, being more briſkly agitated than thoſe of the fluid, communicate part of their motion to it.

The 3d, The cold felt on the collection of warm air with a pan, or in blowing hot breath out of our mouth with the lips cloſe ſhut; which conſiſts in this, that the direct motion of the particles of air does, in ſome meaſure, change and rebate the motion and determination of the parts of the body: and hence it is, that a cold body cannot cool another without heating itſelf.

Hence alſo it proceeds, that the more the parts of a frigid body are at reſt, the more the particles of a warm body that is applied to heat them, muſt loſe of their motion, and conſequently of their heat.

Thus, there being more quieſcent parts in marble than in wood, which is full of pores and interſtices, the marble is felt colder than the wood: and hence alſo we may underſtand why air near marble, and other denſe bodies, feels ſomewhat colder than in other places.

On this principle the two latter kinds of cold appear ſomewhat more than privations: the particles inducing the cold may be eſteemed real frigorific corpuſcles; and coldneſs may be deemed a real quality, as well as hotneſs. Theſe particles do not only check the agitation of thoſe continually diffuſed from the inner parts of an animal to the outer; but having an elaſtic power, they bend, and hang about the filaments of the body, pinch and ſqueeze them; and hence is that acute pungent ſenſation called cold.

That cold is more than a mere relation or compariſon, is evident from its having real and poſitive effects; ſuch as freezing, congelation, condenſation, rarefaction, burſting, &c.

Dr. Clarke takes cold to be owing to certain nitrous and other ſaline particles, endued with particular figures proper to produce ſuch effects. Hence ſal-armoniac, ſalt petre, ſalt of urine, and many other volatile and alkalizate ſalts, mixed with water, increaſe its degree of cold very ſenſibly.

Hence alſo comes that popular obſervation, that cold prevents corruption; which, however, muſt not be admitted without an exception; ſince if an hard porous body have its interſtices filled with water, and this be too much dilated by freezing, the including body will be burſt. And thus it is that cold proves deſtructive to the parts of ſome plants: as it happened in the winters, anno 1728, and 1739-40, in ſeveral trees, whoſe trunks were much expoſed to the ſouth-weſt, the ſap being thereby rarefied by the warmth of the ſun, which, for ſeveral days, at the beginning of the ſevere froſt, ſhone with an uncommon heat, and the nights coming on to extreme cold, whereby the rarefied ſap was ſo ſuddenly condenſed, that the ſap-veſſels could not contain it, and thereby burſt off the bark of many trees almoſt from top to bottom; and this chiefly on the ſouth-weſt ſide of the trees; as it did of ſeveral large trees in the phyſic-garden at Chelſea; and ſeveral Pear, and other fruit-trees, in the nurſeries of Mr. Francis Hunt at Putney, &c. And thus it is that great quantities of trees are rendered ſhaken, and the timber, when cut, of little value; which is generally the caſe in very ſevere winters. In the hard froſt of the year 1739-40, there was great damage done to the Oak-timber in moſt parts of England, by the froſt penetrating to the ſap-veſſels of the trees; and by freezing the ſap, the veſſels could not contain it, but burſt with great noiſe; ſo that the woods reſounded with a noiſe ſomewhat like the breaking down of the branches of trees, when they are lopping.

Dr. Boerhaave ſays, That there is no ſuch thing in all nature as abſolute cold; that the moſt ſevere he had ever known, was in the year 1728, that then the water would freeze while it ran down his hand; and yet even then the cold was not ſo complete, but that he could make an artificial cold greater by twelve degrees.

Though much might be ſaid as to the effects of cold on plants, I ſhall only conclude with an obſervation of the Reverend Dr. Hales, who, in the concluſion of his excellent treatiſe of Vegetable Statics, ſays; The conſiderable quantity of moiſture, which is perſpired from the branches of trees during the cold winter ſeaſon, plainly ſhews the reaſon why, in a long ſeaſon of cold north-eaſterly winds, the bloſſoms, and tender young-ſet fruit and leaves, are, in the early ſpring, ſo frequently blaſted, viz. by having the moiſture exhaled faſter than can be ſupplied from the trees; for, doubtleſs, moiſture riſes ſlower from the root, the colder the ſeaſon is, though it riſes, in ſome degree, all the winter; as is evident, as he ſays, from his ſixteenth experiment in the ſaid book.

And from the ſame cauſe it is, that the leafy ſpires of Corn are by theſe cold drying winds often faded, and turned yellow; which makes the huſbandman, on theſe occaſions, wiſh for ſnow: which, though it be very cold, yet it not only defends the root from being frozen, but alſo ſcreens the Corn from theſe drying winds, and keeps it in a moiſt, florid, ſupple ſtate.

It ſeems therefore to be a reaſonable direction, which ſome authors, who write on agriculture and gardening give, viz. During theſe cold drying winds, when little dew falls, to water the trees in dry ſoils, in the bloſſoming ſeaſon, and while the young-ſet fruit is tender; and provided there is no immediate danger of a froſt, or in caſe of continued froſt, to take care to cover the trees well, and at the ſame time to ſprinkle them with water; which is imitating nature's method of watering every part.

As to ſloping ſhelters over wall-trees he ſays; I have often found, that when they are ſo broad, as to prevent any rain or dew coming at the trees, they do more harm than good in theſe long eaſterly drying winds, becauſe they prevent the rain and dews falling on them; which would not only refreſh and ſupple them, but alſo nouriſh them: but in caſe of ſharp froſt after a ſhower of rain, theſe ſhelters and other fences muſt needs be of excellent uſe to prevent the almoſt total deſtruction occaſioned by the freezing of the tender parts of vegetables, when they are ſaturated with moiſture.

COLDENIA. Lin. Gen. Plant. 159. This plant was ſo titled by Dr. Linnæus, in honour of Dr. Colden, of North America, who is a very curious botaniſt, and has diſcovered ſeveral new plants which were not known before.

The Characters are,

The empalement of the flower is compoſed of four erect leaves, which are as long as the petal. It hath a funnel-ſhaped flower of one petal, ſpreading at the top, and obtuſe; it hath four ſtamina, which are inſerted in the tube of the petal, terminated by roundiſh ſummits. In the center is ſituated four oval germen, each ſupporting a hairy ſtyle the length of the ſtamina, crowned by permanent ſtigmas. The germen afterward become an oval, compreſſed, rough fruit, with four cells, terminated by four beaks, incloſed by the empalement, each of the cells containing a ſingle ſeed, convex on one ſide, and angular on the other.

This genus of plants is ranged in the third ſection of Linnæus's fourth claſs, intitled Tetrandria Tetragynia, the flower having four ſtamina and four ſtyles.

There is but one Species of this genus, viz.

Coldenia (*Procumbens*). Flor. Zeyl. 79. This is by Dr. Pluknet titled, Teucrii facie biſnagarica tetracoccos roſtrata. Alm. 363.

This is a native of India, from whence the ſeeds have been brought to ſome of the curious botanic gardens. It was ſent me by Dr. Linnæus, profeſſor of botany at Upſal in Sweden. It is an annual plant, whoſe branches trail on the ground; they extend near a foot from the root, and divide into many ſmaller branches, garniſhed with ſhort leaves, ſitting cloſe to them; theſe are deeply crenated on their edges, and have ſeveral longitudinal veins; they are of a glaucous colour, and come out without order. The flowers are produced at the wings of the leaves, growing in ſmall cluſters; theſe have one funnel-ſhaped petal cut into four ſegments at the top; they are of a pale blue colour, and very ſmall; they have four ſtamina and four ſtyles, having hairy ſtigmas. When the flower decays, the germen becomes a fruit, compoſed of four cells, wrapped up in the empalement, each containing a ſingle ſeed.

This plant is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each put into a ſeparate ſmall pot, plunged into a hot-bed of tanners bark, obſerving to ſhade them till they have taken freſh root; after which they ſhould have air admitted to them every day in proportion to the warmth of the ſeaſon, and gently watered two or three times a week in warm weather, but they muſt not have too much moiſture. Theſe plants muſt remain in the hot-bed, where they will flower in June, and the ſeeds will ripen in September.

COLEWORTS. See Brassica.

COLLINSONIA. Lin. Gen. Plant. 38. The title of this plant was given to it by Dr. Linnæus, in honour of Mr. Peter Collinſon, F. R. S. a moſt diſtinguiſhed promoter of botanical ſtudies, and the firſt who introduced this plant, among many others, to the Engliſh gardens.

The Characters are,

The flower hath a permanent empalement of one leaf, cut into five equal ſegments at the top, the three upper being reflected, and the two under erect. The flower is funnel ſhaped, of one petal which is unequal, and much longer than the empalement, cut into five parts at the top, the upper being ſhort and obtuſe, two of them being reflexed; the lower lip or beard is longer, ending in many points. It hath two long briſtly ſtamina which are erect, terminated by incumbent ſummits. It hath a quadrifid obtuſe germen, with a large gland, ſupporting a briſtly ſtyle the length of the ſtamina, crowned by a pointed bifid ſtigma. The germen afterward becomes a ſingle roundiſh ſeed, ſituated in the bottom of the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, intitled Diandria Monogynia, the flower having two ſtamina and one ſtyle.

We have but one Species of this plant, viz.

Collinsonia (*Canadenſis*) foliis cordatis oppoſitis. *Collinſonia with heart-ſhaped leaves growing oppoſite.*

This plant was brought from Maryland, where it grows wild, as it alſo does in many other parts of North America, by the ſides of ditches, and in low moiſt ground, where it uſually riſes to the height of four or five feet; but in England it ſeldom grows above three feet high, and unleſs it be planted in a moiſt warm ſituation, or in dry weather is duly watered, it rarely flowers well; therefore many people keep the plants in large pots, for the more convenient watering them, but theſe plants ſeldom produce good ſeeds; whereas thoſe which are planted in the full ground, and are conſtantly watered, will ripen ſeeds very well in good ſeaſons.

This hath a perennial root. The ſtalks decay in the autumn, and freſh ſhoots come out in the ſpring. The ſtalks are ſquare, garniſhed with heart-ſhaped leaves, placed oppoſite, which are ſawed on their edges. The flowers are produced at the extremity of the ſtalks in looſe ſpikes; theſe have long tubes, and are divided into five parts at the top; they are of a purpliſh yellow, and the lower ſegment is terminated by long hairs. The flowers appear in July, and the ſeeds ripen in autumn.

This plant may be eaſily propagated by parting the roots in October. Theſe roots ſhould be planted at three feet diſtance, for they require much nouriſhment, otherwiſe they will not thrive. This plant will live in the open ground, if it is planted in a ſheltered ſituation.

COLOCASIA. See Arum.

COLOCYNTHIS. See Cucurbita.

COLUMBINE. See Aquilegia.

COLUMNEA. Plum. Nov. Gen. 28. tab. 33. Lin. Gen. Plant. 710. The title of this genus was given to it by Plumier, in honour of Fabius Columna, a nobleman of Rome, who has publiſhed two curious books of botany.

The Characters are,

The flower hath a permanent empalement of one leaf, cut into five parts at the top; it hath one petal, of the (ringent) or grinning kind, having a long ſwelling tube, divided above into two lips, the upper being erect, concave, and entire; the lower is divided into three parts which ſpread open: it hath four ſtamina, two being longer than the other; theſe are incloſed in the upper lip, and are terminated by ſingle ſummits. In the center is ſituated the roundiſh germen, ſupporting a ſlender ſtyle, crowned by a bifid acute ſtigma. The germen afterward becomes a globular berry with two cells, ſitting on the empalement, and is of the ſame magnitude, containing ſeveral oblong ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia. The flowers of this claſs have two long and two ſhort ſtamina, and thoſe of this ſection have their ſeeds incloſed in a capſule.

We have but one Species of this plant in the Engliſh gardens, viz.

Columnea (*Scandens*). Lin. Sp. Plant. 638. Columnea ſcandens, Phœniceo flore, fructu albo. Plum. Nov. Gen. 28. *Climbing Columnea with a ſcarlet flower and a white fruit.* Plumier mentions a variety of this, with a yellowiſh flower and a white fruit. But this is only a ſeminal variation ſuppoſed to have accidentally riſen from the ſeeds of the firſt.

I received ſeeds of the ſcarlet ſort from Carthagena in New Spain, where the plants grew naturally. This hath a climbing ſtalk, which faſtens itſelf to the neighbouring plants, whereby it is ſupported. The leaves are oval, ſawed on their edges, and ſtand upon ſhort foot-ſtalks; theſe, and alſo the ſtalks, are very hairy; but the plants decayed the following year, before they produced any flowers, ſo that I can give no deſcription of them.

Theſe plants are natives of the warmeſt parts of America, ſo are too tender to live in England, unleſs they are preſerved in the ſtove; they are propagated by ſeeds, which muſt be ſown in a good hot-bed; and when the plants come up, they muſt be treated in the ſame way as other tender exotic plants which are kept in the bark-ſtove.

COLUTEA. Tourn. Inſt. R. H. 649. tab. 417. Lin. Gen. Plant. 776. Bladder Sena.

The CHARACTERS are,

It hath a bell-ſhaped permanent empalement of one leaf, indented in five parts. The flower is of the butterfly kind. The ſtandard, wings, and keel, vary in their figure in different ſpecies. It hath ten ſtamina, nine of which are joined, the other ſtands ſeparate, which are terminated by ſingle ſummits. In the center is ſituated an oblong germen, which is compreſſed, ſupporting a riſing ſtyle, crowned by a bearded line, extended from the middle of the upper part of the ſtyle. The germen afterward becomes a broad ſwollen pod with one cell, including ſeveral kidney-ſhaped ſeeds.

This genus of plants is ranged in Linnæus's third ſection of his ſeventeenth claſs, intitled Diadelphia Decandria. The flowers of this claſs have ten ſtamina, nine of which are joined, and the tenth ſtands ſeparate.

The SPECIES are,

1. COLUTEA (*Arboreſcens*) arborea, foliolis obcordatis. Hort. Cliff. 365. *Tree Bladder Sena with heart-ſhaped lobes.* Colutea veſicaria. C. B. P. 396. *Common Bladder Sena.*
2. COLUTEA (*Iſtria*) foliolis ovatis, integerrimis, caule fruticoſo. *Shrubby Bladder Sena with oval leaves which are entire.*
3. COLUTEA (*Orientalis*) foliolis cordatis minoribus, caule fruticoſo. *Bladder Sena with ſmaller heart-ſhaped leaves, and a ſhrubby ſtalk.* Colutea Orientalis flore ſanguineâ coloris, luteâ maculâ notato. Tourn. Cor. 44.
4. COLUTEA (*Fruteſcens*) fruticoſa foliolis ovato-oblongis. Hort. Cliff. 366. *Shrubby Bladder Sena with oblong oval leaves.* Colutea Æthiopica flore Phœniceo, folio Barbæ Jovis. Breyn. Cent. 1. 73. *Æthiopian Bladder Sena with a ſcarlet flower.*
5. COLUTEA (*Americana*) foliolis ovatis, emarginatis, leguminibus oblongis compreſſis acuminatis, caule arboreo. *Bladder Sena with oval leaves indented at the top, oblong, compreſſed, pointed pods, and a tree-like ſtalk.* Colutea Americana, veſiculis oblongis compreſſis. Houſt. MSS. *American Bladder Sena with oblong compreſſed pods.* Dr. Pluknet titles it Colutea Veræ Crucis veſicaria. Alm. 111. pl. 165. f. 3. *Bladder Sena of Vera Cruz.*
6. COLUTEA (*Herbacea*) herbacea foliolis linearibus. Hort. Upſal. 266. *Herbaceous Bladder Sena with narrow leaves.* Colutea Africana annua, foliolis parvis, mucronatis, veſiculis compreſſis. Hort. Amſt. 2. p. 87. tab. 44.
7. COLUTEA (*Procumbens*) caulibus procumbentibus, foliolis ovato-linearibus, tomentoſis, floribus alaribus pedunculis longiſſimis. *Bladder Sena with trailing ſtalks, oval narrow leaves which are woolly, and flowers growing from the ſides of the ſtalks, with very long foot-ſtalks.*

The firſt ſort is commonly cultivated in the nurſery-gardens, as a flowering ſhrub, to adorn plantations. This grows naturally in Auſtria, in the ſouth of France and Italy, from whence the ſeeds were originally brought to England; this hath ſeveral woody ſtems, which grow to the height of twelve or fourteen feet, ſending out many woody branches, garniſhed with winged leaves, compoſed of four or five pair of oval lobes, placed oppoſite, terminated by an odd one; theſe are indented at the top in form of a heart, and are of a grayiſh colour. The flowers come out from the wings of the leaves upon ſlender foot-ſtalks, about two inches long, each ſuſtaining two or three flowers of the butterfly kind, whoſe ſtandard is reflexed and large. The flowers are yellow, with a dark-coloured mark on the petal; theſe are ſucceeded by inflated pods an inch and a half long, having a ſeam on the upper ſide, containing a ſingle row of kidney-ſhaped ſeeds, faſtened to a placenta. This flowers in June and July, and the ſeeds ripen in autumn. There is a variety of this with reddiſh pods, which is equally common in the gardens, and is ſuppoſed to be only an accidental variety, for the plants do not differ in any other part.

The ſeeds of the ſecond ſort were brought from the Levant by the Reverend Dr. Pocock, which ſucceeded in the garden at Chelſea; and ſince Dr. Ruſſel, who reſided many years at Aleppo, brought over dried ſamples of this ſort, which he aſſures me grow common near that city. This ſort ſeldom grows more than ſix or ſeven feet high; the branches are very ſlender, and ſpread out on every ſide, garniſhed with winged leaves, compoſed of nine pair of ſmall, oval, entire lobes, terminated by an odd one; the flowers ſtand upon ſlender foot-ſtalks, about the ſame length of the former. The flowers are alſo like thoſe, but are of a brighter yellow. This ſort begins to flower early in May, and continues flowering till the middle of October.

The third ſort was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the royal garden at Paris, where they ſucceeded, and ſince have been communicated to moſt of the curious gardens in Europe. This hath a woody ſtem, which ſends out many branches on every ſide, which do not riſe above ſeven or eight feet high; theſe are not ſo ſtrong as thoſe of the firſt ſort, and are garniſhed with winged leaves, compoſed of five or ſix pair of ſmall heart-ſhaped lobes, terminated by an odd one. The flowers proceed from the ſide of the branches, ſtanding upon foot-ſtalks, each ſuſtaining two or three flowers, ſhaped like thoſe of the firſt ſort, but ſmaller; they are of a dark red colour, marked with yellow: theſe appear in June, and the ſeeds ripen in autumn.

The fourth ſort grows naturally in Æthiopia, from whence the ſeeds were brought to Europe. This hath a weak ſhrubby ſtalk, which ſends out ſide branches, growing erect, garniſhed with equal winged leaves, compoſed of ten or twelve pair of ſmall, oval, oblong, hoary lobes. The flowers are produced at the upper part of the branches from the wings of the leaves, each foot-ſtalk ſuſtaining three or four ſcarlet flowers, which are longer than thoſe of the other ſorts, and are not reflexed; theſe are ſucceeded by inflated pods, containing one row of kidney-ſhaped ſeeds. The uſual time of this plant producing its flowers is in June; but when the ſeeds are ſown early in the ſpring, the plants frequently flower the following autumn.

The fifth ſort was ſent me from La Vera Cruz, in New Spain, in the year 1730, by the late Dr. Houſtoun. This hath a ſhrubby ſtalk, which riſes to the height of twelve or fourteen feet, ſending out many branches, garniſhed with winged leaves, compoſed of three pair of oval lobes, terminated by an odd one; theſe are indented at the top, and are of a light green. The flowers are of a bright yellow, and ſtand two or three upon each foot-ſtalk, and are ſucceeded by compreſſed winged pods near four inches long, which end in long points.

The ſixth ſort grows naturally at the Cape of Good Hope. This is an annual plant of little beauty, ſo is rarely cultivated but in botanic gardens for the ſake of variety. It riſes with a ſlender herbaceous ſtalk about a foot and a half high, dividing upward into three or four branches, garniſhed with winged leaves, compoſed of five or ſix pair of very narrow lobes an inch long, which are a little hoary. The flowers are ſmall, of a purpliſh colour, ſtanding three together on ſlender foot-ſtalks, which are ſucceeded by flat oval pods, each containing two or three kidney-ſhaped ſeeds. It flowers in July, and the ſeeds ripen in autumn, and the plant decays ſoon after.

The ſeeds of the ſeventh ſort were ſent me from the Cape of Good Hope, in 1753, which have ſucceeded in the garden at Chelſea. This plant hath many ſlender ligneous ſtalks, which trail on the ground, and are divided into many ſmaller branches, garniſhed with winged leaves, compoſed of twelve or fourteen pair of ſmall, narrow, oval lobes, terminated by an odd one; theſe, and alſo the ſtalks, are covered with a whitiſh down. The flowers are very ſmall, of a purple colour, and ſtand upon very long ſlender footſtalks, each ſuſtaining three or four flowers; theſe are ſucceeded by compreſſed pods little more than half an inch long, which are a little bent like a ſickle, each containing a ſingle row of ſmall kidney-ſhaped ſeeds. It flowers in June and July, and the ſeeds ripen in autumn. This is a perennial plant, which, if ſheltered in the winter, will continue ſeveral years; but the branches do not extend more than a foot in length, and unleſs they are ſupported, always trail upon the ground.

The three firſt mentioned ſorts are very hardy ſhrubs, which thrive in the open air extremely well, ſo are generally propagated for ſale in the nurſery-gardens; but the firſt ſort hath been longer in England, ſo is more generally known and propagated than either of the other, which have been but few years in the Engliſh gardens, nor has the third ſort been long known in this country. This is not mentioned in any of the botanic books; but as the ſeeds ripen here very well, in a few years it may be in as great plenty as the firſt ſort.

The three firſt ſorts are propagated by ſowing their ſeeds any time in the ſpring, in a bed of common earth; and when the plants are come up, they muſt be kept clear from weeds; and the Michaelmas following they ſhould be tranſplanted either into nurſery rows, or in the places where they are deſigned to remain; for if they are let grow in the ſeed-bed too long, they are very ſubject to have downright tap-roots, which renders them unfit for tranſplantation; nor ſhould theſe trees be ſuffered to remain too long in the nurſery before they are tranſplanted, where they are to remain for the ſame reaſon.

The firſt ſort will grow to the height of twelve or fifteen feet, ſo is very proper to intermix with trees of a middling growth in wilderneſs quarters; or in clumps of flowering trees, where the oddneſs of their flowers and pods will make a pretty variety, eſpecially as theſe trees continue a long time in flower; for they uſually begin flowering by the end of May, and from that time to September they are ſeldom deſtitute of flowers, but eſpecially the ſecond ſort.

Theſe ſhrubs make great ſhoots annually, which are frequently broken down by ſtrong winds in the ſummer; ſo that if they are not ſheltered by other trees, their branches ſhould be ſupported, otherwiſe they will be broken and ſplit off, whereby the trees will be rendered unſightly.

The third ſort does not grow ſo tall as the common, but makes a more regular ſhrub and is leſs liable to ſplit. The flowers of this ſort are of a duſky red colour, ſpotted with yellow, ſo it makes a very pretty variety, and is as hardy as the common ſort, therefore may be propagated by ſeeds in the ſame manner.

The fourth ſort is tender, ſo will not live through the winters (when they are ſevere) in the open air in England; but in mild winters, if they are planted in a dry ſoil and a warm ſituation, they will thrive very well; and thoſe plants which live abroad will flower much ſtronger, and make a finer appearance, than thoſe which are preſerved in the green-houſe; for theſe plants require a large ſhare of air, otherwiſe they are apt to draw up weak, ſo ſeldom produce their flowers in plenty; therefore when any of the plants are ſheltered in winter, they muſt be placed as near the window as poſſible, that they may have all the advantages of air; and in the ſpring they muſt be hardened, to bear the open air as ſoon as poſſible.

This ſort is propagated by ſeeds as the former. If the ſeeds are ſown early in the ſpring upon a warm border of light earth, the plants will flower in Auguſt; and, if the autumn proves favourable, they will ſometimes ripen their ſeeds very well; but there are ſome perſons who ſow the ſeeds upon a moderate hot-bed in the ſpring, whereby they bring their plants ſo forward as to flower in July, whereby the ſeeds are generally perfected from theſe plants. When the plants are tranſplanted, it ſhould always be done while they are young, for they do not bear removing when they are large. This ſort will ſometimes live in the open air for three or four years, when they ſtand in a well ſheltered ſituation; and theſe will grow to have large heads, and make a very fine appearance when they are in flower; they will alſo continue much longer in beauty than thoſe plants which are treated more tenderly.

The fifth ſort grows naturally in warm countries, ſo is too tender to thrive in the open air in England. It is propagated by ſeeds, which muſt be ſown on a hot-bed in the ſpring; and when the plants are two inches high, they ſhould be each tranſplanted into a ſeparate ſmall pot filled with light earth, and plunged into a hot-bed of tanners bark, obſerving to ſhade them till they have taken freſh root; after which they muſt be treated in the ſame way as other plants from the ſame climate, always keeping them in a ſtove, which ſhould be of a moderate temperature of heat.

The ſixth ſort is a low annual plant, which ſeldom grows more than a foot and a half in height; the flowers being ſmall, and having little beauty, it is ſeldom preſerved but in botanic gardens. The ſeeds of this ſort muſt be ſown upon a moderate hot-bed in the ſpring, and the plants muſt be planted into ſmall pots, and brought forward in another hot-bed. In July they will flower, when they may be expoſed in the open air, in a warm ſituation, where the ſeeds will ripen in September, and the plants will ſoon after decay.

The ſeventh ſort may be raiſed on a moderate hot-bed in the ſpring, and afterward expoſed to the open air in ſummer; but in winter they muſt be ſheltered under a frame, otherwiſe the froſt will deſtroy them.

COLLIFLOWER. See Brassica.

COLUTEA SCORPIOIDES. See Emerus.

COMA AUREA. See Chrysocoma.

COMARUM. Lin. Gen. Plant. 563. Pentaphylloides. Tourn. Inſt. R. H. 298. Marſh Cinquefoil.

The Characters are,

The flower hath a large ſpreading empalement of one leaf, divided into ten parts at the top, which is coloured. It hath five oblong petals, which are inſerted in the empalement, but are much ſmaller. It hath twenty or more permanent ſtamina, which are inſerted into the empalement, terminated by moon-ſhaped ſummits. It hath a great number of ſmall roundiſh germen collected into a head, having ſhort ſingle ſtyles ariſing from their ſides, which are crowned by ſingle ſtigmas. The common receptacle afterward becomes a large fleſhy fruit, having many pointed ſeeds adhering to it.

This genus of plants is ranged in the fifth ſection of Linnæus's twelfth claſs, intitled Icoſandria Polygynia, the flower having many ſtamina and a great number of ſtyles.

We know but one Species of this genus, viz.

Comarum (*Paluſtre*). Fl. Lapp. 214. Pentaphylloides paluſtre rubrum. Inſt. R. H. 298. *Red Marſh Baſtard Cinquefoil*; and the Quinquefolium paluſtre rubrum. C. B. P. 326. *Red Marſh Cinquefoil.*

There is another variety of this, which grows plentifully in Ireland, and alſo in ſeveral places in the north of England, from whence I have procured many of the plants, which after one year's growth in the garden, have been ſo like the common ſort, as not to be diſtinguiſhed from it; ſo that the different appearance which it has in the places where it grows noturally, may be ſuppoſed to ariſe from the ſoil and ſituation. This is by Dr. Plukenet titled Pentaphyllum paluſtre rubrum, craſſis & villoſis foliis Suecicum & Hibernicum. Alm. 284. *Red Marſh Cinquefoil of Sweden and Ireland, with thick and hairy leaves.*

This plant hath creeping woody roots, which ſend out many black fibres, penetrating deep into the ground, from which ariſe many herbaceous ſtalks about two feet high, which generally incline to the ground; theſe are garniſhed at each joint with one winged leaf, compoſed of five, ſix, or ſeven lobes, which riſe above each other, the middle being the largeſt; the lower diminiſhing, and with their baſe embrace the ſtalks; theſe are deeply ſawed on their edges, ſmooth above, of a light green, and hoary on their under ſide. The flowers are produced at the top of the ſtalks, three or four together on ſhort foot-ſtalks; theſe have a large ſpreading empalement, which is red on the upper ſide, and divided at the top into ten parts; in the center ſits the five petals, which are red, and not more than a third part the ſize of the empalement; within theſe are ſituated many germen, attended by twenty or more ſtamina, terminated by dark ſummits. After the flower is paſt, the receptacle which ſits in the bottom of the empalement, becomes a fleſhy fruit, ſomewhat like a Strawberry, but flatter, including a great number of pointed ſeeds. It flowers in July, and the ſeeds ripen in autumn.

As theſe plants are natives of bogs, they are with difficulty preſerved in gardens, for they muſt be planted in a ſoil as near to that of their natural growth as poſſible; they are very apt to ſpread much at the root, when in a proper ſituation: ſo whoever is inclinable to preſerve theſe plants, may remove them from the places of their growth in October; and if they are planted on a bog, there will be no danger of the plants ſucceeding. There are a few of theſe plants now growing upon a bog at Hampſtead, which were planted there ſome years ago; but the neareſt place to London, where they grow wild in plenty, is in the meadows near Guilford in Surry.

COMMELINA. Lin. Gen. Plant. 58. Plum. Nov. Gen. 48. tab. 38. Zanonia. Plum. Nov. Gen. 38. tab. 38. This plant was ſo called by father Plumier, from Dr. Commeline, a famous profeſſor of botany at Amſterdam.

The Characters are,

It hath a permanent ſpatha, which is large, heart-ſhaped, compreſſed, and ſhut together. The flower hath ſix concave petals, three or four of which are ſmall and oval, (*theſe are frequently taken for the empalement*) *the other are large, roundiſh, and coloured. It hath three nectariums,* (*which have been ſuppoſed to be ſtamina;*) *theſe have proper ſtamina, which ſit horizontal, and are ſhaped like a croſs. There are three awl-ſhaped ſtamina, which recline, and ſit about thoſe of the nectarium, which are terminated by oval ſummits. In the center is ſituated a roundiſh germen, ſupporting a twining ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes a naked globular capſule, with three furrows, having three cells, each containing two angular ſeeds.*

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, the flower having three ſtamina and one ſtyle; to this genus he has joined the Zanonia of Plumier, which was ſeparated by that author from Commelina, becauſe the flower has three petals, and his Commelina but two; whereas the ſeveral ſpecies of this genus moſt of them differ in the number of their petals, ſome having two green, and four coloured petals, others are equal, and ſome have four green, and but two coloured petals.

The Species are,

1. Commelina (*Communis*) corollis inæqualibus, foliis ovato-lanceolatis, acutis, caule procumbente, glabro. Hort. Upſal. 18. *Commelina with unequal petals, oval, ſpear-ſhaped, pointed leaves, and a ſmooth trailing ſtalk.* Commelina procumbens annua, ſaponariæ folio. Hort. Elth. 93. tab. 78.
2. Commelina (*Erecta*) corollis inæqualibus, foliis ovato-lanceolatis, caule erecto, ſcabro, ſimpliciſſimo. Hort. Upſal. 18. *Commelina with unequal petals, oval ſpear-ſhaped leaves, and a ſingle, upright, rough ſtalk.* Commelina erecta, ampliore ſubcæruleo flore. Hort. Elth. 94. tab. 78.
3. Commelina (*Africana*) corollis inæqualibus, foliis lanceolatis, glabris, obtuſis, caule repente. Lin. Sp. Plant. 41. *Commelina with unequal petals, ſmooth, ſpear-ſhaped, obtuſe leaves, and a creeping ſtalk.* Commelina procumbens, flore luteo. Prod. Leyd. 538.
4. Commelina (*Tuberoſa*) corollis æqualibus, foliis ovato-lanceolatis, ſubcilliatis. Hort. Upſal. 18. *Commelina with equal petals, and oval ſpear-ſhaped leaves, which are hairy on their under ſide.* Commelina radice anacampſerotidis. Hort. Elth. 94. tab. 79.
5. Commelina (*Zanonia*) corollis æqualibus, pedunculis incraſſatis, foliis lanceolatis, vaginis laxis margine hirſutis bracteis geminis. Lin. Sp. Plant. 61. *Commelina with equal petals, thick foot-ſtalks to the flower, ſpear-ſhaped leaves, a looſe hood, and double bractea.* Zanonia graminea perfoliata. Plum. Nov. Gen. 38.

There are ſome other ſpecies of this genus, but thoſe which are here enumerated, are all that I have ſeen growing in the Engliſh gardens.

The firſt ſort grows naturally in the iſlands in the Weſt-Indies, and alſo in Africa; this is an annual plant, which hath ſeveral trailing ſtalks, that put out roots at the joints, which ſtrike into the ground; at each joint is placed one oval ſpear-ſhaped leaf, ending in a point, embracing the ſtalk with its baſe, and hath ſeveral longitudinal veins: they are of a deep green, and ſmooth. The flowers come out from the boſom of the leaves, included in a ſpatha, which is compreſſed and ſhut up, each having two or three flowers, ſtanding upon ſhort foot-ſtalks, compoſed of two large blue petals, and four ſmall green ones, which have generally been termed the empalement of the flower; within theſe are ſituated three nectariums, each having a ſlender ſtamina fixed on the ſide; theſe ſurround the germen, which afterward becomes a roundiſh capſule having three cells, in each of theſe is lodged two angular ſeeds. It flowers in June and July, and the ſeeds ripen in autumn. This plant was titled Ephemeron flore dipetalo, by ſome of the older writers on botany.

The ſecond ſort grows naturally in Penſylvania, from whence I received the ſeed; this hath a perennial root, compoſed of many white fibres; the ſtalks riſe a foot and a half high, are upright, rough, herbaceous, and about the ſize of quills; theſe have a ſingle leaf at each joint, ſhaped like thoſe of the firſt ſort, and embrace the ſtalks with their baſe; the flowers come out from the boſom of the leaves at the upper part of the ſtalk, ſitting upon ſhort foot-ſtalks; they are of a pale bluiſh colour, and are ſucceeded by ſeeds as the firſt ſort. This flowers about the ſame time with the firſt, but the ſeeds do not often ripen in England.

The third ſort grows naturally in Africa; this hath a fibrous root, which ſends out many trailing ſtalks three feet long, which ſend out roots at every joint, and from them many more ſhoots are produced; ſo that where the plants are in a proper degree of warmth, and have room to ſpread, they will cover a large ſurface of ground. The leaves of this ſort are very like thoſe of the firſt, but the flowers are larger and of a deep yellow colour; the petals of this are heart-ſhaped, and the ſeed-veſſels are larger. This flowers in July, and the ſeeds ripen in autumn.

The fourth ſort grows naturally near Old Vera Cruz in New Spain, from whence the ſeeds were ſent me by the late Dr. Houſtoun. This hath a thick fleſhy root compoſed of ſeveral tubers, ſomewhat like thoſe of Ranunculus, ſeveral joining together at the top, where they form a head, and diminiſh gradually downward; from this ariſe one or two inclining ſtalks, which ſend out ſide branches from their lower parts; theſe are garniſhed with oval ſpear-ſhaped leaves, part of which have long foot-ſtalks, the others embrace the ſtalks with their baſe; they have ſhort hairs on their under ſide, and toward the ſtalk, but are ſmooth above, of a deep green colour, and cloſe every evening, or in cold weather. The flowers are produced toward the upper part of the ſtalks, from the boſom of the leaves, ſtanding upon ſlender foot-ſtalks; theſe are compoſed of three blue petals which are pretty large and roundiſh, and three ſmaller which are green; the ſeeds are like thoſe of the other ſorts. It flowers in June, July, and Auguſt, and the ſeeds ripen in autumn, ſoon after which the ſtalks decay, but the roots may be preſerved two or three years, if they are planted in a ſtove in winter.

The fifth ſort grows naturally in the Weſt-Indies; the ſeeds of this were ſent me from the iſland of Barbuda. This hath trailing ſtalks like the firſt, which are garniſhed with narrow graſſy leaves, embracing the ſtalks with their baſe; the flowers are produced at the end of the ſtalks, upon thick foot-ſtalks, three flowers generally ſitting on each. The flowers have three equal large petals of a ſky blue, and three ſmaller which are green. Theſe flower in July and Auguſt, but have not perfected ſeeds in England.

All the ſorts are propagated by ſeeds; the firſt will grow if ſown in the full ground; but if the ſeeds are ſown upon a warm border of light earth in autumn, the plants will riſe early in the ſpring; ſo from theſe goods ſeeds may be expected, if the ſeaſon proves favourable; whereas thoſe which are ſown in the ſpring, often lie long in the ground, ſo rarely ripen their ſeed. Theſe plants have but little beauty, ſo that two or three of each ſort, is as many as moſt people chooſe to have; therefore if the ſeeds are ſown in autumn where the plants are deſigned to remain, or the ſeeds permitted to ſcatter, the plants will require no farther care, but to keep them clear from weeds.

The ſecond ſort hath a perennial root; this ſeldom ripens ſeeds in England, but the roots ſend out offſets, by which the plant is eaſily propagated. But it is too tender to live in the full ground in winter, unleſs it has a warm ſheltered ſituation; therefore ſhould be planted in pots, and ſheltered under a common frame in winter, and expoſed abroad in ſummer; the beſt time to tranſplant and part theſe roots is about the end of March.

The other ſorts are tender, ſo their ſeeds muſt be ſown on a moderate hot-bed in the ſpring, and when the plants are two inches high, they ſhould be tranſplanted to a freſh hot-bed to bring the plants forward; when they have taken freſh root, they ſhould have a large ſhare of freſh air admitted to them every day in warm weather, to prevent their growing weak; and in June theſe may be carefully taken up, and tranſplanted on a warm border of light earth, obſerving to ſhade them till they have taken freſh root; after which they will require no other care, but to keep them clean from weeds. With this management the plants will flower and produce good ſeeds.

The third and fourth ſorts may be continued, if they are planted in pots, and in autumn placed in the bark-ſtove; or if the roots of the fourth ſort are taken out of the ground in autumn, and kept in a warm place in winter, they may be planted again in the ſpring, placing them on a hot-bed to forward their ſhooting, and theſe will produce ſtronger plants than thoſe which riſe from ſeeds.

COMMONS and **COMMON-FIELDS.** See Land.

COMPARTMENTS are beds, plats, borders, and walks, laid out according to the form of the ground, and ingenuity of the artiſt, and depend more on a good fancy than any rules. Theſe are diverſified in knots, flower-gardens, or parterres, of which there are great variety, and may be diverſified infinitely, according to the fancy of the deſigners.

Plain compartments are pieces of ground divided into equal ſquares and flower-beds, marked out by the line, of equal length and breadth.

Some perſons allow to theſe ſquares, borders of two feet in breadth, and not more, if the plat of ground be ſmall; but if they be reaſonably large, three feet; and they edge the borders with Box, or upright hardy Thyme, or ſome other aromatic herbs or flowers, for the ſake of the greater neatneſs.

And in order to preſerve the paths and alleys of compartments firm, even, and durable, they lay them with a coat of ſand or gravel, two or three inches thick, keeping them hoed and weeded as often as there ſhould be occaſion.

Theſe compartments were much eſteemed by the French, whoſe gardens were all laid out into ſeveral compartments, ſalons, boſquets, &c. after the manner of architects in buildings; but theſe ſtiff, unnatural gardens are now juſtly exploded, and a much better taſte has of late prevailed in the Engliſh gardens.

COMPOSTS are ſo called of compoſta, or compoſita, *Lat.* compounds, or componere, *Lat.* to compound or mix: and in huſbandry and gardening they ſignify ſeveral ſorts of ſoils or earthy matter mixed together, in order to make a manure for aſſiſting the natural earth in the work of vegetation, by way of amendment or improvement.

Compoſts are various, and ought to be different, according to the different nature or quality of the ſoils which they are deſigned to meliorate: and according as the land is either light, ſandy, looſe, heavy, clayey, or cloddy. A light looſe land requires a compoſt of a heavy nature, as the ſcouring of deep ditches, ponds, &c.

So on the other hand, a land that is heavy, clayey, or cloddy, requires a compoſt of a more ſprightly and fiery nature, that will inſinuate itſelf into the lumpiſh clods; which if they were not thus managed, would very much obſtruct the work of vegetation.

The great uſe of compoſts is for ſuch plants as are preſerved in pots or tubs; or in ſmall beds or borders of flower-gardens; which is what I ſhall here mention, and ſhall treat of thoſe compoſts or dreſſings, which are uſed in gardens and fields, under the articles of Dung and Manure.

As ſome plants delight in a rich light ſoil, others in a poor ſandy ſoil, and ſome in a loamy ſoil; ſo there ſhould be different compoſts prepared, in all thoſe gardens, where a great variety of plants are cultivated: and this is much more neceſſary in countries at a great diſtance from London, than in the neighbourhood of it, becauſe there is ſo great variety of lands, within ten miles round London, which have been ſo long dreſſed and cultivated, that a ſupply of earth fit for all ſorts of plants, may be eaſily procured; but in ſome places which are at a diſtance from large towns, it is very difficult to procure a quantity of earth proper for the choicer ſorts of flowers and plants; therefore the compoſts will require more care, and ſhould be mixed a conſiderable time longer before they are uſed; that they may have the advantage of heat and cold, to meliorate and improve them; and ſhould be frequently turned over, that the parts may be well mixed and incorporated, and the clods well broken and divided.

Almoſt every one who hath written on this ſubject, hath directed the procuring of the upper ſurface of earth from a paſture ground, as one of the principal ingredients, in moſt compoſts for plants, which is certainly a very good one, provided it has time to meliorate before it is uſed; for if this is mixed up haſtily, and put into pots or tubs, before it has had a winter's froſt, and ſummer's heat, to looſen the parts effectually; it will unite and cake together, ſo hard, as to ſtarve the plants that are put into it. For all earth when put into pots or tubs, is much more apt to bind, than when it is in beds; therefore ſhould be in proportion made looſer, according to the nature of the plants for which it is deſigned, than when it is intended for beds or borders. So that if this earth from a paſture, cannot be prepared and mixed at leaſt one year before it is uſed, it will be much better to take the earth of a kitchen-garden which has been well wrought and dunged; but this ſhould be clear from all roots of trees and bad weeds. If this earth is well mixed with the other compoſts ſix months, and often turned over, it will be fitter for pots and tubs, than the other will in twice that time, as I have frequently experienced, ſo can write from knowledge, not from theory. This earth being the principal ingredient in thoſe compoſts deſigned for ſuch plants as require a rich ſoil; the next is to have a quantity of very rotten dung, from old hot-beds; or for thoſe plants which delight in a cool ſoil, a quantity of rotten neats dung is preferable. The proportion of this muſt be according to the quality of the earth; for if that is poor, there ſhould be one third part of dung, but if it be rich, a fourth part or leſs will be ſufficient. Theſe, when well incorporated and the parts divided, will require no other mixture, unleſs the earth is inclinable to bind, in which caſe it will be proper to add ſome ſand or ſea-coal aſhes to it; if ſea-ſand can be eaſily procured, that is the beſt, the next to that is drift-ſand; but that from pits is by no means proper. The proportion of this muſt be according to the nature of the earth, for if that is ſtiff, there muſt be a greater proportion uſed, but this ſhould not exceed a fifth part, unleſs it is very ſtrong, in which caſe it will require more, and a longer time to lie, and muſt be often turned over before it is uſed.

The next compoſt, which is deſigned for plants which do not require ſo good earth, and naturally grow on looſe ſoils, ſhould be half of the before-mentioned earth from a paſture, or that from a kitchen-garden; and if theſe are inclinable to bind, there ſhould be a third part ſand, and the other part rotten tan, which will be of great uſe to keep the parts divided, and let the moiſture paſs off.

The compoſition for moſt of the ſucculent plants, is prepared with the following materials; the earth from a common, where it is light, taken on the ſurface, one half, the other half ſea or drift-ſand, and old lime-rubbiſh ſcreened of equal parts; theſe, well mixed and often turned over, I have found to anſwer better than any other compoſt, for moſt of the very ſucculent plants.

The other ſort of compoſt, which is deſigned for plants that delight in a very looſe, light, rich earth; ſhould be made of light earth taken from a kitchen-garden, which has been well dunged, and thoroughly wrought, like thoſe near London, one half; of rotten tanners bark one third, and the other part mud from the ſcouring of ditches, or from the bottoms of ponds, where the ſoil is fat: but this mud ſhould lie expoſed in ſmall heaps a whole year, and often turned over before it is mixed with the other, and afterward frequently turned and mixed, for eight months or a year before it is uſed.

In all mixtures, where rotten wood may be required, if the rotten tanners bark, which is taken from old hot-beds is uſed, that will anſwer every purpoſe of the other; and wherever ſand is neceſſary in any compoſt, the ſea-ſand ſhould always be preferred to all other, as it abounds with more ſalts; but this ſhould not be uſed freſh, becauſe the ſalts ſhould be expoſed to the air, which will looſen the particles, and thereby render them better adapted for the nutriment of vegetables.

There are ſome who have directed the uſe of rotten leaves of vegetables, as an excellent ingredient in moſt compoſts; but from many years experience, I can affirm, they are of little uſe, and contain the leaſt quantity of vegetable paſture, of any dreſſing which is uſed. Others, who never have had any experience in the culture of plants, have directed different compoſts for almoſt every plant; and theſe compoſts conſiſt of ſuch a variety of ingredients, as greatly to reſemble the preſcriptions of a quack doctor; for no perſon who has been converſant in the buſineſs of gardening, could be guilty of ſuch groſs abſurdities: for it is well known, that a few different compoſts will be ſufficient for all the known plants in the world. But thoſe who pretend to give direction for the culture of plants from theory only, begin at the wrong end, for the true knowledge of gardening or agriculture, muſt be from experience, and is not to be obtained in a garret.

The ſeveral ſorts of dreſſing for land, will be particularly treated under their reſpective titles, and in general they will be mentioned under the article of Dung and Manure.

In making of any compoſt, great care ſhould be had, that the ſeveral parts are properly mixed together, and not to have too much of any one ſort thrown together; therefore, when three or four ſeveral ſorts are to be mixed together, there ſhould be a man or two placed to each ſort, in proportion to the quantity of each; for if two parts of any one ſort are requiſite to be added, there ſhould be two men put to that, and but one to each of the other: and theſe men muſt be careful to ſpread each ſort in ſuch a manner over each other, as that they may be exactly mixed together. Another thing which ſhould be obſerved is, never to lay theſe compoſts in too large heaps, but rather continue them in length, laying them up in a ridge, ſo that the ſun and air may more eaſily penetrate through it: and, as theſe compoſts ſhould (if poſſible) be made a year before they are uſed, that they may enjoy a ſummer's ſun, and winter's froſt, they ſhould be frequently turned over, which will prevent the growth of weeds, and expoſe every part of the heaps equally to the ſun and air, which is of great advantage to all ſorts of compoſts; for the more they are expoſed to the influences of theſe, the better will the earth be prepared for vegetation, which is evinced by the fallowing of land, which, when rightly managed, is equivalent to a dreſſing.

COMPOUND FLOWERS are ſuch as conſiſt of many florets, or ſemiflorets, or both together, which are included in one common empalement, ſo make up what is commonly called one whole flower.

CONE. A cone is a hard, dry, ſeed-veſſel of a conical figure, conſiſting of ſeveral woody parts; and is, for the moſt part ſcaly, adhering cloſely together, and ſeparating when ripe.

CONIFEROUS-TREES are ſuch as bear cones; as, the Cedar of Lebanon, Fir, Pine, &c.

CONIUM. Lin. Gen. Plant. 299. Cicuta. Tourn. Inſt. R. H. 306. tab. 160. Hemlock.

The Characters are,

It is an umbelliferous plant; the general umbel is compoſed of ſeveral ſmall ones termed rays, which ſpread open, the rays or ſmall umbels are alſo ſpread in the like manner. Both theſe have involucrums, compoſed of many ſhort leaves. The petals of the greater umbel are uniform; each flower is compoſed of five unequal heart-ſhaped petals, which turn inward; they have five ſtamina, which are terminated by roundiſh ſummits. The germen, which is ſituated under the flower, ſupports two reflexed ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes a roundiſh channelled fruit, divided into two parts, containing two ſeeds, which are convex and furrowed on one ſide, and plain on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The Species are,

1. Conium (*Maculatum*) ſeminibus ſtriatis. Hort. Cliff. 92. *Conium with ſtriated ſeeds.* Cicuta major. C. B. P. 160. *Greater Hemlock.*
2. Conium (*Tenuifolium*) ſeminibus ſtriatis, foliolis tenuioribus. *Conium with ſtriated ſeeds and narrower leaves.* Cicuta major, foliis tenuioribus. C. B. P. 160. *Greater Hemlock with narrower leaves.*
3. Conium (*Africanum*) ſeminibus aculeatis. Hort. Cliff. 92. *Hemlock with prickly ſeeds.* Caucalis Africana, folio minore, Rutæ. Boerh. Ind. alt. Sp. 63.

The firſt ſort grows naturally on the ſide of banks and roads in many parts of England; this is a biennial plant, which periſhes after it hath ripened ſeeds. It hath a long taper root like a Parſnep, but much ſmaller. The ſtalk is ſmooth, ſpotted with purple, and riſes from four, to upwards of ſix feet high, branching out toward the top into ſeveral ſmaller ſtalks, garniſhed with decompounded leaves, whoſe lobes are cut at the top into three parts; theſe are of a lucid green, and have a diſagreeable ſmell. The ſtalks are terminated by umbels of white flowers, each being compoſed of about ten rays (or ſmall umbels) and have a great number of flowers, which ſpread open, each ſitting upon a diſtinct foot-ſtalk; the ſeeds are ſmall and channelled, and like thoſe of

Aniſeed. It flowers in June, and the ſeeds ripen in autumn.

The ſecond ſort differs from the firſt, in having taller ſtalks, which are not ſo much ſpotted. The leaves are much narrower, and of a paler green; and this difference is conſtant, for I have cultivated it near twenty years in the Chelſea garden, where it has not varied. The ſeeds were ſent me from Germany, where it grows naturally. This is biennial as the former.

The third ſort grows naturally near the Cape of Good Hope, in Africa, from whence the ſeeds were brought to Holland, where the plants have been preſerved in ſome of their curious gardens of plants. The ſeeds of this plant were ſent me by the late Dr. Boerhaave, profeſſor of Botany at Leyden. This plant rarely grows more than nine inches high; the lower leaves are divided ſomewhat like thoſe of the ſmall wild Rue, and are of a grayiſh colour; thoſe upon the ſtalk are much narrower, but of the ſame colour; theſe are terminated by umbels of white flowers, each of the larger umbels being compoſed of three ſmall ones; the involucrum hath three narrow leaves, ſituated under the umbel. This flowers in July, and ripens ſeed in autumn, ſoon after which the plants decay.

The firſt ſort grows wild in moſt parts of England, ſo is ſeldom allowed room in gardens, becauſe it is ſuppoſed to have a poiſonous quality; ſome phyſicians have affirmed that it is ſo to all animals, while others have aſſured us, that it is eaten by the inhabitants of ſome parts of Italy when it is young, and is by them eſteemed a great dainty. Mr. Ray mentions that he has found the gizzard of a thruſh, full of Hemlock ſeeds, with four or five grains of Corn, intermixed with it, which, in the time of harveſt, that bird had neglected for Hemlock, ſo very fond was it of that ſeed which we reckon pernicious. However, it is very certain, that ſcarce any animal will eat the green herb; for it is very common to ſee the graſs, and moſt other weeds eat cloſe where cattle are allowed to feed, and all the plants of Hemlock, which were growing left untouched.

This plant is eſteemed by many phyſicians, as an excellent remedy to diſſolve ſchirrous tumors; and ſome have greatly recommended it for cancers, and moſt of them agree, that it may be preſcribed as a good narcotic.

The ſecond ſort is preſerved in ſome botanic gardens for the ſake of variety. If the ſeeds of this are permitted to ſcatter, the plants will come up in plenty, ſo if they are not rooted out, will become as troubleſome weeds as the firſt ſort.

The third ſort is an humble plant, and being tender, will never become troubleſome; for unleſs the winters are very favourable, this plant will not live in the open air in England. The ſeeds of this ſort ſhould be ſown in pots in autumn ſoon after they are ripe, and placed under a common frame in winter, where they may be expoſed to the open air at all times when the weather is mild, and only covered in bad weather. The plants will come up very early in the ſpring, and muſt then be expoſed to the open air conſtantly when the weather will permit, otherwiſe they will draw up very weak. As theſe plants do not bear tranſplanting well, they ſhould be thinned, and not more than four or five left in each pot; and as the plants have no great beauty, a few of them will be ſufficient to continue the ſort, where a variety of plants are preſerved. The other culture is only to keep them clean from weeds, and in very dry weather to water them.

There is another ſpecies of this genus according to moſt of the botaniſts, which is now ſeparated from it, and placed ſingly, under the title of Æthuſa. This was titled, Cicuta minor petroſelino ſimilis, by Caſpar Bauhin, i. e. *Smaller Hemlock with the appearance of Parſley.* This is a weed which frequently is found in gardens, eſpecially in rich ground, and is generally ſuppoſed to be very poiſonous: ſome perſons who have ignorantly gathered this herb, and uſed it for Parſley, having been poiſoned by it. Therefore it was formerly called Fools Parſley. This may be diſtinguiſhed from Parſley, by the narrowneſs of the ſmall leaves, which are alſo more pointed, and of a darker green. But thoſe who are afraid of being deceived in this, ſhould always uſe the curled Parſley, which is ſo different from this, that it cannot be miſtaken for it.

CONNARUS. Zeylon Sumach.

The Characters are,

It hath a woolly erect empalement of one leaf, cut into five ſegments, which is permanent, and five ſpear-ſhaped erect petals which are equal; it has ten awl-ſhaped ſtamina, which are joined at their baſe, and are alternately long and ſhort, terminated by roundiſh ſummits, and a round germen ſupporting a cylindrical ſtyle, crowned by an obtuſe ſtigma; the empalement afterward becomes an oblong gibbous capſule opening with two valves, having one cell, incloſing one large oval ſeed.

This genus of plants is ranged in the ſecond order of Linnæus's ſixteenth claſs, intitled Monodelphia Decandria, the flower having ten ſtamina, which are joined in one houſe.

We know but one Species of this genus, viz.

Connarus (*Monocarpos*). Flor. Zeyl. 248. *One ſeeded Connarus.* Rhus Zeylanicus trifoliatus, phaſeoli facie, floribus copioſis ſpicatis. Burn. Zeyl. 199. tab. 89.

This plant grows naturally in India; it riſes with a ligneous ſtalk eight or ten feet high, which is hard, rigid, and covered with a black bark, and divides upward into two or three branches, garniſhed with trifoliate leaves, having long foot-ſtalks placed alternate; the lobes are oval, ſmooth, and entire, each having a ſhort petiolus faſtened to the foot-ſtalk; theſe remain green the whole year: the flowers are produced in large panicles at the extremity of the branches, they are ſmall, hairy, and of a greeniſh yellow colour, but are rarely ſucceeded by ſeeds in Europe.

This plant is uſually propagated in the gardens by laying down the young branches, which, if tongued, (in the manner practiſed for Carnations) and duly watered, will put out roots in twelve months, when they may be cut off from the old plants, and each planted in a ſeparate ſmall pot, filled with freſh light earth, plunging them into a moderate hot-bed, to forward their taking new root, obſerving to ſhade them from the ſun every day, and to water them as they may require it: after this the plants ſhould be treated in the ſame way as other exotic plants which are not too tender, placing them in a dry ſtove in winter, and for about three months in the ſummer they may be removed into the open air, in a warm ſheltered ſituation.

The cuttings of this plant will ſometimes take root, if they are planted in pots, plunged into a moderate hot-bed of tanners bark, and cloſely covered with hand-glaſſes, or ſmall bell-glaſſes; but unleſs they are carefully managed they ſeldom ſucceed.

If freſh ſeeds can be procured from abroad, they ſhould be ſown in ſmall pots, plunged into a moderate hot-bed, and when the plants are fit to remove they ſhould be ſeparated, planting each into a ſeparate pot, and plunged into a moderate hot-bed, treating them in the manner as the layers.

CONOCARPODENDRON. See Protea.

CONOCARPUS. Lin. Gen. Plant. 236. Rudbeckia. Houſt. Nov. Gen. 21. Button-tree, vulgò.

The Characters are,

The flowers are collected in a globular head, each ſtanding in a ſcaly empalement. At the bottom is ſituated a large compreſſed germen, crowned by the empalement of the flower, which is ſmall, ſharp-pointed, and divided into five parts at the top. The flower hath five petals; it hath five, or ſometimes ten ſlender ſtamina, which extend beyond the petals, terminated by globular ſummits. The germen is large, compreſſed, and obtuſe, ſupporting a ſingle ſtyle which is longer than the ſtamina, and is crowned by an obtuſe ſtigma. The germen afterward becomes a ſingle ſeed, incloſed in the ſcale of the fruit, which is ſhaped like the cone of Alder.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, from the flower having five ſtamina and one ſtyle.

The Species are,

1. Conocarpus (*Erecta*) foliis lanceolatis erecta. Lin. Sp. 250. *Upright Conocarpus with ſpear-ſhaped leaves.* Rudbeckia erecta longifolia. Houſt. MSS. *Commonly called Button-tree in the Weſt-Indies.*
2. Conocarpus (*Procumbens*) fruteſcens, procumbens, foliis ovatis, craſſis, floribus alaribus & terminalibus. *Shrubby trailing Conocarpus with oval thick leaves, and flowers growing on the ſides, at the ends of the branches.* Rudbeckia maritima procumbens rotundifolia. Houſt. MSS. *Maritime trailing Rudbeckia, with a round leaf.*

The firſt ſort grows plentifully in moſt of the ſandy bays, in all the iſlands of the Weſt-Indies. It riſes with a woody upright ſtem about ſixteen feet high, ſending out many ſide branches, which alſo grow erect; theſe are garniſhed with ſpear-ſhaped leaves, having broad ſhort foot-ſtalks, and are placed alternate on every ſide the branches. The flowers grow upon ſhort branches, which ariſe from the wings of the leaves; theſe have three or four ſmall leaves on their lower part, under the flowers; each of theſe branches are terminated by ſix or eight conical heads of flowers, which have ſome reſemblance to thoſe of Acacia, but each of theſe come out of a ſcaly covering; the flowers are ſmall, of a reddiſh colour, having five ſlender ſtamina, and one ſtyle, which ſtand out farther than the petal. The flowers are ſucceeded by ſingle ſeeds, which are included in the ſcales of the conical fruit.

The ſecond ſort hath ſhort crooked branches, which divide and ſpread out on every ſide upon the ground; theſe are covered with a grayiſh bark, and their upper parts are garniſhed with oval thick leaves, a little larger than thoſe of the Dwarf Box; they have very ſhort foot-ſtalks, and are placed on every ſide the branches without order. The flowers are collected in ſmall round heads, which come out ſingle from the ſide of the branches, and in looſe ſpikes at the end; theſe are ſmall, and of an herbaceous colour; the ſcales are rough, and the cones are of a looſer texture than thoſe of the former ſort.

This was diſcovered by the late Dr. William Houſtoun, growing plentifully in the marſhy grounds near the ſea, at the Havannah, from whence he ſent the ſeeds to England, in 1730.

Both theſe ſorts are preſerved in ſome curious gardens for the ſake of variety, but they are plants of no great beauty: they are propagated from ſeeds, which muſt be obtained from the places of their natural growth, for they never produce any good ſeeds in Europe: theſe ſeeds, if they are freſh, will come up very ſoon, if they are ſown upon a good hot-bed; and if the plants are potted, and preſerved in the bark-ſtove, they will make great progreſs; but they are too tender to live in this country, unleſs they are conſtantly kept in the ſtove, and treated in the ſame manner with other exotic plants; obſerving, as they are natives of ſwamps, to ſupply them often with water; but in winter they muſt have it very ſparingly. The plants are Evergreen, caſting off their old leaves when the new come out.

CONSOLIDA MAJOR. See Symphytum.

CONSOLIDA MEDIA. See Bugula.

CONSOLIDA MINIMA. See Bellis.

CONSOLIDA REGALIS. See Delphinium.

CONVALLARIA. Lin. Gen. Plant. 383. Lilium Convallium. Tourn. Inſt. R. H. 77. tab. 14. *Lily of the valley.* To this genus Dr, Linnæus has joined the Polygonatum of Tournefort, or Solomon's Seal.

The Characters are,

The flower hath one petal, which is bell-ſhaped, and divided at the brim into ſix obtuſe ſegments which ſpread open and are reflexed. It hath no empalement. It hath ſix ſtamina, which are inſerted into the petal, but are ſhorter, terminated by oblong ſummits, which are erect. In the center is ſituated a globular germen, ſupporting a ſlender ſtyle, which is longer than the ſtamina, crowned by a three cornered obtuſe ſtigma. The germen afterward becomes a globular berry, with three cells, containing one roundiſh ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle.

The Species are,

1. Convallaria (*Majalis*) ſcapo nudo. Flor. Lapp. 113. *Convallaria with a naked ſtalk.* Lilium convallium album. C. B. P. 304. *White Lily of the Valley.* There is a variety of this with reddiſh flowers, which is preſerved in gardens, titled by Caſpar Bauhin Lilium Convallium flore rubente. Pin. 304.
2. Convallaria (*Latifolia*) ſcapo nudo, foliis latioribus. *Convallaria with a naked ſtalk and broader leaves.* Lilium Convallium latifolium. C. B. P. 136. *Broad-leaved Lily of the Valley.* There is alſo a variety of this with double variegated flowers which is preſerved in gardens. This Tournefort titles Lilium Convallium latifolium, flore pleno variegato. Inſt. R. H. 77. *Broad-leaved Lily of the Valley, with a large variegated flower.*
3. Convallaria (*Multiflora*) foliis alternis, amplexicaulibus caule tereti axillaribus pedunculis multifloris. *Convallaria with leaves placed alternate, embracing the taper ſtalk, whoſe foot-ſtalks have many flowers.* Polygonatum latifolium vulgare. C. B. P. 305. *Common broad-leaved Solomon's Seal.*
4. Convallaria (*Odorato*) foliis alternis, ſemiamplexicaulibus, floribus majoribus axillaribus. *Convallaria with alternate leaves which half embrace the ſtalks, and larger ſweet-ſcented flowers.* Polygonatum latifolium, flore majore odoro. C. B. P. 303.
5. Convallaria (*Polygonatum*) foliis alternis amplexicaulibus, caule ancipti, pedunculis axillaribus ſubunifloris. Lin. Mat. Med. 168. *Convallaria with alternate leaves embracing the ſtalks, and foot-ſtalks having one flower.* Polygonatum floribus ex ſingula tribus pedunculis. C. B. 3. p. 530. *Common Solomon's Seal.*
6. Convallaria (*Stellata*) foliis amplexicaulibus plurimis. Lin. Sp. 452. *Convallaria with many leaves embracing the ſtalks.* Polygonatum Canadenſe ſpicatum fertile. Cornut. Canad. 33.
7. Convallaria (*Verticillata*) foliis verticillatis. Flor. Lapp. 114. *Convallaria with leaves growing in whorls.* Polygonatum anguſtifolium, non ramoſum. C. B. P. 303.
8. Convallaria (*Racemoſa*) foliis ſeſſilibus, racemo terminali compoſito. Lin. Sp. Plant. 452. *Convallaria with leaves ſitting cloſe to the ſtalks, which are terminated by compound ſpikes of flowers.* Polygonatum Virginianum erectum, ſpicatum, flore ſtellato ſterili. Mor. Hiſt. 3. 537.
9. Convallaria (*Bifolia*) foliis cordatis. Flor. Lapp. 113. *Convallaria with heart-ſhaped leaves.* This is the Smilax unifolio humillima. Tourn. Inſt. App. 564. *Loweſt Smilax with a ſingle leaf; and the* Lilium Convallium minus. C. B. P. 304. *The leaſt Lily of the Valley.*

The firſt ſort grows naturally in great plenty in the woods near Woburn, in Bedfordſhire, from whence the markets in London are generally ſupplied with the flowers. It is alſo cultivated in gardens for the ſweetneſs of the flowers, and formerly it grew in great plenty on Hampſtead-heath, but of late years it has been ſeldom found there; for ſince all the trees have been deſtroyed, the plants have not flowered there as formerly, nor have the roots increaſed.

This hath a ſlender fibrous root, which creeps under the ſurface of the ground, and thereby propagates in great plenty. The leaves come up by pairs; their foot-ſtalks, which are about three inches long, are wrapped together in one cover, and at the top divide into two parts, each ſuſtaining a ſingle leaf, one of which riſes a little above the other; theſe leaves are from four to five inches long, and near an inch and a half broad in the middle, leſſening gradually to both ends; they have many longitudinal veins, running parallel to the midrib, which is not ſituated exactly in the middle, but diverges to one ſide; the foot-ſtalks of the flowers ariſe immediately from the root, on one ſide the leaves; theſe are naked, about five inches long, adorned toward their upper parts with pendulous white flowers, ranged on one ſide the ſtalk, which decline to one ſide; each flower ſtands upon a ſhort ſeparate foot-ſtalk, which are bending and crooked. The flowers are of the ſhort bell-ſhaped kind, their brims being reflexed, which are ſlightly cut into ſix parts; they have ſix ſtamina, which are inſerted in the petal of the flower, and are ſhorter than the tube, and a ſingle ſtyle ariſing from the germen, which is triangular, crowned by a three-cornered ſtigma; the germen afterward becomes a globular berry, of a red colour when ripe, incloſing three roundiſh ſeeds. It flowers in May, from whence it has been titled May Lily. The ſeeds ripen in autumn. The flowers of this ſort are uſed in medicine; they are eſteemed cephalic and cordial, ſo are recommended for palſies, epilepſies, and ſpaſms; there is prepared a conſerve, and a compound diſtilled water of the flowers. This compound water is by the Germans titled aqua aurea, or *golden water*, becauſe of its excellent virtues.

There is another variety of this mentioned with narrow leaves, which I ſuppoſe may ariſe from the ſoil, or ſituation, for the roots which I have taken up in places where they have naturally narrow leaves, when planted in the garden, have produced leaves as broad as the common ſort; but the ſort with red flowers has conſtantly continued the ſame above forty years, without any variation. The flowers of this are ſmaller, the ſtalks are redder, and the leaves of a darker green than thoſe of the common ſort; but as I have not propagated this ſort by ſeeds, I cannot be ſure if it is a diſtinct ſpecies, or only a ſeminal variety.

The ſecond ſort I received from the Alps, where it naturally grows; this has retained its difference in the garden, where it grew in the ſame ſoil and ſituation with the common ſort, ſo I make no doubt of its being a diſtinct ſpecies. The other with a double variegated flower is ſuppoſed to be only a variety of this, therefore I have not enumerated it as a different ſort, but the flowers are much larger, and beautifully variegated with purple and white. I received a plant of this ſort from the royal garden at Paris, which has flowered ſeveral years in the Chelſea garden, but the roots do not increaſe ſo much as the common ſort.

Theſe plants require a looſe ſandy ſoil, and a ſhady ſituation; they are propagated by parting of their roots, which multiply in great plenty. The beſt time to tranſplant and part the roots, is in autumn. They ſhould be planted near a foot aſunder, that their roots may have room to ſpread, for if they agree with the ſoil and ſituation, they will meet and fill the ground in one year. If theſe roots are planted in a rich ſoil, they will ſpread and multiply greatly, but will not be ſo productive of flowers.

The only culture which theſe plants require, is to keep them clean from weeds, and to tranſplant and ſeparate the roots every third or fourth year, otherwiſe they will be ſo greatly matted together, as not to have proper nouriſhment, ſo the flowers will be ſmall, and few in number.

The third ſort is a native of the Alps and Appennines; the ſtalks of this (when growing in good ground) generally riſe three feet high; they are taper, and garniſhed with oblong oval leaves placed alternate, embracing the ſtalks with their baſe; they have ſeveral longitudinal veins, reſembling the leaves of white Hellebore: the foot-ſtalks of the flowers are produced from the wings of the leaves, which ſupport four or five flowers on each; theſe flowers are larger than thoſe of the common ſort, but their tubes are more contracted, and are ſucceeded by pretty large berries, which when ripe turn of a bluiſh colour; it flowers in May and June, and the ſeeds ripen in autumn.

The fourth ſort is the broad-leaved Solomon's Seal, which is ſaid to grow naturally in England, but I doubt ours is different from that mentioned by Caſpar Bauhin under that title; for in two places where I have found it growing, the ſtalks were much ſhorter, the leaves were broader, and their borders turned inward, and this difference continues in the garden where it grows in the ſame ſoil and ſituation with the common ſort.

The fifth ſort is the common Solomon's Seal; this hath a fleſhy white root, as large as a man's finger, which multiplies in the ground, and is full of knots, from whence it had the name of Polygonatum, or many knees. In the ſpring ariſe ſeveral taper ſtalks, which grow near two feet high, adorned with oblong oval leaves, placed alternate, having many longitudinal veins running parallel to the middle, and embrace the ſtalk with their baſe; theſe are ranged on one ſide of the ſtalk, and on the oppoſite ſide come out the foot-ſtalks of the flowers, which are about an inch long, dividing at the top into three or four ſmaller, each ſuſtaining a ſingle tubulous flower, cut into ſix parts at the brim, where it is green, the lower part of the tube being white; they have each ſix ſlender ſtamina, ſurrounding a ſingle ſtyle, which ariſes from the germen, and is crowned by a blunt ſtigma; the germen afterward becomes a round berry, about the ſize of Ivy berries, each incloſing three ſeeds. This flowers in May, and the ſeeds ripen in autumn, and then the ſtalks decay.

The ſixth ſort riſes with an upright ſtalk about two feet high, garniſhed with long narrow leaves, which ſtand in whorls round the ſtalk; there are generally five of theſe placed at each joint, which are four inches long, and half an inch broad, ſmooth, and of a light green. The flowers come out from the ſame joints, ſtanding upon ſhort foot-ſtalks, each ſupporting five or ſix flowers, which are ſmaller, and have much ſhorter tubes than either of the former ſorts; they are of a dirty white, tipped with green, and ſlightly cut into ſix parts at the top. It grows naturally in the northern parts of Europe.

The ſeventh ſort grows naturally in moſt parts of North America; I have received plants of this from New England, Philadelphia, and ſeveral other places. This riſes with an upright ſtalk near two feet high, garniſhed with oblong leaves, ending in ſharp points; they are near five inches long, and two and a half broad, having three large longitudinal veins, with ſeveral ſmaller between, which join at both ends. The leaves are alternate, ſtanding cloſe to the ſtalks, and are of a light green on their upper ſide, but are paler on their under. The flowers are produced in branching ſpikes at the extremity of the ſtalks, each being compoſed of ſeveral ſmall looſe ſpikes of ſtar-like flowers, of a pale yellow, which fall away without producing any ſeed. This flowers the latter end of May, or the beginning of June, and the ſtalks decay in autumn; but the root is perennial, and propagates by offſets.

The eighth ſort is a native of the ſame countries as the laſt mentioned; this ſends up ſtalks two feet high, garniſhed with many oblong leaves embracing the ſtalks with their baſe. The flowers are produced in ſingle ſpikes at the top of the ſtalks, which are in ſhape and colour like thoſe of the ſeventh; but theſe are ſucceeded by ſmall red berries, about the ſize of thoſe of the Lily of the Valley. This ſort flowers the beginning of June, and the berries ripen in autumn.

All the ſorts of Solomon's Seal are very hardy plants; they delight in a light ſoil and a ſhady ſituation, ſo are very proper to plant in wilderneſs quarters under tall trees, where if they are not crowded by lower ſhrubs, they will thrive and multiply exceedingly, and during the ſummer ſeaſon will make an agreeable variety, the whole appearance of the plants being very ſingular.

They all multiply very faſt by their creeping roots, eſpecially when they are planted in a proper ſoil and ſituation. The beſt time to tranſplant and part the roots is in autumn, ſoon after their ſtalks decay; thoſe which are removed at that ſeaſon, will grow much ſtronger than thoſe which are planted in the ſpring, which is the reaſon of my preferring that ſeaſon; but they may be ſafely tranſplanted any time after the ſtalks decay, till the roots begin to ſhoot in the ſpring. As theſe roots greatly increaſe, they ſhould be planted at a wide diſtance from each other, that they may have room to ſpread; for they ſhould not be removed oftener than every third or fourth year, where they are expected to grow ſtrong, and produce a good number of ſtalks, in which their beauty conſiſts. The only culture theſe plants require, is to dig the ground between them every ſpring, and keep them clean from weeds.

The roots of the fifth ſort are uſed in medicine, and are greatly recommended for their efficacy in all manner of contuſions. The diſtilled water of the plant clears the face and beautifies the complexion: a decoction of it cures the itch, and ſuch like cutaneous diſtempers.

CONVOLVULUS. Lin. Gen. Plant. 198. Tourn. Inſt. R. H. 82. tab. 77. Bindweed. It is ſo titled from convolvendo, *Lat.* rolling round, or twining about.

The Characters are,

It hath a permanent empalement of one leaf, which is divided into five parts at the top; the flower hath one large bell-ſhaped petal, which ſpreads open. It hath five ſhort ſtamina, terminated by oval compreſſed ſummits, and a roundiſh germen, ſupporting a ſlender ſtyle, crowned by two broad oblong ſtigmas. The empalement afterward becomes a roundiſh capſule, with one, two, or three valves, containing ſeveral ſeeds which are convex on their outſide, but on the inſide angular.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Convolvulus (*Arvenſis*) foliis ſagittatis utrinque acutis, pedunculis unifloris. Flor. Suec. 173. *Bindweed with arrow-ſhaped leaves pointed on both ſides, and a ſingle flower on each foot-ſtalk.* Convolvulus minor arvenſis. C. B. P. 294. *Smaller Field Bindweed, commonly called Gravel Bindweed.*
2. Convolvulus (*Sepium*) foliis ſagittatis poſticè truncatis, pedunculis tetragonis unifloris. Prod. Leyd. 427. *Bindweed with arrow-ſhaped leaves, which are torn behind, and a ſingle flower on each foot-ſtalk.* Convolvulus major albus. C. B. P. *Larger white Bindweed, called Bearbind.*
3. Convolvulus (*Scammonia*) foliis ſagittatis poſticè truncatis, pedunculis teretibus ſubtrifloris. Prod. Leyd. 427. *Bindweed with arrow-ſhaped leaves torn behind, and two flowers on each foot-ſtalk.* Convolvulus Syriacus & Scammonia Syriaca. Mor. Hiſt. 2. p. 12. *Syrian Bindweed and Syrian Scammony.*
4. Convolvulus (*Purpureus*) foliis cordatis indiviſis fructibus cernuis pedicellis incraſſatis. Lin. Sp. 219. *Bindweed with heart-ſhaped undivided leaves, nodding fruit, and ſwelling foot-ſtalks.* Convolvulus purpureus, folio ſubrotundo. C. B. P. 295. *Purple Bindweed with a roundiſh leaf, commonly called* Convolvulus major, or *Greater Bindweed.*
5. Convolvulus (*Indicus*) foliis cordatis, acuminatis, pedunculis trifloris. *Bindweed with heart-ſhaped pointed leaves, and three flowers on each foot-ſtalk.* Convolvulus major, folio ſubrotundo, flore amplo purpureo. Sloan. Cat. Jam. 55. *Greater Bindweed with a roundiſh leaf, and a large purple flower.*
6. Convolvulus (*Nil*) foliis cordatis trilobis villoſis, calycibus lævibus, capſulis hirſutis, pedunculis bifloris. *Bindweed with heart-ſhaped leaves, having three lobes, which are hairy, ſmooth flower-cups, hairy ſeed-veſſels, and two flowers on each foot-ſtalk.* Convolvulus cæruleus hederaceo anguloſo folio. C. B. P. 295. *Blue Bindweed with an angular Ivy leaf.*
7. Convolvulus (*Batatas*) foliis cordatis haſtatis quinquenerviis, caule repente hiſpido tubifero. Lin. Sp. Plant. 154. *Bindweed with ſpear heart-ſhaped leaves, five nerves, and a creeping ſtinging ſtalk bearing tubers.* Convolvulus radice tuberoſâ eſculenſâ minore purpurea. Sloan. Cat. Jam. 54. *Bindweed with a ſmall, purple, tuberous, eſculent root, commonly called Spaniſh Potatoes.*
8. Convolvulus (*Palmatis*) foliis palmatis, lobis ſeptem-ſinuatis acutis, pedunculis unifloris, calycibus maximis patentibus. *Bindweed with palmated leaves, with ſeven ſinuated pointed lobes, a ſingle flower on each foot-ſtalk, and a large ſpreading empalement.* Convolvulus pentaphyllos, folio glabro dentato, viticulis hirſutis. Plum. Cat.
9. Convolvulus (*Ariſtolochiofolius*) folio haſtato lanceotis, auriculis rotundatis, pedunculis multifloris. *Bindweed with ſpear-pointed leaves, having rounded ears, and many flowers on each foot-ſtalk.* Convolvulus Americanus, Ariſtolochiæ folio longiore, floribus plurimis ex uno pediculo inſidentibus. Houſt. MSS.
10. Convolvulus (*Hirtus*) foliis cordatis ſubhaſtatiſque villoſis, caule petioliſque piloſis, pedunculis multifloris. Lin. Sp. Plant. 159. *Bindweed with heart-ſhaped leaves, ſomewhat ſpear-pointed and downy, with hairy ſtalks and foot-ſtalks, having many flowers.* Convolvulus Americanus Polyanthos, Althææ folio villoſo. Houſt. MSS.
11. Convolvulus (*Glabrus*) foliis ovato oblongis, glabris pedunculis unifloris, calycibus decempartitis. *Bindweed with oval, oblong, ſmooth leaves, and foot-ſtalks having a ſingle flower, whoſe empalement is cut into ten parts.* Convolvulus foliis oblongis, glabris floribus amplis purpureis. Houſt. MSS.
12. Convolvulus (*Pentaphyllos*) hirſutiſſimus, foliis quinquelobatis, pedunculis longiſſimis bifloris. *Very hairy Bindweed, with leaves having five lobes, and very long foot-ſtalks, with two flowers.* Convolvulus pentaphyllos hirſutis. Plum. Cat.
13. Convolvulus (*Fruteſcens*) caule fruticoſo, glabro, foliis quinque lobis, pedunculis geniculatis unifloris, capſulis maximis. *Bindweed with a ſhrubby ſmooth ſtalk, leaves having five lobes, many jointed foot-ſtalks with one flower, and very large ſeed-veſſels.* Convolvulus pentaphyllos, flore & fructu purpureis maximis. Plum. Cat.
14. Convolvulus (*Braſilienſis*) foliis emarginatis, baſi biglanduloſis, pedunculis trifloris. Lin. Sp. Plant. 159. *Bindweed with indented leaves, having two glands and foot-ſtalks, with three flowers.* Convolvulus marinus Catharticus, folio rotundo, flore purpureo. Plum. Pl. Amer. 89. tab. 104.
15. Convolvulus (*Multiflorus*) foliis cordatis, glabris, pedunculis multifloris, ſemine villoſo ferrugineo. *Bindweed with ſmooth heart-ſhaped leaves, foot-ſtalks having many flowers, and ſeeds covered with an iron-coloured down.* Convolvulus Americanus vulgaris folio, capſulis triquetris numeroſis, ex uno puncto, longis petiolis propendentibus, ſemine lanugine ferrugineâ villoſa. Pluk. Phyt. tab. 167. f. 1.
16. Convolvulus (*Canarienſis*) foliis cordatis pubeſcentibus, caule perenni, villoſo, pedunculis multifloris. Lin. Sp. Plant. 155. *Bindweed with ſoft, woolly, heart-ſhaped leaves, a hairy perennial ſtalk, and foot-ſtalks having many flowers.* Convolvulus Canarienſis ſempervirens, foliis mollibus & incanis. Hort. Amſt. 2. p. 101.
17. Convolvulus (*Hederaceus*) foliis triangularibus acutis, floribus plurimis ſeſſilibus patulis, calycibus acutis multifidis. *Bindweed with ſharp-pointed triangular leaves, many ſpreading flowers ſet cloſe to the ſtalk, and acute empalements ending in many points.* Convolvulus folio hederaceo, anguloſo, lanuginoſo, flore magno, cæruleo, patulo. Sloan. Cat. Jam. 56.
18. Convolvulus (*Roſeus*) foliis cordatis, acuminatis pedunculis bifloris. *Bindweed with heart-ſhaped pointed leaves, and foot-ſtalks having two flowers.* Convolvulus Americanus hirſutus, folio acuminato, flore amplo roſeo. Houſt. MSS.
19. Convolvulus (*Repens*) foliis ſagittatis poſticè obtuſis, caule repente, pedunculis unifloris. Lin. Sp. Plant. 158. *Bindweed with narrow-pointed leaves, which are obtuſe at the foot-ſtalk, a creeping ſtalk, and one*

flower on each foot-ſtalk. Convolvulus marinus catharticus, foliis Acetoſæ, flore niveo. Plum. Pl. Am. 89. tab. 105.

20. Convolvulus (*Betonicifolius*) foliis cordato ſagitatis, pedunculis unifloris. *Bindweed with heart-ſhaped arrow-pointed leaves, and foot-ſtalks having a ſingle flower.* Convolvulus exoticus, Betonicæ folio, flore magno albo fundo purpureo. Cat. Hort. R. Par.

21. Convolvulus (*Siculus*) foliis cordato ovatis, pedunculis unifloris, bracteis lanceolatis, flore ſeſſile. Hort. Cliff. 68. *Bindweed with oval heart-ſhaped leaves, foot-ſtalks having one flower, ſpear-ſhaped bracteæ, and the flower ſitting cloſe to the ſtalk.* Convolvulus ſiculus minor, flore parvo auriculato. Bocc. Pl. Sic. 89.

22. Convolvulus (*Elegantiſſimus*) foliis palmatis ſericeis, pedunculis bifloris, calycibus acutis. *Bindweed with ſilky palmated leaves, foot-ſtalks having two flowers, and ſharp-pointed empalements.* Convolvulus argentibus, elegantiſſimus, foliis tenuiter inciſis. Tourn. Inſt. R. H. 85.

23. Convolvulus (*Altheoides*) foliis cordatis inciſis & incanis, pedunculis bifloris, calycibus obtuſis. *Bindweed with hoary heart-ſhaped leaves, which are jagged, foot-ſtalks having two flowers, and obtuſe empalements.* Convolvulus argenteus folio althææ. C. B. P. 295.

24. Convolvulus (*Tricolor*) foliis lanceolato-ovatis glabris, caule declinato, floribus ſolitariis. Vir. Cliff. 68. *Bindweed with oval ſpear-ſhaped leaves, a declining ſtalk, with one flower on each foot-ſtalk.* Convolvulus Luſitanicus flore Cyaneo Broſ; *commonly called Convolvulus minor.*

25. Convolvulus (*Cantabrica*) foliis linearibus acutis caule ramoſo ſubdichotomo, calycibus piloſis. Lin. Sp. 225. *Bindweed with narrow ſpear-ſhaped leaves, a branching ſtalk, and hairy empalements.* Convolvulus linariæ folio aſſurgens. Tourn. Inſt. R. H. 83.

26. Convolvulus (*Lineatus*) foliis lanceolatis, ſericeis, lineatis petiolatis pedunculis bifloris, calycibus ſereceis ſubfoliaceis. Lin. Sp. 224. *Bindweed with ſilky ſpear-ſhaped leaves, having foot-ſtalks, with two flowers on each foot-ſtalk, having ſilky empalements.* Convolvulus minor, argenteus, repens, acaulis ferme. H. R. Par.

27. Convolvulus (*Cneorum*) foliis lanceolatis tomentoſis, floribus capitatis, calycibus hirſutis caule erectiuſculo. Lin. Sp. 224. *Bindweed with ſpear-ſhaped woolly leaves, foot-ſtalks and flowers growing in heads, terminating the ſtalks, which are erect.* Convolvulus argenteus umbellatus, erectis. Tourn. Inſt. R. H. 84.

28. Convolvulus (*Linarifolius*) foliis lineari lanceolatis, acutis caule ramoſo, recto, pedunculis unifloris. Hort. Cliff. 68. *Bindweed with narrow ſpear-ſhaped leaves, which are pointed, upright branching ſtalks, and foot-ſtalks with one flower.* Convolvulus ramoſus incanus, foliis piloſellæ. C. B. P. 295.

29. Convolvulus (*Soldanella*) foliis reniformibus, pedunculis unifloris. Hort. Cliff. 67. *Bindweed with kidney-ſhaped leaves, and one flower on each foot-ſtalk.* Soldanella maritima minor. C. B. P. 295. *Leſſer Sea Bindweed.*

30. Convolvulus (*Turpethum*) foliis cordatis, angulatis, caule membranaceo, quadrangulari, pedunculis multifloris. Flor. Zeyl. 72. *Bindweed with angular heart-ſhaped leaves, a quadrangular membranaceous ſtalk, and foot-ſtalks having many flowers.* Convolvulus Zeylanicus, alatus, maximis, foliis Ibiſci nonnihil ſimilibus anguloſis. Herm. Lud. 177. tab. 178. *Turbith of the ſhops.*

31. Convolvulus (*Jalapa*) foliis variis, pedunculis unifloris, radice tuberoſâ. *Bindweed with variable leaves, foot-ſtalks with ſingle flowers, and a tuberous root.* Convolvulus radice tuberoſâ Catharticâ. Houſt. MSS. *The true Jalap.*

The firſt ſort is very common upon dry banks, and in gravelly grounds, in moſt parts of England, and is generally a ſign of gravel lying under the ſurface. The roots of this ſhoot very deep into the ground, from whence ſome country people call it Devils Guts.

From the root ariſes many weak ſtalks, which trail on the ground, and faſten themſelves about the neighbouring plants; theſe are garniſhed with triangular arrow-pointed leaves. The flowers are produced from the ſide of the branches, having long foot-ſtalks, each ſuſtaining a ſingle flower, which is ſometimes white, at other times red, and frequently is variegated. This is a troubleſome weed in gardens, ſo ſhould be conſtantly rooted out.

The ſecond ſort is alſo a troubleſome weed in gardens, when the roots are intermixed with thoſe of trees and ſhrubs, or under hedges, where the plants cannot be eaſily deſtroyed; but in an open clear ſpot of ground, where the plants are carefully hoed down for three or four months, they may be effectually deſtroyed; for when the ſtalks are broken or cut, a milky juice flows out, and thereby the roots are ſoon exhauſted and decay. The roots of this ſort are pretty thick, extend far on every ſide, and are white. The ſtalks riſe ten or twelve feet high, twining themſelves about trees or hedges, and are garniſhed with large arrow-pointed leaves, which are torn at their baſe. The flowers come out from the ſide of the branches upon long foot-ſtalks, each ſuſtaining one large white flower, which are ſucceeded by roundiſh ſeed-veſſels, having three cells filled with ſeeds, which are convex on one ſide and plain on the other. It flowers in June, and the ſeeds ripen in autumn, ſoon after which the ſtalks decay to the root; but as every ſmall piece of the root will grow, it renders this a troubleſome weed to deſtroy.

The third ſort grows naturally in Syria, where the roots of the plants are wounded, and ſhells placed under the wounds to receive the milky juice which flows out, which is inſpiſſated, and afterward put up and exported: this is what is called Scammony in the ſhops; it is a very hardy plant, and will thrive very well in the open air in England, provided it is on a dry ſoil. The roots of this are thick, run deep into the ground, and are covered with a dark bark. The branches extend themſelves on every ſide to the diſtance of four or five feet; theſe are ſlender, and trail on the ground, if they are not ſupported, and are garniſhed with narrow arrow-pointed leaves. The flowers are of a pale yellow, and come out from the ſide of the branches, two ſitting upon each long foot-ſtalk; theſe are ſucceeded by roundiſh ſeed-veſſels, having three cells, filled with ſeeds ſhaped like thoſe of the former ſort, but ſmaller. It flowers in June and July, and the ſeeds ripen in autumn. If the ſeeds of this ſort are ſown in the ſpring, on a border of light earth, the plants will come up, and require no other culture but to keep them clean from weeds, and thin the plants where they grow too cloſe; for as the branches extend pretty far, the plants ſhould not be nearer than three feet aſunder. The ſtalks decay in autumn, but the roots will abide many years.

The fourth ſort is an annual plant, which grows naturally in Aſia and America, but has been long cultivated for ornament in the Engliſh gardens, and is generally known by the title of Convolvulus major. Of this there are three or four laſting varieties; the moſt common hath a purple flower; but there is one with a white, another with a red, and one with a whitiſh blue flower, which hath white ſeeds. All theſe varieties I have cultivated many years, without obſerving either of them change. If the ſeeds of theſe ſorts are ſown in the ſpring, upon a warm border where the plants are deſigned to remain, they will require no other culture but to keep them clean from weeds; and place ſome tall ſtakes down by them, for their ſtalks to twine about, otherwiſe they will ſpread on the ground, and make a bad appearance. Theſe plants, if they are properly ſupported, will riſe ten or twelve feet high; they flower in June, July, and Auguſt, and will continue till the froſt kills them. Their ſeeds ripen in autumn.

The fifth ſort grows naturally in Jamaica, from whence the late Dr. Houſtoun ſent me the ſeeds; this ſends out long branches, which twiſt about the trees, and riſe to a great height; the leaves are ſmooth, heart-ſhaped, ending in long points, and the ears at the baſe are large and rounded, ſtanding upon long ſlender foot-ſtalks. The flowers come out on the oppoſite ſide of the ſtalks, upon long foot-ſtalks, each ſuſtaining three flowers, with longer tubes than thoſe of the former, and are of a deeper purple colour; this flowers from the latter end of June till the froſt deſtroys it. As this is not ſo hardy as the former, the ſeeds ſhould be ſown upon a hot-bed in the ſpring, to bring the plants forward; and toward the end of May, they ſhould be planted out in warm borders, and treated in the ſame manner as the former ſort.

The ſixth ſort grows naturally in Africa and America; this is an annual plant, which riſes with a twining ſtalk eight or ten feet high, garniſhed with heart-ſhaped leaves, divided into three lobes, which end in ſharp points; theſe are woolly, and ſtand upon long foot-ſtalks; the flowers come out on long foot-ſtalks, each ſuſtaining two flowers of a very deep blue colour, from whence it has been titled Anil or Indigo. This is one of the moſt beautiful flowers of this genus, and is undoubtedly a diſtinct ſpecies; though ſome have ſuppoſed it to be only a variety of the fourth ſort, for I have cultivated it many years, and have never found it alter; the leaves of this having three deeply divided lobes, and thoſe of the fourth ſort being entire, is ſufficient to determine the ſpecific difference; this ſort is annual, and muſt be propagated in the ſame manner as the fifth. It flowers all the latter part of ſummer, and, in good ſeaſons, the ſeeds ripen well in the open air.

The ſeventh ſort is that whoſe roots are eaten, and is generally titled Spaniſh Potatoe; theſe roots are annually imported from Spain and Portugal, where they are greatly cultivated for the table, but they are too tender to thrive well in the open air in England; they are cultivated by the roots in the ſame way as the common Potatoe, but require much more room; for theſe ſend out many trailing ſtalks, which extend four or five feet every way, and at their joints ſend out roots, which, in warm countries, grow to be large tubers, ſo that from a ſingle root planted, forty or fifty large roots are produced. This plant is ſometimes propagated by way of curioſity in England, but the roots ſhould be planted on a hot-bed in the ſpring; and if the plants are kept covered in bad weather with glaſſes, they will produce flowers, and many ſmall roots will be produced from the joints; but if they are expoſed to the open air, they ſeldom make much progreſs.

The eighth ſort grows naturally at La Vera Cruz in New Spain, from whence the ſeeds were ſent me by the late Dr. Houſtoun. This riſes with a ſtrong winding ſtalk to the height of twenty feet, dividing into ſeveral ſmaller, which faſten themſelves about any of the neighbouring trees and ſhrubs; theſe are garniſhed with leaves in ſhape of a hand, having ſeven lobes, which are ſpear-ſhaped, and deeply cut on their borders, ending in ſharp points. The flowers are ſingle on each foot-ſtalk, which are very long. The empalement of the flower is large, ſpreading open, and is divided deeply into five parts. The flowers are large, of a purple colour, and are ſucceeded by large roundiſh ſeed-veſſels, having three cells, in each of theſe is lodged a ſingle ſeed.

This plant is tender, ſo the ſeeds ſhould be ſown on a hot-bed in the ſpring; and when the plants are fit to remove, they muſt be tranſplanted each into a ſeparate pot filled with light earth, and plunged into a moderate hot-bed, obſerving to ſhade them from the ſun till they have taken new root; then they ſhould have a large ſhare of air admitted to them every day, to prevent their drawing weak, and alſo ſhould have moderate waterings three or four times a week. When the plants are grown too tall to remain in the hot-bed, they muſt be ſhifted into larger pots, and placed in the bark-ſtove, where, if they are allowed room, they will riſe to a great height, and produce flowers, but it rarely produces ſeeds in England.

The ninth ſort is an annual plant. The ſeeds of this were ſent me from Carthagena in New Spain, where the plant grows naturally. This riſes with a twining ſlender ſtalk ten feet high, which is garniſhed with arrow-pointed leaves, whoſe ears at the baſe are rounded. The flowers are produced in ſmall cluſters, ſtanding on long foot-ſtalks; theſe are yellow, and are ſucceeded by three-cornered ſeed-veſſels, having three cells, in each of theſe are lodged two ſeeds.

This plant is annual, and too tender to thrive in the open air in England; ſo the ſeeds ſhould be ſown on a hot-bed in the ſpring, and the plants may be afterward treated in the ſame way as the eighth ſort, with which management they will flower and produce ripe ſeeds.

The ſeeds of the tenth ſort were ſent me from Jamaica by the late Dr. Houſtoun, who found the plants growing naturally there in great plenty. This is an annual plant, riſing with ſlender, ſtiff, twining ſtalks, eight or nine feet high, garniſhed with heart-ſhaped leaves, which are downy. The flowers ſtand many together at the end of ſtrong foot-ſtalks; theſe are purple, and are ſucceeded by roundiſh ſeed-veſſels, with three cells, containing ſeveral ſmall ſeeds.

This ſort requires the ſame treatment as the eighth, being too tender to thrive in this country in the open air.

The eleventh ſort was ſent me from the iſland of Barbuda. This is an annual plant, which riſes with twining ſtalks ſeven or eight feet high, garniſhed with oblong, oval, ſmooth leaves. The flowers come out at every joint on ſlender long foot-ſtalks, each ſupporting a large purple flower, whoſe empalement is cut almoſt to the bottom, in ten parts. The ſeeds and capſule are like thoſe of the other ſpecies. This is a tender plant, ſo muſt be treated in the ſame manner as the eighth ſort.

The twelfth ſort grows naturally at Carthagena in New Spain, from whence I received the ſeeds. This is a perennial plant, which riſes with ſtrong winding ſtalks to the height of twelve or fourteen feet, and are garniſhed with leaves, divided into five lobes, ſtanding upon ſhort foot-ſtalks; the flowers ſtand upon long foot-ſtalks, each ſuſtaining two purple flowers. The ſtalks, leaves, and every part of the plant, is cloſely covered with pungent ſtinging hairs, of a light brown colour. This ſort is tender, ſo muſt be treated in the ſame way as the eighth.

The thirteenth ſort grows naturally about Tolu in New Spain, from whence the ſeeds were ſent me by the late Mr. Robert Millar. This hath a ligneous ſtalk covered with a purple bark, which twines about the trees, and riſes to the height of thirty feet or more, and is garniſhed with leaves, which are deeply divided into five ſharp-pointed lobes. The flowers ſtand upon long thick foot-ſtalks, which have a knee in the middle; they are very large, and of a purple colour; theſe are ſucceeded by round ſeed-veſſels, as large as a middling Apple, divided into three cells, each containing two very large ſmooth ſeeds.

This plant is too tender to thrive in the open air in England, ſo muſt be treated in the ſame manner as the eighth ſort, but it grows too tall for the ſtoves here. I have had theſe plants upward of twenty feet high, which have ſent out many ſide branches, extending ſo wide on every ſide, as to cover moſt of the neighbouring plants, ſo that I was obliged to remove them into a cooler ſituation, where they would not thrive.

The fourteenth ſort grows naturally on the ſea ſhores in moſt of the iſlands in the Weſt-Indies, where the ſtalks trail on the ground, which are garniſhed with oval leaves, indented at the top. The flowers are large, of a purple colour, and are produced by threes, on very long foot-ſtalks; theſe are ſucceeded by large oval ſeed-veſſels, with three cells, each containing a ſingle ſeed. This hath a perennial ſtalk, which trails on the ground, and ſpreads to a great diſtance, but is too tender to thrive in the open air in England, ſo muſt be treated in the ſame manner as the eighth ſort, and may be continued two or three years in a warm ſtove; but it is apt to ſpread too far for a ſmall ſtove, ſo that where there is not great room, it is not worthy of culture.

The fifteenth ſort grows naturally in Jamaica; this riſes with ſlender twining ſtalks eight or ten feet high; the leaves of theſe are ſhaped a little like thoſe of the common great white Convolvulus, but the foot-ſtalks, which are pretty long, do each ſuſtain many purple flowers, growing in bunches. The ſeed-veſſels of this ſort are three-cornered, and have three cells, each containing a ſingle ſeed. This is an annual plant, which requires a hot-bed to raiſe it, and muſt be kept in a glaſs-caſe or a ſtove, otherwiſe the ſeeds will not ripen here.

The ſixteenth ſort has been long preſerved in ſeveral curious gardens in England. It grows naturally in the Canary Iſlands; this hath a ſtrong fibrous root, from which ariſe ſeveral twining woody ſtalks, dividing into many ſmaller; theſe, where they have ſupport, will grow more than twenty feet high, and are garniſhed with oblong heart-ſhaped leaves, which are ſoft and hairy. The flowers are produced from the wings of the leaves, ſeveral ſtanding upon one foot-ſtalk; theſe are for the moſt part of a pale blue, but there is a variety of it with white flowers. This plant flowers in June, July, and Auguſt, and ſometimes ripens ſeeds here; but as the plants are eaſily propagated by layers, and alſo from cuttings, the ſeeds are not ſo much regarded; nor indeed will thoſe plants which are raiſed by layers or cuttings produce ſeeds, though thoſe which come from ſeeds ſeldom fail. As the leaves of this plant continue green all the year, the plants make a pretty variety in winter in the green-houſe; for it will not live abroad in winter in this country, though it only requires the ſame protection as Myrtles, and other hardy green-houſe plants. It may be propagated by laying down the young ſhoots in the ſpring, which generally put out roots in three or four months; then they may be taken from the old plants, and each planted in a ſeparate pot filled with light earth, and placed in the ſhade till they have taken new root; after which they may be placed with other hardy green-houſe plants till autumn, when they ſhould be removed into the green-houſe, and afterward treated in the ſame way as Myrtles, and other green-houſe plants. If the tender cuttings of this are planted during any of the ſummer months, in pots filled with light earth, and plunged into a moderate hot-bed, ſhading them from the ſun, they will take root, and afterward ſhould be treated as the layers.

The ſeventeenth ſort is an annual plant; the ſeeds of it were ſent me from Jamaica, where it grows naturally. This riſes with a very ſlender twining ſtalk four or five feet high, garniſhed with triangular leaves, which are pointed. The flowers grow in cluſters, ſitting cloſe to the ſtalks, which are blue, and are ſucceeded by ſeeds like thoſe of the fourth ſort. This ſort will not ripen ſeeds in England, unleſs the plants are brought forward on a hot-bed in the ſpring, and afterward placed in a glaſs-caſe, where they may be defended from cold.

The eighteenth ſort grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. Houſtoun. This is one of the moſt beautiful kinds, the flowers being very large, and of a fine Roſe colour. It riſes with a winding ſtalk ſeven or eight feet high, which is garniſhed with heart-ſhaped leaves, ending in long ſharp points, ſitting upon very long foot-ſtalks. The flowers alſo have long foot-ſtalks, each ſupporting two flowers, whoſe empalement is divided deeply into five parts; the ſeeds of this are large, and covered with a fine down. This is an annual plant, which is too tender to thrive in the open air in this country, ſo the ſeeds ſhould be ſown on a hot-bed in the ſpring, and the plants afterward treated in the ſame manner as is directed for the eighth ſort.

The nineteenth ſort grows naturally near the ſea at Campeachy, from whence I received the ſeeds. This hath ſtrong, ſmooth, winding ſtalks, which ſend out roots at their joints, and are garniſhed with arrow-pointed leaves, whoſe ears or lobes are obtuſe; the flowers are large, of a ſulphur colour, and ſit upon very long foot-ſtalks, which proceed from the ſide of the ſtalks, each ſupporting one flower, with a large ſwelling empalement; theſe are ſucceeded by large, ſmooth, oval capſules, having three cells, each including one large ſmooth ſeed. This is a perennial plant, whoſe ſtalks extend to a great diſtance, and put out roots at the joints, whereby it propagates in plenty; but it is too tender to thrive in England, unleſs it is preſerved in a warm ſtove, where it requires more room than can well be allowed to one plant. It muſt be treated in the ſame manner as the eighth ſort.

The twentieth ſort grows naturally in Africa, from whence the ſeeds were ſent to the royal garden at Paris, and from thence I received it in 1730. This riſes with a ſlender winding ſtalk five or ſix feet high, garniſhed with heart-ſhaped arrow-pointed leaves; the flowers ſtand on long ſlender foot-ſtalks; theſe are white, with purple bottoms. This ſort may be treated in the ſame manner as the common great Convolvulus.

The twenty-firſt ſort grows naturally in Spain and Italy. This is an annual plant, which riſes about two feet high, with ſlender twining ſtalks, garniſhed with oval leaves. The flowers are ſmall, and of a bluiſh colour, each foot-ſtalk ſupporting one flower of little beauty, ſo is not often cultivated in gardens. If the ſeeds of this ſort are permitted to ſcatter, the plants will riſe in the ſpring, and require no other culture but to keep them clean from weeds; or if the ſeeds are ſown in the ſpring, where the plants are to remain, they will flower in June, and the ſeeds will ripen in Auguſt.

The twenty-ſecond ſort grows naturally in Sicily, and alſo in the iſlands of the Archipelago. This hath a perennial root, which ſends out many ſlender ſtiff ſtalks, twiſting themſelves round the neighbouring plants, and riſe five or ſix feet high; theſe are garniſhed with leaves, which are divided into five or ſeven narrow lobes, and are of a ſoft texture, like ſattin, ſtanding on ſhort foot-ſtalks. The flowers are produced from the ſide of the ſtalks upon long foot-ſtalks, which ſuſtain two flowers of a pale Roſe colour, with five ſtripes of a deeper red. This ſort creeps at the root, ſo ſeldom produces ſeeds in England, but is propagated by ſhoots taken from the old plants. The beſt time for parting and tranſplanting theſe plants, is about the beginning of May, when they may be taken out of the green-houſe, and expoſed in the open air; but the young plants which are ſeparated from the old ones, ſhould be placed under a frame, and ſhaded from the ſun till they have taken new root; after which they muſt be gradually hardened to bear the open air, to which they muſt be expoſed all the ſummer; but in autumn they muſt be placed in the green-houſe, and may be treated in the ſame way as the Canary Convolvulus beforementioned.

The twenty-third ſort hath ſome appearance of the twenty-ſecond, and hath been ſuppoſed to be the ſame ſpecies by ſome writers; but I have cultivated both many years, and never have found either of them alter, ſo that I make no doubt of their being diſtinct plants. This ſort hath a perennial root like the former, which ſends out many weak twining ſtalks, riſing about three feet high, twiſting about the plants which ſtand near it, or about each other, and if they have no other ſupport, fall to the ground; theſe are garniſhed with leaves of different forms, ſome are ſhaped almoſt like thoſe of Betony, being ſlightly cut on their edges, others are almoſt heart-ſhaped, and are deeply cut on the ſides, and ſome are cut to the midrib; they have a ſhining appearance like ſattin, and are ſoft to the touch, ſtanding on ſhort foot-ſtalks. The flowers are produced on the oppoſite ſide from the leaves, having very long foot-ſtalks, each ſuſtaining two flowers of a pale Roſe colour, very like thoſe of the former ſpecies. It flowers in June, July, and Auguſt, but rarely ripens ſeeds in England. It hath a perennial root, which ſends out offſets, by which it is propagated in England, in the ſame manner as the laſt mentioned, and the plants muſt be treated in the ſame way.

The twenty-fourth ſort grows naturally in Portugal, but hath been long cultivated in the flower-gardens in England for ornament; this is uſually titled Convolvulus Minor, by the ſeedſmen and gardeners. It is an annual plant, which hath ſeveral thick herbaceous ſtalks, growing about two feet long, which do not twine like the other ſorts, but decline toward the ground, upon which many of the lower branches lie proſtrate; theſe are garniſhed with ſpear-ſhaped leaves, which ſit cloſe to the branches; the foot-ſtalks of the flowers come out juſt above the leaves at the ſame joint, and on the ſame ſide of the ſtalks; theſe are about two inches long, each ſuſtaining one large open bell-ſhaped flower, which in ſome is of a fine blue colour, with a white bottom; in others they are pure white, and ſome are beautifully variegated with both colours. The white flowers are ſucceeded by white ſeeds, and the blue by dark-coloured ſeeds, and this difference is pretty conſtant in both; but thoſe plants with variegated flowers, have frequently plain flowers of both colours intermixed with the ſtriped; therefore the only method to continue the variegated ſort, is to pull off all the plain flowers when they appear, never ſuffering any of them to remain for ſeed.

This ſort is propagated by ſeeds, which ſhould be ſown on the borders of the flower-garden where they are deſigned to remain. The uſual method is to put two or three ſeeds in each place where they are intended to flower, covering them half an inch with earth; and when the plants come up, if the ſeeds all grow, there ſhould be but two left in each place, which will be ſufficient; the others ſhould be drawn out carefully, ſo as not to diſturb the roots of thoſe which are left; after which they will require no other culture but to keep them clean from weeds. If the ſeeds are ſown in autumn, the plants will flower in May; but thoſe which are ſown in the ſpring, will not flower till about the middle of June, and will continue flowering till the froſt ſtops them. The ſeeds ripen in Auguſt and September.

The twenty-fifth ſort grows naturally in Italy and Sicily. This hath a perennial root, which runs deep in the ground, from which ariſe two or three upright branching ſtalks near two or three feet high, garniſhed with narrow leaves about two inches long, which ſit cloſe to the ſtalks; the foot-ſtalks of the flower proceed from the ſame place; theſe are four or five inches long, each ſuſtaining four or five flowers, of a pale Roſe colour, which ſpread open almoſt flat. This flowers in June and July, but ſeldom produces good ſeeds in England. It is propagated by ſeeds, which muſt be obtained from the countries where it naturally grows; theſe ſhould be ſown upon a warm dry border, where they are deſigned to remain; for as the plants run down with long tap-roots, they will not bear tranſplanting, for I have often made trial of this without any ſucceſs. When the plants come up, they ſhould be thinned where they grow too cloſe, and afterward conſtantly kept clean from weeds, which is all the culture it will require. It flowers in July and Auguſt, and the ſtalks decay in autumn; but the roots will laſt ſeveral years, and if they are in a dry ſoil and warm ſituation, will abide through the winters very well without covering. I have received a variety of this from Nice, where it grows naturally, with broader leaves, which are hairy. The flowers are placed all toward the top of the ſtalk upon long foot-ſtalks, growing many together very cloſely joined: but I cannot be ſure if it is not a ſeminal variation, for it was ſent me by the ſame title.

The twenty-ſixth ſort grows naturally in France; this hath a perennial creeping root, from which ariſe ſeveral ſhort branching ſtalks about four inches high, garniſhed with ſpear-ſhaped ſilky leaves; the flowers are produced on the ſide, and at the top of the ſtalks, in ſmall cluſters, ſitting cloſe together; theſe are much ſmaller than thoſe of the former ſort, but are of a deeper Roſe colour: this ſeldom produces ſeeds in England, but the roots propagate in plenty. It delights in a light dry ſoil, and requires no other care but to keep the plants clean from weeds; it may be tranſplanted either in the ſpring or autumn. This is by ſome ſuppoſed to be the ſame as the laſt mentioned ſort, but whoever has cultivated them, can have no doubt of their being different ſpecies.

The twenty-ſeventh ſort grows naturally in Italy, Sicily, and the iſlands in the Archipelago. It riſes with upright ſhrubby ſtalks about three feet high, cloſely garniſhed with blunt, ſpear-ſhaped, ſilky leaves, which are placed on every ſide the ſtalks; they are near two inches long, and a quarter broad, rounding at their ends. The flowers are produced in cluſters at the top of the ſtalks, ſitting very cloſe; they are of a pale Roſe colour, and come out in June and July, but do not perfect ſeeds in England. This plant will live in the open air in mild winters, if it is planted in a light ſoil and a warm ſituation, but in hard winters it is deſtroyed; therefore ſome of the plants ſhould be kept in pots, and ſheltered under a common frame in winter, where it may enjoy the free air in mild weather, and be protected from the froſt, and in ſummer placed abroad with other hardy exotic plants, where its fine ſilky leaves will make a pretty appearance. It may be propagated by laying down the branches, and alſo by cuttings, but both very ſeldom put out roots the ſame year, and many of them will fail; ſo that the beſt way is to procure the ſeeds from Italy, for thoſe plants which come from ſeeds, grow much larger than thoſe which are propagated the other way.

The twenty-eighth ſort grows naturally in Candia, and ſeveral of the iſlands in the Archipelago. This hath a perennial root, which ſends up ſeveral erect branching ſtalks about two feet high, which are garniſhed with very narrow-pointed leaves, ſitting cloſe to the ſtalks, which are hoary. The flowers come out ſingly on the ſide of the ſtalks, ſitting very cloſe to them, having ſcarce any foot-ſtalks; theſe are of a very pale bluiſh colour, and ſpread open almoſt to the bottom. It flowers in June and July, but rarely produces any ſeeds in England.

This ſort is propagated in the ſame manner as the twenty-fifth, and the plants require the ſame treatment. This plant muſt have a dry ſoil and a warm ſituation, otherwiſe it will not live through the winter in the open air in England. As the ſtalks of this ſort decay in autumn, ſo if the ſurface of the ground about their roots is covered with ſome old tanners bark, it will preſerve them in the hardeſt froſts.

The twenty-ninth ſort is uſed in medicine. This is ſtiled Soldanella, and Braſſica marina; it grows naturally on the ſea beaches in many parts of England, but cannot be long preſerved in a garden. This hath many ſmall, white, ſtringy roots, which ſpread wide, and ſend out ſeveral weak trailing branches, which twine about the neighbouring plants like the common Bindweed, and are garniſhed with kidney-ſhaped leaves about the ſize of thoſe of the leſſer Celandine, ſtanding upon long foot-ſtalks, and are placed alternate. The flowers are produced on the ſide of the branches at each joint. Theſe are ſhaped like thoſe of the firſt ſort, and are of a reddiſh purple colour; they appear in July, and are ſucceeded by round capſules, having three cells, each containing one black ſeed; every part of the plant abounds with a milky juice. This is eſteemed a good medicine to purge off watery humours, and is preſcribed in dropſies.

The thirtieth ſort grows naturally in the iſland of Ceylon. This is a perennial plant, having thick fleſhy roots, which ſpread far in the ground, and abound with a milky juice, which flows out when the roots are broken or wounded, and ſoon hardens into a reſinous ſubſtance, when expoſed to the ſun and air. From the root ſhoots forth many twining branches, which twiſt about each other, or the neighbouring plants, like the common Bindweed. Theſe are garniſhed with heart-ſhaped leaves, which are ſoft to the touch, like thoſe of the Marſh Mallow. The flowers are produced at the joints on the ſide of the ſtalks, ſeveral ſtanding together on the ſame foot-ſtalk; they are white, and ſhaped like thoſe of the common great Bindweed. Theſe are ſucceeded by round capſules, having three cells, which contain two ſeeds in each.

The roots of this plant, which is the only part uſed in medicine, are brought to us from India. It is titled Turpethum, or Turbith in the ſhops.

This plant is tender, ſo will not live in the open air in England; it is propagated by ſeeds, which muſt be ſown on a hot-bed; and when the plants are fit to remove, they ſhould be each planted in a ſeparate pot, and plunged into a hot-bed of tanners bark, and ſcreened from the ſun till they have taken freſh root, and afterward muſt be treated in the ſame manner as hath been directed for the eighth ſort.

The thirty-firſt ſort is the Jalap which is uſed in medicine. This grows naturally at Haleppo, in the Spaniſh Weſt-Indies, ſituated between La Vera Cruz and Mexico. The root of this plant hath been long uſed in medicine, but it was not certainly known, what plant it was produced from. The old title of this was Mechoacana nigra, but father Plumier aſſerted that it was the root of one ſpecies of Marvel of Peru; from whence Tournefort was induced to conſtitute a genus from that plant, under the title of Jalapa. But Mr. Ray, from better information, put it among the Convolvuli, and titled it Convolvulus Americanus, Jalapium dictus. This was by the late Dr. Houſtoun certainly aſcertained, who brought ſome of the roots of this plant from the Spaniſh Weſt-Indies to Jamaica, where he planted them, with a deſign of cultivating the plants in that iſland, where he obſerved them to thrive, during his abode there: but ſoon after he left the country, the perſon to whoſe care he committed them, was ſo careleſs as to ſuffer hogs to root them out of the ground, and deſtroy them; ſo that there was no remains of them left, when he returned there; nor have I heard of this plant being introduced into any of the Britiſh iſlands ſince.

A few years paſt I received a few of the ſeeds of this plant, which ſucceeded in the Chelſea garden, where the plants throve very well, but did not produce any flowers. This hath a large root of an oval form, which is full of a milky juice; from which come out many herbaceous triangular twining ſtalks, riſing eight or ten feet, garniſhed with variable leaves, ſome of them being heart-ſhaped, others angular, and ſome oblong and pointed. They are ſmooth, and ſtand upon long foot-ſtalks; and from a drawing of the plant, made by a Spaniard in the country, where it grows naturally, who gave it to Dr. Houſton, and is now in my poſſeſſion, the flowers are ſhaped like thoſe of the common Great Bindweed, each foot-ſtalk ſupporting one flower. But as it is only a pencil drawing, ſo the colour is not expreſſed, therefore I can give no farther account of it. The ſeeds of this are covered with very white down like cotton.

As this plant is a native of a warm country, ſo it will not thrive in England, unleſs it is preſerved in a warm ſtove; therefore the ſeeds muſt be ſown on a hot-bed, and the plants put into pots, and plunged into a hot-bed of tanners bark, and treated in the ſame manner as the eighth ſort; with this difference only, that as this hath large, fleſhy, ſucculent roots, ſo they ſhould have but little water given them, eſpecially in winter, leſt it cauſe them to rot. They ſhould be planted in light ſandy earth not too rich, for the ſame reaſon, and the plants ſhould always remain in the bark-ſtove.

The root of Jalap is eſteemed an excellent cathartic medicine, purging ſerous watery humours eſpecially, and is of ſingular ſervice in dropſies, and for rheumatic diſorders. But the quantity of the root which is uſed in medicine, is not ſufficient to render the introduction of this plant into the Britiſh colonies, a matter of great concern. But ſince the diſtillers and brewers have found out its uſe for exciting a fermentation, the conſumption of it is now ſo great, as that it would become a national benefit, if it were produced in the Britiſh iſlands; which might be ſoon effected, were the inhabitants of thoſe iſlands a little more attentive to their own, and the public benefit.

CONYZA. Lin. Gen. Plant. 854. Tourn Inſt. R. H. 454. tab. 259. [of Κώνωψ, *Gr.* becauſe the leaves, being hung up, drive away gnats and fleas, as Dioſcorides ſays:] Flea-bane.

The CHARACTERS are,

It hath a compound flower, made up of many hermaphrodite florets, which compoſe the diſk; and female half florets, which are ranged round the border, and form the rays; the hermaphrodite florets are funnel-ſhaped, and cut into five parts at the brim, which ſpread open; theſe have each five ſhort hairy ſtamina, terminated by cylindrical ſummits; in the bottom of each floret is ſituated a germen ſupporting a ſlender ſtyle, crowned by a bifid ſtigma. The female half florets or rays, are funnel-ſhaped, and cut into three parts at the top; theſe have a germen, with a ſlender ſtyle, terminated by two ſlender ſtigmas, but have no ſtamina. All theſe are included in a common ſcaly empalement, which is oblong and ſquare; the ſcales are pointed, and the outer ones ſpread open. The hermaphrodite and female florets, are each ſucceeded by one oblong ſeed, crowned with down, ſitting upon a plain receptacle, and are included in the empalement.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua. The plants of this ſection have hermaphrodite and female florets, which are both fruitful.

The SPECIES are,

1. CONYZA (*Squarroſa*) foliis lanceolatis acutis, caule annuo corymboſo. Hort. Cliff. 405. *Flea-bane with pointed ſpear-ſhaped leaves, an annual ſtalk, and flowers growing in roundiſh bunches.* Conyza major vulgaris. C. B. P. 265. *Common greater Flea-bane.*
2. CONYZA (*Bifrons*) foliis ovato oblongis, amplexicaulibus. Hort. Cliff. 405. *Flea-bane with oblong oval leaves embracing the ſtalks.* Eupatoria Conyzoides maxima Canadenſis, foliis caulem amplexantibus. Pluk. Alm. 141.
3. CONYZA (*Candidis*) foliis ovatis tomentoſis, floribus confertis, pedunculis lateralibus terminalibuſque. Hort. Cliff. 405. *Flea-bane with oval woolly leaves, flowers growing in cluſters, and foot-ſtalks proceeding from the ſides and terminating the ſtalks.* Conyza Cretica fruticoſa, folio molli candidiſſimo & tomentoſo. Tourn. Cor. 33.
4. CONYZA (*Lobata*) foliis inferioribus trifidis, ſuperioribus ovato lanceolatis obſolete ſerratis floribus corymboſis. Hort. Cliff. 405. *Flea bane whoſe under leaves are trifid, thoſe above oval and ſpear-ſhaped, and flowers growing in round bunches.* Conyza arboreſcens lutea, folio trifido. Plum. Cat. 9.
5. CONYZA (*Tomentoſis*) arboreſcens, foliis oblongo ovatis, tomentoſis, ſubtus cinereis, floribus terminalibus pedunculis racemoſis. *Tree Flea-bane with oblong woolly leaves, of an Aſh colour on their under ſide, and flowers terminating the branches, ſtanding upon branching foot-ſtalks.* Conyza arboreſcens, tomentoſa, foliis oblongis, floribus in ſummitatibus racemorum, ramoſis ſparſis albicantibus. Houſt. MSS.
6. CONYZA (*Salicifolius*) foliis linearibus decurrentibus ſerratis, floribus corymboſis terminalibus. *Flea-bane with narrow running leaves, and flowers in round bunches terminating the ſtalks.* Conyza herbacea, caule alato, Salicis folio, floribus umbellatis purpureis minoribus. Houſt. MSS.
7. CONYZA (*Corymboſa*) arboreſcens, foliis lanceolatis, floribus corymboſis, terminalibus pedunculis racemoſis. *Tree Flea-bane with ſpear-ſhaped leaves, and flowers growing in round bunches at the end of the ſhoots, having branching foot-ſtalks.* Conyza arboreſcens, foliis oblongis floribus ſingulis tribus floſculis conſtantibus. Houſt. MSS.

8. Conyza (*Viſcoſa*) caule herbaceo, foliis ovatis ſerratis, villoſis, floribus alaribus & terminalibus. *Flea-bane with an herbaceous ſtalk, oval, ſawed, hairy leaves, and flowers proceeding from the ſides, and at the ends of the branches.* Conyza odorata, Bellidis folio villoſa & viſcoſa. Houſt. MSS.

9. Conyza (*Arboreſcens*) foliis ovatis integerrimis acutis ſubtus tomentoſis, ſpicis recurvatis ſecundis, bracteis reflexis. Lin. Sp. 1209. *Flea-bane with entire oval-pointed leaves, woolly on their under ſide, recurved abounding ſpikes of flowers, and reflexed bractea.* Conyza fruticoſa, flore pallide purpureo, capitulis & lateribus ramulorum ſpicatum exeuntibus. Sloan. Cat. Jam. 124.

10. Conyza (*Symphytifolia*) foliis oblongo ovatis ſcabris, floribus racemoſis terminalibus, caule herbaceo. *Flea-bane with oblong, oval, rough leaves, flowers growing in bunches at the ends of the branches, and an herbaceous ſtalk.* Conyza Symphyti facie, flore luteo. Houſt. MSS.

11. Conyza (*Scandens*) foliis lanceolatis ſcabris, nervoſis ſeſſilibus, racemis recurvatis, floribus adſcendentibus, pedunculis lateralibus caule fruticoſo ſcandente. *Flea-bane with rough, nervous, ſpear-ſhaped leaves ſitting cloſe to the branches, recurved ſpikes, with flowers ſtanding upward, foot-ſtalks proceeding from the ſide of the branches, and climbing ſhrubby ſtalks.* Conyza Americana ſcandens, Lauri folio aſpero, floribus ſpicatis albis. Houſt. MSS.

12. Conyza (*Trinerviis*) foliis ovatis glabris, trinerviis integerrimis, floribus ſpicatis terminalibus, caule fruticoſo. *Flea-bane with oval ſmooth leaves, which have three veins and are entire, flowers growing in ſpikes at the ends of the branches, and a ſhrubby ſtalk.* Conyza Americana fruteſcens, foliis ovatis trinerviis & integris, floribus ſpicatis albis. Houſt. MSS.

13. Conyza (*Uniflora*) foliis lanceolatis acutis ſeſſilibus, floribus ſingulis lateralibus, calycibus coloratis, caule fruticoſo ramoſo. *Flea-bane with pointed ſpear-ſhaped leaves ſitting cloſe to the branches, ſingle flowers on the ſide of the branches, which have coloured empalements, and a ſhrubby branching ſtalk.* Conyza Americana fruteſcens foliis oblongis acutis, capitulis & ramulorum exeuntibus, calycibus purpuraſcentibus. Houſt. MSS.

14. Conyza (*Spicata*) fruticoſa foliis ovatis trinerviis, floribus ſpicatis alaribus. *Shrubby Flea-bane with oval leaves having three nerves, and flowers growing in ſpikes from the ſide of the branches.*

15. Conyza (*Pedunculata*) foliis ovato lanceolatis trinerviis, pedunculis longiſſimis terminalibus floribus corymboſis. *Flea-bane with oval ſpear-ſhaped leaves having three veins, foot-ſtalks which are very long terminating the branches, and flowers growing in round bunches.*

16. Conyza (*Baccharis*) foliis ovato oblongis, obtuſis ſerratis, ſemiamplexicaulibus, floribus corymboſis terminalibus. *Flea-bane with oblong oval leaves which are obtuſe and ſawed, half embracing the ſtalks with their baſe, and flowers in round bunches terminating the ſtalks.* Eupatorium Conyzoides Sinica Baccharidis folio rarius crenato, ſummo caule ramoſo, floribus parvis coronato. Pluk. Amath. 80.

17. Conyza (*Odorato*) foliis lanceolatis ſerratis, petiolatis, caule fruticoſo ramoſo, floribus corymboſis terminalibus. *Flea-bane with ſpear-ſhaped ſawed leaves having foot-ſtalks, and flowers growing in round bunches at the end of the branches.* Conyza major odorato ſive Baccharis floribus purpureis nudis. Sloan. Cat. Jam. 121.

18. Conyza (*Hirſuta*) foliis ovalibus integerrimis ſcabris ſubtus hirſutis. Lin. Sp. 1209. *Flea-bane with oval, entire, rough leaves, hairy on their under ſide.*

The firſt ſort grows naturally upon dry places in ſeveral parts of England, ſo is ſeldom allowed a place in gardens. This is a biennial plant, which decays ſoon after the ſeeds are ripe; it hath ſeveral large, oblong, pointed leaves, growing near the ground, which are hairy; between theſe the ſtalks come out, which riſe two feet and a half high, dividing upward into ſeveral branches, garniſhed with ſmaller oblong leaves, ſtanding alternate; at the ends of the ſtalks the flowers are produced in round bunches, which are of a dirty yellow colour; theſe are ſucceeded by oblong ſeeds, crowned with down. It flowers in July, and the ſeeds ripen in autumn. If the ſeeds are permitted to ſcatter, the plants will come up the following ſpring, and require no other care but to keep them clean from weeds.

The ſecond ſort grows naturally on the mountains in Italy, and is preſerved in botanic gardens for the ſake of variety. This hath a biennial root but an annual ſtalk. From a thick fibrous root ariſe many upright ſtalks, garniſhed with oblong oval leaves, which are rough, and embrace the ſtalks with their baſe; theſe have appendages running along the ſtalk, from one to the other, whereby the ſtalk is winged. The upper part of the ſtalks divide into many ſmaller branches, garniſhed with leaves of the ſame form as the other, but ſmaller, ſtanding alternate; the branches and main ſtalks, are terminated by yellow flowers growing in round bunches; theſe are ſucceeded by oblong ſeeds, crowned with down. It flowers in July, and the ſeeds ripen in autumn. This is propagated by ſeeds, which may be ſown on a bed of light earth in the ſpring, and when the plants come up, they ſhould be thinned where they are too near, and kept clean from weeds; the following autumn they may be tranſplanted where they are deſigned to remain, and require no other care but to keep them clean from weeds. The ſecond year they will flower and produce ripe ſeeds, and will continue two years if the ſoil is not too good, for theſe plants often rot, when they are planted in a rich ſoil.

The third ſort grows naturally in Crete. This hath a ſhort ſhrubby ſtalk, which in this country ſeldom riſes more than ſix inches high, dividing into ſeveral ſhort branches, which are cloſely garniſhed with oval, woolly, very white leaves; from theſe branches ariſe the flower-ſtalks, which are woolly, about nine inches high, garniſhed with ſmall, oval, white leaves, placed alternate. The flowers are produced at the ſides, and end of the ſtalk, ſometimes but one, at other times two, and ſometimes three flowers ſtanding on the ſame foot-ſtalk. They are of a dirty yellow colour, and appear in July, but rarely are ſucceeded by ſeeds in this country; ſo the plant is propagated here by ſlips, which, if taken from the old plants in June, and planted on an eaſt-aſpected border, and covered with hand-glaſſes, will take root in ſix or eight weeks. But theſe ſlips muſt be frequently, but gently refreſhed with water, and the glaſſes ſhould be ſhaded in hot weather; and after they have been planted a fortnight, the glaſſes ſhould be raiſed on one ſide to admit air to the cuttings; and when they have taken root, they ſhould be gradually expoſed to the open air. In autumn theſe ſhould be carefully taken up, preſerving the earth to their roots; ſome of them may be planted in pots, that they may be ſheltered under a frame in the winter; and the others ſhould be planted in a warm border of dry poor earth, where they will endure the cold of our ordinary winters very well, and continue many years. This is preſerved in gardens, more for the beauty of its ſilvery leaves than its flowers, which have not much to recommend them.

The fourth ſort grows naturally in Jamaica, from whence it was ſent me by the late Dr. Houſtoun. This is titled by Sir Hans Sloane Virga aurea major, ſc. Herba Doria folio ſinuato hirſuto. Cat. Jam. 125. It riſes with a ſhrubby ſtalk ſeven or eight feet high, dividing into ſeveral branches, garniſhed with rough leaves four inches long, ſhaped like the point of a halbert. The flowers are produced in roundiſh bunches, at the extremity of the branches; they are yellow, and ſtand cloſe together. Theſe are ſucceeded by oblong ſeeds crowned with down.

This plant is too tender to thrive in the open air in this country, therefore the ſeeds muſt be ſown upon a hot-bed; and when the plants are fit to remove, they muſt be each tranſplanted into a ſeparate ſmall pot filled with light ſandy earth, and plunged into a hot-bed, obſerving to ſcreen them from the ſun till they have taken new root; then they muſt have free air admitted to them every day, in proportion to the warmth of the ſeaſon; they muſt alſo be frequently watered in warm weather, but they ſhould not have it in too great plenty. As the plants advance in ſtrength, ſo they muſt have a greater ſhare of air; and if the ſeaſon is warm, they may be expoſed to the open air for a few weeks in the heat of ſummer, provided they are placed in a warm ſituation; but if the nights prove cold, or much wet ſhould fall, they muſt be removed into ſhelter: if theſe plants are placed in a moderate ſtove in winter, they will thrive better than in greater heat, and in ſummer they ſhould have a large ſhare of air. With this management I have had the plants flower well in July, though they have not perfected ſeeds here.

The fifth ſort riſes with a woody ſtalk ten or twelve feet high, dividing into many branches, whoſe bark is covered with a brown down; theſe are garniſhed with oblong oval leaves, which are green on their upper ſide, but of an Aſh colour on their under, placed alternate, on ſhort foot-ſtalks. The flowers are produced at the end of the branches, upon long branching foot-ſtalks, in looſe ſpikes ranged on one ſide; they are white, and are ſucceeded by long flat ſeeds crowned with down. This plant grows naturally at La Vera Cruz in New Spain, from whence Dr Houſtoun ſent me the ſeeds. It is a tender plant, ſo muſt be treated in the ſame manner as hath been directed for the former ſort.

The ſixth ſort grows naturally at La Vera Cruz in New Spain. This hath a perennial root, from which ariſe ſeveral upright ſtalks three feet high, garniſhed with long narrow leaves, ſawed on their edges, placed alternate, and have appendages which run along the ſtalk from one to the other, forming a border or wing to the ſtalks. The flowers are produced at the end of the ſtalks in round bunches, they are ſmall, and of a purple colour, and are ſucceeded by oblong flat ſeeds, crowned with down. This is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring, and the plants muſt afterward be tranſplanted into pots, and plunged into a freſh hot-bed, obſerving to ſcreen them from the ſun till they have taken freſh root; after which they muſt have a large ſhare of air, and about Midſummer they may be placed in the open air in a ſheltered ſituation, where they may remain till the end of September, when they ſhould be removed into the ſtove, and during the winter kept in a temperate degree of warmth. The ſecond year theſe plants will flower, but they do not perfect ſeeds in England.

The ſeventh ſort was ſent me from La Vera Cruz by the late Dr. Houſtoun, who found it growing there naturally. This hath a ſtrong woody ſtem, which riſes to the height of fourteen or ſixteen feet, covered with an Aſh-coloured bark, and is divided upward into many ligneous branches, garniſhed with ſpear-ſhaped leaves ſtanding alternate, on ſhort foot-ſtalks. Theſe branches are terminated by roundiſh bunches of white flowers, ſitting upon long foot-ſtalks, ſeveral of them being joined on the ſame foot-ſtalk. Theſe are not ſucceeded by ſeeds in England, ſo that the ſeeds muſt be procured from abroad, and theſe muſt be ſown on a hot-bed, and the plants afterward treated in the ſame manner as the fourth ſort.

The eighth ſort grows naturally at La Vera Cruz, from whence it was ſent me by the late Dr. Houſtoun; this is an annual plant, which grows in low moiſt places, where the water ſtands in winter; it hath an herbaceous branching ſtalk, which riſes about one foot high, garniſhed at each joint with one oval leaf, ſitting cloſe to the branches; theſe are ſawed on their edges, and covered with a white hairy down. The flowers are produced from the ſide of the branches on ſlender foot-ſtalks, each for the moſt part ſuſtaining three flowers, which are white, and are ſucceeded by chaffy ſeeds, crowned with down; the whole plant is viſcous, and will ſtick to the fingers of thoſe who handle it.

The ſeeds of this plant muſt be ſown on a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each tranſplanted into a ſeparate pot, and plunged into a freſh hot-bed, and treated in the ſame manner as the other tender ſorts, but muſt have a large ſhare of air in warm weather, and frequently refreſhed with water. In July theſe plants will flower, and if the autumn proves favourable, they will ripen their ſeeds; a plant or two of this ſort may be preſerved for the ſake of variety, but there is little beauty in it.

The ninth ſort grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. Houſtoun; this riſes with a ſhrubby ſtalk ſix or ſeven feet high, dividing into many ligneous branches, which have a mealy bark, and garniſhed with ſpear-ſhaped leaves, ſitting cloſe to the branches; they are hairy, and of a ſilver colour on their under ſide, and are placed alternate. The flowers come out from the ſide of the branches, generally in looſe ſpikes, which grow horizontal, and ſtand on the upper ſide erect; but ſometimes they come out ſingle, ſitting cloſe between the leaf and branch; theſe are of a pale purple colour, and are ſucceeded by chaffy ſeeds, crowned with a down.

This ſort is propagated by ſeeds, which muſt be obtained from the country where it grows naturally, for it doth not produce ſeeds in England, though it has flowered ſeveral years in the Chelſea garden; the ſeeds muſt be ſown, and the plants afterward treated in the ſame manner as hath been before directed for the fourth ſort.

The tenth ſort grows naturally at La Vera Cruz, from whence it was ſent me by the late Dr. William Houſtoun; this hath a perennial root, and an annual ſtalk. It grows about three feet high; the leaves are from four to five inches long, and one and a half broad in the middle, and are rough like thoſe of Comfrey. The ſtalks are terminated by branching flower-ſtalks, each foot-ſtalk ſuſtaining ſeveral yellow flowers, not much unlike thoſe of the common ſort. This is propagated by ſeeds in the ſame manner as the ſixth ſort, and the plants muſt be treated in the ſame way. It will flower the ſecond year, but it doth not ripen ſeeds in England.

The eleventh ſort was ſent me from La Vera Cruz by the late Dr. Houſtoun; this hath a climbing ſhrubby ſtalk, which riſes fourteen or ſixteen feet high, and divides into many branches, garniſhed with leaves about the ſize of thoſe of the Bay-tree, and full as thick in their texture, having many deep tranſverſe nerves, running from the midrib to the ſides; they are of a pale green colour. The flowers are produced in long ſpikes, ranged on the upper ſide of the ſpike only, which come out from the ſide of the branches, pointed upward; theſe are large and white, and are ſucceeded by flat dark-coloured ſeeds, crowned with down.

This plant makes a fine appearance in the ſtove when it flowers, and as it retains its leaves all the year, ſo in the winter ſeaſon it affords an agreeable variety among other tender plants. The culture of this plant is the ſame as hath been directed for the fourth ſort, ſo need not be repeated.

The twelfth ſort was ſent me from Carthagena in New Spain, where it grows naturally, by the late Mr. Robert Millar, ſurgeon; this riſes with a ſhrubby ſtalk ſix or ſeven feet high, dividing into ſeveral ligneous branches, garniſhed with oval, ſmooth, entire leaves, having three longitudinal veins, placed alternate, cloſe to the branches. The flowers are produced in ſhort cloſe ſpikes at the end of the branches; theſe are white, and are ſucceeded by oblong flat ſeeds, crowned with down; this ſort is tender, ſo muſt be treated in the ſame manner as the fourth, and will abide ſeveral years with this management.

The thirteenth ſort grows naturally in the ſame country as the laſt mentioned, and was ſent me by the ſame gentleman; this riſes with a ſhrubby ſtalk eight or ten feet high, dividing into many long ſlender branches, garniſhed with ſpear-ſhaped leaves, three inches long, and three quarters of an inch broad in the middle, ending in acute points; the ſmaller branches are ſet with very narrow, oblong, pointed leaves, which grow cloſe to the ſtalks; and at each joint is produced one pretty large white flower, with a purple empalement; theſe flowers come out the whole length of the ſmall branches, ſitting cloſe to the baſe of the leaves, ſo that the plants make a pretty appearance in flower. This may be propagated in the ſame way as the fourth, and with that management it hath flowered very well, but it doth not produce ſeeds in England.

The fourteenth ſort was ſent me from Carthagena by the before-mentioned gentleman, who found it growing there in great plenty. This hath a ſtrong woody ſtem, riſing ten or twelve feet high, divided upward into many ſhort ligneous branches, whoſe joints are very cloſe to each other. The leaves come out alternate on every ſide the branches, to which they ſit very cloſe; they are ſmooth, one inch long, and half an inch broad, ending in acute points, having three longitudinal veins. The flowers are white, and produced in ſhort cloſe ſpikes, which come out from the ſide of the branches, and are ſucceeded by oblong flat ſeeds, crowned with down.

This is a tender plant, ſo requires the ſame treatment as the fourth ſort, with which it hath flowered very well, but hath not produced ſeeds in England.

The fifteenth ſort riſes with a ſhrubby ſtem to the height of ſix or ſeven feet, dividing into ſeveral branches, which have a dark brown bark, and are cloſely garniſhed with oval, ſpear-ſhaped, ſmooth leaves, having three longitudinal veins, ſtanding on ſhort foot-ſtalks, placed alternate on every ſide the branches. The flowers are produced on long naked foot-ſtalks, which extend five or ſix inches beyond the end of the branches; theſe are purple, and form a kind of round bunch: the empalement of the flower is compoſed of ſhort chaffy ſcales.

This grows naturally at Campeachy, from whence the ſeeds were ſent me by Mr. Robert Millar. It is a tender plant, ſo muſt be treated in the ſame way as is directed for the fourth ſort, with which it hath flowered, but hath not produced ſeeds in this country.

The ſixteenth ſort grows naturally at Campeachy, from whence I received the ſeeds; this riſes with a ſhrubby ſtalk to the height of ten or twelve feet, ſending out many ſtrong ligneous branches, covered with a dark-coloured bark, garniſhed with oblong, oval, blunt leaves, ſawed on their edges, and half embrace the ſtalks with their baſe: the flowers are purple, growing in round bunches at the end of the branches, and are ſucceeded by flat ſeeds, crowned with down.

This is alſo a tender plant, and requires the ſame treatment as the fourth ſort, with which it hath flowered, but doth not produce ſeeds in England.

If the ſeeds of theſe plants are ſown in autumn ſoon after they are ripe, there is no danger of their miſcarrying; but as theſe are moſt of them brought from abroad, they do not arrive here in good time, ſo the plants rarely come up the firſt year; therefore the ſeeds ſhould be ſown in pots, that they may be preſerved through the winter, and the following ſpring the plants will come up.

The ſeventeenth ſort grows naturally in Jamaica; this riſes with a ſhrubby branching ſtalk about four or five feet high. The lower branches and ſtalk are garniſhed with ſpear-ſhaped leaves about four inches long, and one broad in the middle; they are ſawed on their edges, and have ſhort foot-ſtalks; the leaves on the upper branches are much narrower, and end in acute points. The flowers are purple, and are produced in round bunches at the end of the branches, and are ſucceeded by downy ſeeds like the other ſpecies. This is tender, and requires the ſame culture as the fourth ſort.

The ſeventeenth ſort grows naturally in China: this is a biennial plant, which periſhes ſoon after the ſeeds are ripe. The ſtalks are hairy, riſing about two feet high, garniſhed with oblong oval leaves, which are entire, rough on their upper ſide, but have many ſtrong pale hairs on their under, placed alternately on the branches. The flowers are purple, coming out from the ſide of the branches in oblong ſpikes.

This ſort is propagated by ſeeds, which ſhould be ſown in pots in the autumn, if they can be procured at that ſeaſon; but the pots ſhould be placed in a garden-frame in winter, to prevent the ſeeds ſuffering by cold and wet. If the ſeeds are ſown in the ſpring, the plants rarely come up the ſame year, therefore it will be proper to ſcreen this in winter; when this is obſerved, the plants will riſe the following ſpring. When the plants are fit to remove, they ſhould be each planted in a ſeparate pot, and placed into a very moderate hot-bed, where they muſt be ſcreened from the ſun until they have taken root; after which they ſhould be gradually hardened to bear the open air, into which they ſhould be removed the beginning of June, placing them in a ſheltered ſituation, where the ſecond ſeaſon they will flower, and if the ſummer is good, they will ripen their ſeeds.

CONSERVATORY. See Green-House.

CONVAL LILY. See Convallaria.

COPAIFERA, the balſam of Capevi.

The Characters are,

It hath no empalement; the flower conſiſts of five leaves, which expands in form of a Roſe; it hath ten ſhort ſtamina, crowned by long ſummits. The pointal is fixed in the center of the flower, which afterward becomes a pod, in which are contained one or two ſeeds, which are ſurrounded with a pulp of a yellow colour.

We know but one ſort of this tree, which is,

Copaifera (*Officinalis*) foliis pinnatis. *The balſam of Capevi.*

This tree grows near a village called Ayapel, in the province of Antiochi, in the Spaniſh Weſt-Indies; this is about ten days journey from Carthagena. There are great numbers of theſe trees in the woods about this village, which grow to the height of fifty or ſixty feet. Some of theſe trees do not yield any of the balſam, thoſe which do are diſtinguiſhed by a ridge which runs along their trunks; the trees are wounded in their center, and they place calabaſh ſhells, or ſome other veſſels to the wounded part to receive the balſam, which will all flow out in a ſhort time. One of theſe trees will yield five or ſix gallons of the balſam; but though theſe trees will thrive well after being tapped, yet they never afford any more balſam.

As this balſam is uſed in medicine, it deſerves our application to procure the trees, and cultivate them in ſome of the Engliſh colonies of America; for as the Engliſh are poſſeſſed of lands in ſo many different latitudes, they might cultivate moſt kinds of trees and plants from the different parts of the world, which are uſeful in medicine, dyeing, or for any other purpoſe of life.

The ſeeds of this tree were brought from the country of their growth by Mr. Robert Millar, ſurgeon, who ſowed a part of them in Jamaica, which he informed me had ſucceeded very well; ſo that we may hope to have theſe trees propagated in great plenty in a few years, in ſome of the Engliſh colonies, if the ſlothfulneſs of the inhabitants doth not ſuffer them to periſh, as they have the Cinnamon-tree, and ſome other uſeful plants, which have been carried thither by curious perſons.

There are not at preſent any of theſe trees in Europe, that I can learn; for thoſe ſeeds which Mr. Millar ſent over to England, were all deſtroyed by inſects in their paſſage, ſo that not one ſucceeded in the ſeveral places where they were ſown; but could freſh ſeeds be procured, the plants might be raiſed in England, and preſerved in the bark-ſtoves very well; for the country of their growth is much more temperate than many others, from whence we have been furniſhed with a great variety of plants, which ſucceed very well in the ſtoves, and ſome of them arrive to a great degree of perfection.

CORALLODENDRON. See ERYTHRINA.

CORCHORUS. Lin. Gen. Plant. 675. Tourn. Inſt. 259. tab. 135. Jews Mallow.

The CHARACTERS are,

The empalement of the flower is compoſed of five narrow ſpear-ſhaped leaves, which are erect. The flower hath five oblong blunt petals, which are no longer than the empalement. It hath many hairy ſtamina, which are ſhorter than the petals, terminated by ſmall ſummits. In the center is ſituated an oblong furrowed germen, ſupporting a ſhort thick ſtyle, crowned by a bifid ſtigma. The germen afterward becomes a cylindrical pod having five cells, which are filled with angular-pointed ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flowers having many ſtamina and but one ſtyle.

The SPECIES are,

1. CORCHORUS (*Olitorius*) capſulis oblongis, ventricoſis, foliorum infimis ſerraturis ſetaceis. Lin. Flor. Zeyl. 213. *Jews Mallow with oblong ſwelling pods, and the ſaws on the under ſide of the leaves terminating with briſtles.* Corchorus ſive Melochia. J. B. 2. 982. *Common Jews Mallow.*
2. CORCHORUS (*Æſtuans*) capſulis oblongis, ſexſulcatis ſexcuſpidatis, foliis cordatis infimis ſerraturis ſetaceis. Lin. Sp. 746. *Jews Mallow with oblong furrowed pods, heart-ſhaped leaves, whoſe ſaws terminate with briſtles.* Corchorus Americana, carpini foliis, ſextuplici capſula prælonga. Pluk.
3. CORCHORUS (*Capſularis*) capſulis ſubrotundis, depreſſis, rugoſis. Flor. Zeyl. 214. *Jews Mallow with roundiſh depreſſed capſules which are rough.* Corchorus Americana, prælongis foliis, capſula ſtriata ſubrotunda brevi. Pluk.
4. CORCHORUS (*Tetragonis*) foliis ovato-cordatis crenatis, capſulis tetragonis, apicibus reflexis. *Jews Mallow with oval heart-ſhaped leaves which are crenated, and four-cornered capſules, whoſe points are reflexed.* Corchorus flore flavo, fructu carophylloide. Pluk.
5. CORCHORUS (*Linearibus*) foliis lanceolatis, ſerrato dentatis, capſulis linearibus, compreſſis, bivalvibus. *Jew Mallow with ſpear-ſhaped leaves, which are indented like the teeth of a ſaw, and narrow, compreſſed, bivalvular pods.*
6. CORCHORUS (*Bifurcatis*) foliis cordatis, ſerratis, capſulis linearibus, compreſſis, apicibus bifurcatis. *Jews Mallow with heart-ſhaped ſawed leaves, and narrow compreſſed pods, whoſe points have two horns.*
7. CORCHORUS (*Siliquoſus*) capſulis linearibus compreſſis, foliis lanceolatis æqualiter ſerratis. Lin. Sp. 746. *Jews Mallow with compreſſed capſules, and ſpear-ſhaped leaves equally ſawed on their edges.* Corchorus Americana, foliis & fructu anguſtioribus. Tourn. Inſt. R. H. 259.
8. CORCHORUS (*Hirſuta*) capſulis ſubrotundis lanatis, foliis ovatis obtuſis tomentoſis æqualiter ſerratis. Lin. Sp. 747. *Jews Mallow with roundiſh downy pods, and obtuſe, oval, woolly leaves, which are equally ſawed on their edges.* Corchoro affinis Chamædryos folio, flore ſtamineo, ſeminioribus atris quadrangulis duplici ſerie diſpoſitis. Sloan. Cat. 50.

The firſt ſpecies, Rauwolf ſays, is ſown in great plenty about Aleppo, as a pot-herb, the Jews boiling the leaves of this plant to eat with their meat; this he ſuppoſes to be the Olus Judaicum of Avicenna, and the Corchorum of Pliny.

This plant grows in the Eaſt and Weſt-Indies, from both which places I have ſeveral times received the ſeeds. In the Eaſt-Indies the herb is uſed in the ſame manner as in the Levant, as I have been informed; but I do not hear that it is uſed by the inhabitants of America.

It is an annual plant, which riſes about two feet high, dividing into ſeveral branches, garniſhed with leaves of different ſizes and forms; ſome are ſpear-ſhaped, others are oval, and ſome almoſt heart-ſhaped; they are of a deep green, and ſlightly indented on their edges, having near their baſe two briſtly ſegments, which are reflexed. They have very long ſlender foot-ſtalks, eſpecially thoſe which grow on the lower part of the branches. The flowers ſit cloſe on the oppoſite ſide of the branches to the leaves, coming out ſingly; they are compoſed of five ſmall yellow petals, and a great number of ſtamina ſurrounding the oblong germen, which is ſituated in the center of the flower, and afterward turns to a rough ſwelling capſule, two inches long, ending in a point, opening in four cells, which are filled with angular greeniſh ſeeds. This plant flowers in July and Auguſt, and the ſeeds ripen in autumn.

The ſecond ſort grows naturally in ſeveral iſlands of the Weſt-Indies, from whence the ſeeds have been ſent me; this is alſo an annual plant, which riſes with a ſtrong herbaceous ſtalk two feet high, divided upward into two or three branches, garniſhed with heart-ſhaped leaves, ſawed on their edges, ſtanding upon long foot-ſtalks; and between theſe are ſeveral ſmaller leaves nearly of the ſame form, ſitting cloſe to the branches. The flowers come out ſingly on the ſide of the branches, as the other, which are ſhaped like them, and are ſucceeded by longer ſwelling pods, which are rough, and have four longitudinal furrows; theſe open into four parts at the top, and contain four rows of angular ſeeds. It flowers and ſeeds at the ſame time with the former ſort.

The third ſort grows naturally in both Indies; I have received the ſeeds of this from ſeveral parts of India and America; this is alſo an annual plant, which riſes with a ſlender herbaceous ſtalk about three feet high, ſending out ſeveral weak branches, which are garniſhed at each joint by one leaf of an oblong heart-ſhape, ending in a long acute point, and are ſawed on their edges, ſtanding upon ſhort foot-ſtalks. The flowers come out ſingly on the ſide of the branches, to which they ſit very cloſe; they are ſmaller than thoſe of the former ſorts, and are ſucceeded by ſhort roundiſh ſeed-veſſels, which are rough, and flatted at the top, having ſix cells filled with ſmall angular ſeeds. This flowers and ſeeds at the ſame time as the former.

The fourth ſort is alſo a native of both Indies, from whence I have received the ſeeds; this is an annual plant, which riſes about two feet high, dividing into ſmall branches, garniſhed with oval heart-ſhaped leaves, ſawed on their edges. The flowers of this are very ſmall, of a pale yellow, and are ſucceeded by ſwelling, rough, four-cornered ſeed-veſſels, about an inch long, flatted at the top, where there are four horns, which are reflexed, ſo that theſe have ſome reſemblance in ſhape to the Clove. This flowers and ſeeds about the ſame time as the former ſorts.

The ſeeds of the fifth ſort were ſent me from Carthagena in New Spain, where the plants grow naturally; this is an annual plant, which riſes about three feet high, ſending out ſeveral weak ſide branches, garniſhed with leaves about three inches long, and one broad in the middle, leſſening gradually to both ends, and are indented on the edges like the teeth of a ſaw, ſitting cloſe to the branches. The flowers come out ſingly, oppoſite to the leaves; they are very ſmall, of a pale yellow, and are ſucceeded by ſeed-veſſels near two inches long, which are flat, and have two cells filled with ſmall angular ſeeds. This flowers and ripens its ſeeds about the ſame time as the former.

The ſeeds of the ſixth ſort were ſent me from Jamaica by the late Dr. Houſtoun; this is an annual plant, which riſes with a ſtrong herbaceous ſtalk between three and four feet high, ſending out ſeveral ſide branches, which grow erect, garniſhed with heart-ſhaped leaves ſawed on their edges, ſtanding upon long ſlender foot-ſtalks; between theſe grow many ſmaller leaves nearly of the ſame form, ſitting cloſe to the branches. The flowers come out from the ſide of the branches, on ſhort foot-ſtalks; they are very ſmall, of a pale yellow, and are ſucceeded by flat ſeed-veſſels near three inches long, ending in two horns; theſe open in two cells, which are filled with ſmall angular ſeeds.

The ſeeds of the ſeventh ſort were ſent me from Barbadoes, where the plant grows naturally, for I have alſo had it riſe in the earth which came over from thence in tubs with growing plants: this riſes about the ſame height as the ſixth, ſending out ſeveral weak ſide branches, garniſhed with long narrow leaves, which are rough, and ſawed on their edges, ſitting cloſe to the branches; between the larger leaves come out ſeveral ſmall ones, which are placed irregularly on the branches. The flowers are ſmall, of a pale yellow, and come out on the ſide of the branches oppoſite to the leaves; theſe are ſucceeded by very narrow compreſſed pods two inches long, opening with two valves, and filled with ſmall angular ſeeds. It flowers and ſeeds at the ſame time with the former.

The eighth ſort grows naturally in Jamaica; this riſes with a ſhrubby ſtalk four feet high, dividing into a great number of ſmall branches, which are cloſely garniſhed with ſmall, oval, ſawed leaves, ſitting cloſe to the branches; between theſe are many very ſmall leaves, placed without order: the flowers are produced on the ſide of the branches on very ſhort foot-ſtalks; theſe are ſmall, and the petals ſoon fall off, ſo that it has been ſuppoſed to have no petals. The flowers are ſucceeded by compreſſed ſeed-veſſels three inches long, which are rounded at their points, and open with two valves at the top, containing a great number of ſmall angular ſeeds. This plant hath a perennial ſtalk, ſo may be preſerved through the winter in a moderate ſtove, and the ſecond year will flower in June, and produce ripe ſeeds in autumn; but when the plants are brought forward ſo as to flower the firſt year, they ſeldom perfect their ſeeds, and theſe plants cannot be ſo well preſerved as thoſe which are treated hardily in the ſummer.

All theſe ſorts are too tender to thrive in England in the open air, therefore their ſeeds muſt be ſown on a hot-bed in the ſpring; and when the plants are come up fit to remove, they ſhould be tranſplanted on a freſh hot-bed to bring the plants forward, otherwiſe they will not ripen ſeeds. After the plants are rooted in the new hot-bed, they muſt have free air admitted to them every day, in proportion to the warmth of the ſeaſon, for they muſt not be drawn up weak; when the plants have obtained ſtrength, they ſhould be tranſplanted each into a ſeparate pot, and plunged into a hot-bed, obſerving to ſhade them from the ſun till they have taken root; then they muſt have a large ſhare of air every day, and ſhould be frequently refreſhed with water; and in June they ſhould be gradually inured to the open air, and part of them may be ſhaken out of the pots, and planted in a warm border, where, if the ſeaſon proves warm, they will flower and perfect their ſeeds; but as theſe will ſometimes fail, it will be proper to put one or two plants of each ſort into pots, which ſhould be placed in a glaſs-caſe, where they may be ſcreened from bad weather, and from theſe good ſeeds may always be obtained. The laſt ſort may alſo be treated in the ſame manner during the ſummer ſeaſon, but in autumn they muſt be removed into the ſtove, and plunged into the bark-bed, and theſe will flower early the ſecond year, and ripen ſeeds.

CORDIA. Plum. Nov. Gen. 13. tab. 14. Sebeſtena. Dillen. Hort. Elth. 225. Sebeſten.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, indented in three parts. It hath one funnel-ſhaped petal, whoſe tube is the length of the empalement, and the top is divided into four, five, or ſix parts, which are obtuſe and erect. It hath five awl-ſhaped ſtamina, terminated by long ſummits, and in the center a roundiſh pointed germen, ſupporting a bifid ſtyle, crowned by two obtuſe ſtigmas. The germen afterward becomes a dry berry, which is globular and pointed, faſtened to the empalement, and incloſes a furrowed nut with four cells.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The SPECIES are,

1. CORDIA (*Sebeſtina*) foliis oblongo-ovatis, repandis, ſcabris. Lin. Sp. Plant. 190. *Cordia with oblong, oval, rough leaves, turning backward.* Caryophyllus ſpurius inodorus, folio ſubrotundo, ſcabro, flore racemoſo, hexapetaloide, coccineo. Sloan. Cat. 136. *Commonly called Lignum Aloes.*
2. CORDIA (*Myxa*) foliis tomentoſis, corymbis lateralibus, calycibus decemſtriatis. Lin. Sp. 273. *Cordia with oval woolly leaves, flowers growing in a corymbus from the ſide of the branches, and empalements with ten ſtripes.* Sebeſtina domeſtica ſive Myxa. Com. Hort. Amſt. 1. 139. *The cultivated Sebeſten.*
3. CORDIA (*Macrophylla*) foliis ovatis, villoſis ſeſquipedalibus. Lin. Sp. Plant. 274. *Cordia with oval woolly leaves half a foot long.* Prunus racemoſa, foliis oblongis hirſutis maximis, fructu rubro. Sloan. Cat. Jam. 184.

The firſt ſort grows naturally in ſeveral iſlands in the Weſt-Indies: this riſes with ſeveral ſhrubby ſtalks eight or nine feet high, which are garniſhed toward the top with oblong, oval, rough leaves, ſtanding alternate on ſhort foot-ſtalks; they are of a deep green on their upper ſide. The flowers terminate the branches, growing in large cluſters upon branching foot-ſtalks, ſome ſuſtaining one, others two, and ſome have three flowers, which are large, funnel-ſhaped, having long tubes, which ſpread open at the top, where it is divided into five obtuſe ſegments; they are of a beautiful ſcarlet, ſo make a fine appearance.

The ſecond ſort is by moſt botaniſts believed to be the Myxa of Cæſalpinus, which is the beſt Sebeſten of the ſhops; the fruit of which was formerly uſed in medicine, but of late years has been ſeldom brought to England, therefore is rarely ordered. This is called Aſſyrian Plum, from the country where it naturally grows. It riſes to the height of our common Plum-trees, but was very rare in this country till the year 1762, when there was ſome of the fruit ſent from Egypt, by thoſe perſons who were ſent to travel at the king of Denmark's expence, from which fruit ſome plants have been raiſed in the Chelſea garden.

The third ſort was diſcovered by father Plumier, in ſome of the French iſlands of America; and ſince was found in the bay of Campeachy, by Mr. Robert Millar, who ſent the ſeeds to England: this ſort grows to the height of eighteen or twenty feet in the natural places where it is found wild; it hath winged leaves, which are large, entire, and ſmooth; but it hath not as yet flowered in England, ſo I can give no farther account of it.

Theſe plants, being natives of warm countries, are too tender to live through the winter in this country, unleſs they are preſerved in a ſtove: they are all propagated by ſeeds, which muſt be procured from the countries of their natural growth; theſe ſeeds muſt be ſown in ſmall pots, which muſt be plunged into a good hot-bed of tanners bark in the ſpring; and if the ſeeds are freſh and good, the plants will begin to appear in ſix or eight weeks after. Theſe muſt be brought forward in the hot-bed, by being treated as other tender exotic plants, obſerving frequently to water them in ſummer; and in July, if the plants have made much advance, they ſhould be gradually hardened, otherwiſe they will grow ſo weak as not to be eaſily preſerved through the winter. As theſe plants obtain ſtrength, they will become more hardy; but during the two firſt winters, it will be proper to plunge them into the tan-bed in the ſtove; but when they begin to have woody ſtems, they may be placed on ſhelves, in a dry ſtove; where, if they are kept in a moderate degree of heat, they may be preſerved very well (eſpecially the firſt ſort) which is ſomewhat hardier than the others. This may alſo be placed abroad in a warm ſituation, in the beginning of July, where

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the plants may remain till the middle of September, provided the ſeaſon continues warm, otherwiſe they muſt be removed into the ſtove ſooner.

The firſt ſort produces very fine flowers, of a ſcarlet colour, in large bunches, at the extremity of the branches, after the ſame manner as the Oleander or Roſe-bay; but theſe flowers are much larger, and of a much finer colour.

A ſmall piece of the wood of this tree being put on a pan of lighted coals, will ſend forth a moſt agreeable odour, and will perfume a whole houſe.

COREOPSIS. Lin. Gen. Pl. 879. Tickſeed.

The CHARACTERS are,

The common empalement of the flower is double, the outer being compoſed of eight leaves, placed circularly; the inner is in every part larger, membranaceous, and coloured. The diſk of the flower is compoſed of many hermaphrodite florets, which are tubular, and divided into five parts at the top; theſe have each five hairy ſtamina, terminated by cylindrical ſummits. In their center is ſituated a compreſſed germen with two horns, ſupporting a ſlender ſtyle, crowned by an acute bifid ſtigma. The germen afterward becomes a ſingle orbicular ſeed, convex on one ſide, and hollow on the other, having a membranaceous border, and two horns on the top. The border or rays of the flower is compoſed of eight female florets which are large, and tongue-ſhaped, indented in five parts; theſe have no ſtamina, but a germen like the other, without any ſtyle or ſtigma, and are abortive.

This genus of plants is ranged in the third ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Fruſtranea; the flowers of this claſs and ſection are compoſed of hermaphrodite florets which are fruitful, and female half florets which are barren.

The SPECIES are,

1. COREOPSIS (*Alternifolia*) foliis lanceolatis, ſerratis, alternis, petiolatis decurrentibus. Hort. Upſal. 270. *Tickſeed with ſpear-ſhaped ſawed leaves, placed alternate, and winged foot-ſtalks.* Chryſanthemum Virginianum, caule alato, ramoſius, flore minore. Pluk. Alm. 100.
2. COREOPSIS (*Lanceolata*) foliis lanceolatis, integerrimis ciliatis. Lin. Sp. Plant. 1283. *Tickſeed with ſpear-ſhaped leaves which are entire.* Bidens ſucciſæ folio, radio amplo laciniato. Hort. Elth. 55.
3. COREOPSIS (*Verticillata*) foliis decompoſito pinnatis, linearibus. Lin. Sp. Plant. 907. *Tickſeed with decompound, winged, narrow leaves.* Ceratocephalus delphinii foliis. Vaill. Act. 1720.
4. COREOPSIS (*Tripteris*) foliis ſubternatis, integerrimis. Hort. Upſal. 269. *Tickſeed with leaves growing by threes, which are entire.* Chryſanthemum Virginianum, folio acutiore, lævi, trifoliato, ſc. anagyridis folio. Mor. Hiſt. 3. p. 21.
5. COREOPSIS (*Radiato*) foliis lineari-lanceolatis, acutè ſerratis, oppoſitis radio amplo integro. *Tickſeed with narrow ſpear-ſhaped leaves, which are oppoſite and ſharply ſawed, and the rays of the flower large and entire.*

The firſt ſort grows naturally in North America every where. This hath a perennial root; the ſtalks decay to the root every winter, which are ſtrong, herbaceous, and riſe to the height of eight or ten feet, garniſhed with ſpear-ſhaped leaves ſawed on their edges, from three to four inches long, and one broad in the middle, placed alternate on every ſide the ſtalks, having ſhort foot-ſtalks, with a border or wing running from one to the other, the whole length of the ſtalk. The flowers grow at the top of the ſtalks, forming a ſort of corymbus, each foot-ſtalk ſuſtaining one, two, or three yellow flowers, ſhaped like Sun-flowers, but much ſmaller. This flowers in September and October, but doth not produce ſeeds in England. It is a very hardy plant, and may be propagated in plenty by parting the roots. The beſt time for this is in autumn, when the ſtalks begin to decay. It will thrive in almoſt every ſoil and ſituation.

The ſecond ſort is an annual plant. The ſeeds of this were brought me from Carolina by Mr. Cateſby, in the year 1726. This hath an upright ſtalk, garniſhed with ſmooth, narrow, ſpear-ſhaped leaves, placed oppoſite, which are entire; from the wings of the leaves come out the foot-ſtalks of the flowers, by pairs oppoſite, and ſtand erect; the lower part of theſe have one or two pair of very narrow leaves, but the upper is naked, and terminated by one large yellow flower, whoſe border or rays are deeply cut into ſeveral ſegments; theſe are ſucceeded by flat winged ſeeds, which, when ripe, roll up; the naked foot-ſtalks of theſe flowers are more than a foot long. This muſt be ſown upon a gentle hot-bed in the ſpring, and when the plants are fit to tranſplant, they ſhould be each planted into a ſeparate ſmall pot, and plunged into a freſh hot-bed to bring them forward; and in June they ſhould be inured by degrees to the open air, and afterward ſome of them may be ſhaken out of the pots, and planted in a warm border; where, if the ſeaſon is good, they will flower in the middle of July, and ripen their ſeeds the beginning of September.

The third ſort hath a perennial root, ſending up many ſtiff angular ſtalks, which riſe upward of three feet high, garniſhed at each joint with decompound winged leaves, ſtanding oppoſite; theſe are very narrow and entire. The branches alſo come out by pairs oppoſite, as do alſo the foot-ſtalks of the flowers; theſe are long, ſlender, and each terminated by a ſingle flower, of a bright yellow colour, the rays or border being oval and entire. The diſk or middle is of a dark purple colour. Theſe appear in July, and continue till September, during which time they make a fine appearance. This grows naturally in Maryland and Philadelphia. It is propagated by parting the roots, in the ſame manner as the firſt ſort, and delights in a light loamy earth, and ſunny expoſure.

The fourth ſort hath a perennial root. It grows naturally in many parts of North America, but has been long cultivated in the Engliſh gardens; the ſtalks of this are ſtrong, round, and ſmooth, riſing ſix or ſeven feet high, garniſhed at each joint with ſome trifoliate leaves, which ſtand oppoſite. The flowers are produced in bunches at the top of the ſtalks, ſtanding upon long foot-ſtalks; they are of a pale yellow, with a dark purple diſk. It flowers in July, but ſeldom produces good ſeeds in England. This ſort is propagated by parting the roots in the ſame manner as the firſt, but requires a better ſoil and poſition.

The fifth ſort grows naturally in South Carolina, from whence the ſeeds were ſent me by the late Dr. Dale. This is an annual plant, which riſes with upright ſtalks to the height of four feet, garniſhed with narrow ſpear-ſhaped leaves, ending in long points, and are deeply ſawed on their edges, ſtanding oppoſite at each joint, upon ſhort foot-ſtalks; theſe leaves are from three to four inches long, and three quarters of an inch broad in the middle, of a deep green on their upper ſide, and pale on their under. At all the upper joints of the ſtalks come out two long ſlender foot-ſtalks, one on each ſide, which are garniſhed with two or three pair of ſmall leaves, and terminated by one flower, compoſed of ſeven female half florets, which compoſe the ray; theſe are oval and entire. The diſk is compoſed of a great number of hermaphrodite florets, which are of a dark colour, and the ſummits of the ſtamina are of a bright yellow; theſe hermaphrodite florets are each ſucceeded by one flat bordered ſeed, having two horns or teeth. This ſort flowers in Auguſt, and if the autumn proves favourable, will ripen its ſeeds in October; but in cold ſeaſons it will not perfect ſeeds in England.

This is propagated by ſeeds, which ſhould be ſown on a warm border in autumn, and the plants will come up the following ſpring; for if the ſeeds are ſown in the ſpring, the plants ſeldom riſe till the year after. When the plants are fit to remove, they ſhould be carefully taken up, and either planted where they are deſigned to remain, or into a nurſery-bed, at four inches diſtance, to get ſtrength, obſerving to ſhade them from the ſun till they have taken freſh root;

after which, thoſe which are planted out for good, will require no other treatment but to keep them clean from weeds; and as they advance in height, they ſhould be ſupported by ſticks, otherwiſe the ſtrong winds in autumn often break them; and thoſe which were placed in a nurſery-bed, when they have obtained proper ſtrength, ſhould be taken up and tranſplanted with balls of earth to their roots, where they are deſigned to ſtand for flowering.

As theſe plants continue to produce flowers till the froſt puts a ſtop to them, they merit a place in every curious garden, eſpecially thoſe which do not ramble and ſpread too much. The firſt is the leaſt deſerving of either, ſo is ſeldom preſerved, but in botanic gardens for the ſake of variety.

CORIANDRUM. Lin. Gen. Plant. 318. Tourn. Inſt. R. H. 316. tab. 168. [of Κορίανδρον, of Κόρις, *Gr.* a tick; ſo called, either becauſe it has the ſcent of this inſect, or, as others ſay, becauſe it drives away or kills them; and Ἄνδρος, *Gr.* the iſle where it grew plentifully.] Coriander.

The Characters are,

It is a plant with an umbellated flower; the univerſal umbel hath but few rays, the partial umbels have many. The firſt hath no involucrum, but the latter hath a three-leaved one; the proper empalement is divided into five parts; the rays of the principal umbel are difform. The hermaphrodite flowers which form the diſk, have five equal heart-ſhaped petals, which are inflexed, but thoſe of the rays have five unequal petals of the ſame form; they have each five ſtamina, terminated by roundiſh ſummits. The germen which is ſituated under the flower, ſupports two ſtyles, crowned by ſmall radiated ſtigmas; the germen afterward becomes a ſpherical fruit, divided into two parts, each having a hemiſpherical concave ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The Species are,

1. Coriandrum (*Sativum*) fructibus globoſis. Hort. Cliff. 100. *Coriander with globular fruit.* Coriandrum majus. C. B. P. 158. *Greater Coriander.*
2. Coriandrum (*Teſticulatum*) fructibus didymis. Hort. Cliff. 100. *Coriander with twin fruit.* Coriandrum minus teſticulatum. C. B. P. 158.

The firſt of theſe ſpecies is the moſt common kind, which is cultivated in the European gardens and fields for the ſeeds, which are uſed in medicine. The ſecond ſort is leſs common than the firſt, and is ſeldom found but in botanic gardens in theſe parts of Europe. Theſe plants grow naturally in the ſouth of France, Spain, and Italy; but the firſt ſort has been long cultivated in the gardens and fields, though at preſent there is not near ſo much of it ſown in England as was ſome years paſt.

Theſe plants are propagated by ſowing their ſeeds in the autumn, in an open ſituation, on a bed of good freſh earth; and when the plants are come up, they ſhould be hoed out to about four inches diſtance every way, clearing them from weeds; by which management theſe plants will grow ſtrong, and produce a greater quantity of good ſeeds. The firſt ſort was formerly cultivated in the gardens as a ſallad herb, and in the Eaſt-Indies is ſtill much cultivated; for the plant is of great uſe in moſt of their compound diſhes, as a culinary herb, and the ſeeds are alſo much eſteemed for the like purpoſes; but in Europe neither of them are now much uſed.

The ſecond ſort will riſe eaſily from ſeeds, if they are ſown in the autumn; but thoſe which are ſown in the ſpring rarely ſucceed, or at leaſt do not come up till the following ſpring.

CORIARIA. Lin. Gen. Plant. 458. Niſſol. Act. Reg. 1711. Myrtle-leaved Sumach, vulgò.

The Characters are,

It is male and hermaphrodite in different plants; the male flowers have a five-leaved empalement; the flower has five leaves, which are joined to the empalement; theſe have ten ſlender ſtamina, terminated by oblong ſummits; the hermaphrodite flowers have the like empalement, and the ſame number of petals, and in the center are placed five pointals, which turn to a berry, incloſing five kidney-ſhaped ſeeds.

This is ranged in the ninth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Decandria, the plants having male and hermaphrodite flowers on different roots.

The Species are,

1. Coriaria (*Myrtifolia*) foliis ovato oblongis. Hort. Upſal. 299. *Myrtle-leaved Sumach, with oblong oval leaves.* Coriaria vulgaris mas. Niſſol. Act. 1711.
2. Coriaria (*Fœmina*) vulgaris fœmina. Lin. Hort. Cliff. *Female Myrtle-leaved Sumach.*

The ſort with male flowers has been the moſt common in England, the other having been very rarely raiſed in our gardens: a few years paſt, when ſome plants were raiſed from ſeeds, which came from Italy, in the Chelſea garden, where the plants ſo raiſed have moſt of them proved of the hermaphrodite ſort, and have produced great quantities of ſeeds, which have grown, though there is not one plant of the male ſort at preſent in the garden; the not finding any plants in the Engliſh gardens, but thoſe with male flowers, occaſioned my writing abroad for the ſeeds. Theſe grow wild in great plenty about Montpelier in France, where it is uſed for tanning of leather; and, from this uſe, has been titled by the botaniſts, Rhus coriariorum, i. e. Tanners Sumach.

Theſe ſhrubs ſeldom grow more than three or four feet high; and as they creep at the root, they ſend forth many ſtems, whereby they form a thicket, ſo may be planted to fill up vacancies in wilderneſs quarters; but they are improper for ſmall gardens, where they will take up too much room; and as there is no great beauty in the flowers, they are only admitted for variety.

It is ſtrange that Monſieur Niſſol, who lived upon the place where theſe grew in plenty, who conſtituted this genus, in the Memoirs of the Acadamy at Paris, has taken no notice of their being male and hermaphrodite in different plants.

It may be propagated plentifully from the ſuckers, which are produced from the creeping roots in great abundance; theſe ſhould be taken off in March, and planted into a nurſery to form good roots, where they may continue one or two years, and then muſt be removed to the places where they are to remain.

This plant delights in a loamy ſoil which is not too ſtiff, and ſhould be placed where it may have ſhelter from the north and eaſt winds; where it will endure the cold of our ordinary winters very well, and will flower better than if it is preſerved in pots and ſheltered in the winter, as hath been by ſome practiſed.

CORINDUM. See Cardiospermum.

CORIS. Lin. Gen. Plant. 216. Tourn. Inſt. 652. tab. 423. We have no Engliſh name for this plant.

The Characters are,

The empalement of the flower is of one leaf, with a ſwelling belly, but cloſed at the top, where it is divided into five parts, which are crowned by five ſpines; the flower hath one irregular petal, whoſe tube is the length of the empalement, and ſpread open at the top, where it is divided into five oblong ſegments, which are obtuſe and indented; it hath five briſtly ſtamina, terminated by ſingle ſummits. In the center is ſituated a round germen, ſupporting a ſlender declining ſtyle, crowned by a thick ſtigma; the empalement afterward becomes a globular capſule, having five valves, incloſing ſeveral ſmall oval ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

We have but one Species of this plant, viz.

Coris (*Monſpelienſis*). Hort. Cliff. 68. Coris cærulea maritima. C. B. P. 280. *Blue maritime Coris.*

There are two other varieties of this plant, one with a red, and the other a white flower, but theſe are only accidental varieties ariſing from the ſame ſeeds.

Theſe plants grow wild about Montpelier, and in many other parts of the ſouth of France, and alſo in Italy; they ſeldom grow above ſix inches high, and ſpread near the ſurface of the ground like heath; and in June, when they are full of flowers, they make a very pretty appearance.

They may be propagated by ſowing their ſeeds in the ſpring, on a bed of freſh earth; and when the plants are about an inch high, they ſhould be tranſplanted, ſome of them into pots filled with freſh light earth, that they may be ſheltered in winter; and the others into a warm border, where they will endure the cold of our ordinary winters very well, but in ſevere froſt they are generally deſtroyed; for which reaſon, it will be proper to have ſome plants of each ſort in pots, which may be put under a common hot-bed frame in winter, where they may be covered in froſty weather; but when it is mild, they ſhould have a great ſhare of free air: theſe plants ſometimes produce ripe ſeeds in England; but as they do not conſtantly perfect their ſeeds, it will be proper to increaſe them from ſlips and cuttings, which will take root, if planted about the end of Auguſt on a very gentle hot-bed, and ſhaded from the ſun and duly watered.

CORISPERMUM. Lin. Gen. Plant. 12. Juſſ. Act. R. S. 1712. Tickſeed.

The Characters are,

The flower hath no empalement, it hath two compreſſed incurved petals, which ſtand oppoſite and are equal; it hath one, two, or three ſtamina, which are ſhorter than the petals, terminated by ſingle ſummits, with a compreſſed pointed germen, ſupporting two hairy ſtyles, crowned by acute ſtigmas. The germen afterward becomes one oval compreſſed ſeed, with an acute border.

This genus of plants is ranged in the ſecond ſection of Linnæus's firſt claſs, intitled Monandria Digynia, the flower having one ſtamina and two ſtyles.

The Species are,

1. Corispermum (*Hyſopifolium*) floribus lateralibus Hort. Upſal. 2. *Tickſeed with flowers on the ſide of the ſtalks.* Coriſpermum Hyſſopifolium. Juſſ. Act. R. S. 1712. *Hyſſop-leaved Tickſeed.*
2. Corispermum (*Squarroſum*) ſpicis ſquarroſis. Hort. Upſal. 3. *Tickſeed with rough ſpikes.* Rhagroſtis foliis arundinaceis. Buxb. Cent. 3. p. 30. *Rhagroſtis with Reed-like leaves.*

Theſe plants are preſerved in botanic gardens for the ſake of variety; but as they have no beauty, are ſeldom cultivated in other gardens.

The firſt ſort is an annual plant, which, if ſuffered to ſcatter its ſeeds, the ground will be plentifully ſtocked with the plants, which will require no other care but to prevent the weeds from over-growing them.

The ſecond will not grow but in marſhy places, where there is ſtanding water; over the ſurface of which this plant will ſoon extend, when once it is eſtabliſhed.

As we had no Engliſh name to this genus, I have given it this of Tickſeed, which correſponds with the Greek name.

CORK-TREE. See Quercus.

CORN-FLAG. See Gladiolus.

CORNICULATE PLANTS [Plantæ Corniculatæ,] are ſuch, as after each flower, produce many horned ſeed-pods, called Siliquæ.

CORN-MARIGOLD. See Chrysanthemum.

CORN-SALLAD. See Valeriana.

CORNUS. Lin. Gen. Plant. 139. Tourn. Inſt. 641. tab. 410. [ſo called, of Cornu, *Lat.* a horn; becauſe its wood, or the ſhell of its fruit, is hard as a horn.] The Cornelian Cherry.

The Characters are,

It hath many flowers included in one common four-leaved involucrum, which is coloured. The flowers have each a ſmall empalement, ſitting on the germen, which is indented in four parts. They have four plain petals, which are ſmaller than the leaves of the involucrum, and four erect ſtamina, which are longer than the petals, terminated by roundiſh ſummits. The round germen ſituated below the empalement, ſupports a ſlender ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes an oval, or roundiſh berry, incloſing a nut, with two cells, having an oblong kernel.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flowers having four ſtamina and but one ſtyle.

The Species are,

1. Cornus (*Sanguinea*) arborea, cymis nudis. It. Weſtgoth. Lin. Sp. Plant. 117. *Dogwood-tree with naked ſhoots.* Cornus fœmina. C. B. P. 447. *Female Dogwood, and the Virga Sanguinea.* Matth.
2. Cornus (*Mas*) arborea, umbellis involucrum æquantibus. Hort. Cliff. 38. *Tree Dogwood with umbels equal to the involucrum.* Cornus hortenſis mas. C. B. P. 447. *Male Cornel, or Cornelian Cherry-tree.*
3. Cornus (*Florida*) arborea, involucro maximo, foliolis obverſe cordatis. Hort. Cliff. 38. *Tree Dogwood with a very large involucrum, and obverſe heart-ſhaped leaves.* Cornus mas, Virginiana, floſculis in corymbo digeſtis, à perianthio tetrapetalo albo radiatim cinctis. Pluk. Alm. 120.
4. Cornus (*Fœmina*) arborea, foliis lanceolatis, acutis, nervoſis, floribus corymboſis terminalibus. *Tree Dogwood with ſpear-ſhaped acute leaves which are veined, and flowers diſpoſed in a corymbus, terminating the branches.* Cornus fœmina Virginiana anguſtiore folio. Edit. prior. *Female Virginia Dogwood with a narrower leaf.*
5. Cornus (*Amomum*) arborea foliis ovatis petiolatis, floribus corymboſis terminalibus. *Tree Dogwood with oval leaves having foot-ſtalks, and flowers collected into a corymbus at the end of the branches.* Cornus Americana ſylveſtris, domeſticæ ſimilis, baccâ cærulei coloris elegantiſſimâ, Amomum Novæ Angliæ quorundam. Pluk. Phyt. tab. 169. f. 3. *By ſome ſuppoſed to be the true Amomum of New England.*
6. Cornus (*Candidiſſima*) arborea foliis lanceolatis, acutis, glabris, umbellis involucro minoribus, baccis ovatis. *Tree Dogwood with ſmooth, ſpear-ſhaped, pointed leaves, umbels ſmaller than the involucrum, and oval berries.* Cornus fœmina candidiſſimis foliis Americana. Pluk. Alm. 120.
7. Cornus (*Tartarica*) arborea foliis oblongo ovatis, nervoſis, infernè albis, floribus corymboſis terminalibus. *Tree Dogwood with oblong, oval, veined leaves, white on their under ſide, and flowers growing in a corymbus at the end of the branches.* Cornus ſylveſtris fructu albo. Amman. Ruth. *Wild Dogwood with a white fruit.*
8. Cornus (*Suecica*) herbacea ramis binis. Fl. Lapp. 55. *Herbaceous Dogwood with double branches.* Cornus pumila herbacea, chamæpericlymenum dicta. Hort. Elth. 108. *Low herbaceous Dogwood, called Dwarf Honeyſuckle.*

The firſt of theſe trees is very common in the hedges in divers parts of England, and is ſeldom preſerved in gardens. The fruit of this plant is often brought into the markets, and ſold for Buckthorn berries, from which it may be eaſily diſtinguiſhed, if the berries are opened to obſerve how many ſtones there are in each; which in this fruit is but one, but in the Buckthorn four, and they may be eaſily diſtinguiſhed by rubbing the juice of the berries on paper; that of the Buckthorn will ſtain the paper green, whereas the juice of this ſtains it purple. This tree is called Virga Sanguinea, from the young ſhoots being of a fine red colour. There is a variety of this tree with variegated leaves, which is preſerved in the nurſeries, but is not much eſteemed.

The ſecond ſort is very common in the Engliſh gardens, where it was formerly propagated for its fruit, which was by ſome people preſerved to make tarts. It is alſo uſed in medicine as an aſtringent and cooler: there is alſo an officinal preparation of this fruit, called Rob de Cornis. Of this there are two or three varieties, which differ only in the colour of their fruit, but that with the red fruit is the moſt common in England.

As the fruit of this tree is not at preſent much eſteemed, the nurſery-men about London propagate it as one of the ſorts which is commonly ſold as a flowering ſhrub, and is by ſome people valued for coming ſo early to flower; for if the ſeaſon is mild, the flowers will appear by the beginning of February; and though there is no great beauty in the flowers, yet, as they are generally produced in plenty, at a ſeaſon when few other flowers appear upon trees, a few plants of them may be admitted for variety. The fruit of this tree is ſeldom ripe before September. The tree will grow eighteen or twenty feet high, and make a large head.

The third ſort is an American, from whence the ſeeds have been brought to England: this is found in all northern parts of America, as are alſo the fourth, fifth, and ſixth ſorts, being natives of the woods in Virginia, New England, Maryland, and Carolina. Theſe are all of them very hardy, and thrive well in the open air in England, ſo are cultivated by the nurſery-men near London, to add to the variety of their hardy trees: theſe grow to the ſame height with our common female Dogberry, and make a much better appearance. The ſhoots of the fifth ſort are of a beautiful red colour in winter; and in ſummer the leaves being large, of a whitiſh colour on their under ſide, and the bunches of white flowers growing at the extremity of every branch, renders this ſhrub valuable; and in autumn, when the large bunches of blue berries are ripe, they make a fine appearance.

The third ſort is now very common in the nurſeries, where it is known by the name of Virginia Dogwood. This ſort is of much humbler growth than either of the former, ſeldom riſing above ſeven or eight feet high, but is generally well garniſhed with leaves, which are larger than either of the other ſorts. This does not flower ſo plentifully as the other ſorts, nor have I yet ſeen any of theſe ſhrubs, which have produced berries in England, though they are as hardy as the other.

There is a variety of this with a red involucrum or cover to the flowers, which adds to the beauty of the plant; this was found wild in Virginia by Mr. Baniſter, and afterward by Mr. Cateſby. This and the former ſort are great ornaments to the woods in America, firſt by their early flowering in the ſpring before the green leaves appear; and in the winter they are alſo beautiful when the berries are ripe, which hang upon the ſhrubs till the ſpring.

The eighth ſort grows upon Cheviot-hills in Northumberland, and alſo upon the Alps, and other mountainous places in the northern countries, but is very difficult to preſerve in gardens; the only method is, to remove the plants from the places of their natural growth, with good balls of earth to their roots, and plant them in a moiſt ſhady ſituation, where they are not annoyed by the roots of other plants. In ſuch a ſituation they may be preſerved two or three years, but it rarely happens that they will continue much longer. This is a low herbaceous plant, whoſe ſtalks decay in the autumn.

All the ſorts of Dogwood may be propagated by their ſeeds, which, if ſown in autumn ſoon after they are ripe, will moſt of them come up the following ſpring; but if the ſeeds are not ſown in autumn, they will lie a year in the ground before the plants will appear, and when the year proves dry, they will ſometimes remain two years in the ground; therefore the place ſhould not be diſturbed, where theſe ſeeds are ſown, under two years, if the plants ſhould not come up ſooner. When the plants are come up, they ſhould be duly watered in dry weather, and kept clean from weeds; and the autumn following they may be removed, and planted in beds in the nurſery, where they may remain two years, by which time they will be fit to tranſplant where they are to remain for good.

They are alſo propagated by ſuckers, and laying down the branches. Moſt of the ſorts produce plenty of ſuckers, eſpecially when they are planted on a moiſt light ſoil, which may be taken off from the old plants in autumn, and planted into a nurſery for a year or two, and then may be tranſplanted into the places where they are to remain; but thoſe plants which are propagated by ſuckers, rarely have ſo good roots as thoſe which are propagated by layers; and being much more inclinable to ſhoot out ſuckers, whereby they will fill the ground round them with their ſpawn, they are not near ſo valuable as thoſe plants which are raiſed from layers.

CORNUTIA. Plum. Nov. Gen. 17. Lin. Gen. Plant. 684. Agnanthus. Vaill. Act. R. 1722. We have no Engliſh name for this plant. It is ſo called from Cornutus, a phyſician of Paris, who publiſhed a hiſtory of Canada plants

The CHARACTERS are,

The flower hath a ſmall permanent empalement of one leaf, which is tubular, and indented in five parts at the top. The flower is of one petal, having a cylindrical tube, which is much longer than the empalement, and divided into four parts at the top; the upper ſegment is round and erect, the two ſide ones ſpread apart, and the lower is round and entire. It hath four ſtamina, two of theſe are longer than the tube, the other are ſhorter; they are terminated by inclining ſummits. In the center is ſituated the roundiſh germen, ſupporting a long ſtyle, divided into two parts, crowned by two thick ſtigmas. The germen afterward becomes a globular berry, ſitting upon the empalememt, incloſing ſeveral kidney-ſhaped ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flowers having two long and two ſhort ſtamina, and the ſeeds are included in a capſule.

There is but one SPECIES of this genus, viz.

CORNUTIA (*Pyramidata*). Hort. Cliff. 319. Cornutia flore pyramidato cæruleo, foliis incanis. Nov. Gen. 32. *Cornutia with a blue pyramidal flower and hoary leaves.*

This plant was firſt diſcovered by father Plumier in America, who gave it the name. It is found in plenty in ſeveral of the iſlands in the Weſt-Indies, as alſo at Campeachy and La Vera Cruz, from both which places I received the ſeeds, which were collected by my late ingenious friend Dr. William Houſtoun, and afterward by Mr. Robert Millar, from the ſame country. It grows to the height of ten or twelve feet; the branches are four-cornered, grow ſtraggling, and the leaves are placed oppoſite. The flowers are produced in ſpikes at the end of the branches, which are of a fine blue colour; theſe uſually appear in autumn, and ſometimes will remain in beauty for two months or more.

It is propagated by ſeeds, which ſhould be ſown early in the ſpring on a hot-bed; and when the plants are come up, they ſhould be tranſplanted each into a ſeparate halfpenny pot, filled with light freſh earth, and plunged into a hot-bed of tanners bark, obſerving to ſhade them until they have taken root; after which they ſhould have freſh air let into the bed, in proportion to the warmth of the ſeaſon, and ſhould be frequently watered (for it naturally grows on ſwampy ſoils.) When the plants have filled theſe pots with their roots, they ſhould be ſhifted into others of a larger ſize, and plunged into a hot-bed again, where they ſhould be continued till October, when they muſt be removed into the bark-ſtove, and plunged into the tan, for otherwiſe it will be very difficult to preſerve them through the winter. The ſtove in which theſe plants are placed ſhould be kept to the temperate heat marked on Mr. Fowler's thermometers, which will agree better with them than a hotter ſtove. The third year from ſeeds theſe plants will flower, when they make a fine appearance in the ſtove, but they never perfect their ſeeds in England.

They may alſo be propagated by cuttings, which, if planted into pots filled with earth, and plunged into a bark-bed, obſerving to ſhade and water them, will take root, and muſt be afterwards treated as the ſeedling plants.

CORONA IMPERIALIS. See FRITILLARIA.

CORONA SOLIS. See HELIANTHUS.

CORONILLA, Jointed-podded Colutea.

The CHARACTERS are,

The flower hath a ſhort permanent empalement of one leaf, which is compreſſed, bifid, and erect. It hath a *butterfly flower, whoſe ſtandard is heart-ſhaped, and reflexed on each ſide. The wings are oval, and join at the top. The keel is ſhorter than the wings, is pointed and compreſſed. It hath nine ſtamina which are united, and one ſtanding ſingle, which are broad at the top, terminated by ſmall ſummits. In the center is ſituated an oblong taper germen, ſupporting a briſtly riſing ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a taper jointed pod, incloſing oblong ſeeds.*

This genus of plants is ranged in the ſecond ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, the flower having ten ſtamina, nine of which are united, and one ſtands ſingle. To this genus Dr. Linnæus has joined the Emerus of Cæſalpinus, and the Securidaca of Tournefort, whereby he multiplies the ſpecies; but as theſe differ eſſentially in their fructification, I ſhall treat of them ſeparately, following the example of all the former botaniſts.

The Species are,

1. **Coronilla** (*Glauca*) fruticoſa, foliis ſeptenis, ſtipulis lanceolatis. Lin. Sp. 1047. *Shrubby Coronilla with ſeven pair of ſmall leaves, and ſpear-ſhaped ſtipula.* Coronilla maritima glauco folio. Tourn. Inſt. 650.
2. **Coronilla** (*Argentea*) fruticoſa foliolis undenis, extimo majore. Lin. Sp. Plant. 1049. *Shrubby Coronilla with eleven pair of ſmall leaves, the outer being the largeſt.* Coronilla argentea Cretica. Tourn. Inſt. 650.
3. **Coronilla** (*Valentina*) fruticoſa foliis ſubnovenis ſuborbiculatis. Lin. Sp. Plant. 1047. *Shrubby Coronilla with nine lobes which are orbicular.* Polygala Valentina.
4. **Coronilla** (*Hiſpanica*) fruticoſa enneaphylla, foliolis emarginatis, ſtipulis majoribus ſubrotundis. *Shrubby nine-leaved Coronilla, whoſe ſmall leaves are indented, and larger roundiſh ſtipulæ.* Coronilla ſiliquis & ſeminibus craſſioribus. Tourn. Inſt. R. H. 650.
5. **Coronilla** (*Minima*) foliolis plurimis, ovatis, caule ſuffruticoſo declinato, pedunculis longioribus. *Coronilla with many oval lobes, a declining ſtalk ſomewhat ſhrubby, and longer foot-ſtalks to the flowers.* Coronilla minima. Tourn. Inſt. R. H. 650. *Smalleſt Coronilla.*
6. **Coronilla** (*Varia*) herbacea, leguminibus erectis, teretibus, toroſis, numeroſis, foliis glabris. Hort. Cliff. 363. *Herbaceous Coronilla with many taper erect pods, and ſmooth leaves.* Coronilla herbacea flore vario. Tourn. Inſt. 650.
7. **Coronilla** (*Cretica*) herbacea, leguminibus quinis, erectis, teretibus, articulatis. Prod. Leyd. 387. *Herbaceous Coronilla with five taper, erect, jointed pods.* Coronilla Cretica herbacea, flore parvo purpuraſcente. Tourn. Cor. 44.
8. **Coronilla** (*Orientalis*) herbacea leguminibus numeroſis, radiatis, craſſioribus, articulatis, foliolis ſubtus glaucis. *Herbaceous Coronilla with many thick jointed pods diſpoſed like rays, and ſmaller leaves of a ſea-green on their under ſide.* Coronilla orientalis herbaceo, flore magno luteo. Tourn. Cor. 44.
9. **Coronilla** (*Juncea*) fruticoſa, foliis quinatis ternatiſque lineari-lanceolatis ſubcarnoſis obtuſis. Lin. Sp. 1047. *Shrubby Coronilla with five and trefoil linear, ſpear-ſhaped leaves, which are obtuſe and fleſhy.* Doricum luteum Hiſpanicum carnoſius. Barrel. Icon. 133.
10. **Coronilla** (*Scandens*) caule hirſuto, volubili, foliolis quinis ovatis, floribus binis, erectis, axillaribus, leguminibus erectis, villoſis. *Coronilla with a twining hairy ſtalk, five oval leaves, two flowers growing erect on the ſides of the branches, and upright hairy pods.* Coronilla ſcandens pentaphylla. Plum. Cat. 19. *Climbing five-leaved Coronilla.*

The firſt ſort is an humble ſhrub, which ſeldom riſes more than two or three feet high, with a ligneous branching ſtalk, garniſhed cloſely with winged leaves, each being generally compoſed of five pair of ſmall leaves (or lobes) terminated by an odd one; theſe are narrow at their baſe, and broad at the top, where they are roundiſh and indented; they are of a ſea-green colour, and continue all the year. The flowers are produced on ſlender foot-ſtalks from the wings of the leaves, on the upper part of the branches, ſeveral ſtanding together in a roundiſh bunch; they are of the butterfly, or Pea-bloom kind, and of a bright yellow colour, having a very ſtrong odour, which to ſome perſons is agreeable, but to others the contrary. This flowers in April and May, and the ſeeds ripen in Auguſt.

This plant is propagated by ſowing the ſeeds in the ſpring, either upon a gentle hot-bed, or on a warm border of light freſh earth; and when the plants are come up about two inches high, they ſhould be tranſplanted either into pots, or a bed of good rich earth, at about four or five inches diſtance every way, where they may remain until they have obtained ſtrength enough to plant out for good; which ſhould be either into pots filled with good freſh earth, or a warm ſituated border; in which, if the winter is not too ſevere, they will abide very well, provided they are in a dry ſoil.

The ſecond ſort is a ſhrub of the ſame ſize with the firſt, from which it differs in the number of ſmall leaves (or lobes) on each midrib; theſe having nine or eleven, and are of a ſilver colour, but the flowers and pods are the ſame. It flowers at the ſame time, and requires the ſame treatment as the former.

The third ſort is a ſhrubby plant, riſing four or five feet high; the ſtalks are ſhrubby garniſhed with winged leaves, compoſed of many ſmall oval lobes along the midrib by pairs, and ending in an odd one. The flowers ſtand upon long foot-ſtalks, which ariſe from the ſide of the branches; they are yellow, and grow together in cloſe bunches. This flowers in winter and ſpring, and the ſeeds are ripe in Auguſt.

This is a perennial ſhrubby plant, which is propagated by ſeeds; they may be ſown on a bed of light earth in April, and when the plants are fit to tranſplant, ſome of them ſhould be planted in a warm border, cloſe to a warm wall or pale, to which the branches ſhould be trained; obſerving to ſhade them from the ſun till they have taken freſh root, and alſo to refreſh them with water when they require it. After they are well rooted, they will require no other culture but to keep them clean from weeds, and faſten their branches to the wall; the next year they will flower, and if they are on a dry ſoil and in a warm ſituation, they will continue many years. Some of theſe plants ſhould be put into pots, that they may be removed into ſhelter in winter; where, if they are not too tenderly treated, they will flower great part of that ſeaſon; but theſe will rarely produce ſeeds, whereas thoſe in the full ground generally do, provided they are covered with mats in froſty weather.

The fourth ſort is nearly like the firſt, but hath fewer pinnæ on each midrib. The flowers are larger, and have little ſcent. The pods and ſeeds are much larger, and the plants are not quite ſo hardy. This flowers in May and June, but rarely perfects ſeeds in England; it requires the ſame treatment as the firſt, but in winter the plants ſhould be ſheltered, otherwiſe hard froſts will deſtroy them.

The fifth ſort is a low trailing plant with ſhrubby ſtalks, which ſpread near the ground, garniſhed with winged leaves, compoſed of many pair of ſmall lobes placed along the midrib, terminated by an odd one; theſe are oval, and of a bright green; the flowers ſtand upon long foot-ſtalks in cloſe bunches, they are yellow, and without ſcent. It flowers in May, and the ſeeds ripen in autumn. This is propagated by ſeeds in the ſame manner as the third, and requires the ſame treatment.

The ſixth ſort dies down every winter, but riſes again the ſucceeding ſpring; the ſtalks of this riſe to the height of five or ſix feet, where they have ſupport; otherwiſe they trail on the ground, and are garniſhed with winged leaves, compoſed of ſeveral oblong ſmall pinnæ, which are ſometimes placed by pairs, and at other times are alternate, ending in a ſingle one, they are of a deep green. The flowers come out on long foot-ſtalks from the wings of the leaves, many growing together in round bunches; they are variable from a deep to a light purple, mixed with white, and are ſucceeded by ſlender pods from two to three inches long, ſtanding erect. This plant flowers in June, July, and Auguſt, and the ſeeds ripen in autumn. The roots of this plant creep very far under ground, by which the plant increaſes greatly; which, when permitted to remain unremoved for two or three years, will ſpread and overbear what plants grow near it; for which reaſon the roots ſhould be confined, and it ſhould be planted at a diſtance from any other plants; it will grow in almoſt any ſoil and ſituation, but thrives beſt in a warm ſunny expoſure, in which the flowers will alſo be much fairer, and in greater quantities. This plant was formerly cultivated to feed cattle.

The ſeventh ſort hath an herbaceous ſtalk, which riſes two feet high, garniſhed with winged leaves, compoſed of ſix pair of ſmall leaves, placed along the midrib, which is terminated by an odd one; theſe are larger than thoſe of the ſixth ſort, and broader at the top. The foot-ſtalks of the flowers come out from the ſide of the ſtalks, but they are ſhorter than thoſe of the ſixth ſort, and ſuſtain ſmaller heads of flowers, which are ſucceeded by five taper jointed pods, near two inches long.

This is an annual plant, which grows naturally in the Archipelago, from whence Tournefort ſent the ſeeds to the royal garden at Paris. The ſeeds of this ſort ſhould be ſown on a bed of light earth in the ſpring, where the plants are deſigned to remain, and when the plants come up, they ſhould be thinned where they are too cloſe, and afterward kept clean from weeds, which is all the culture they will require. In June they will flower, and the ſeeds ripen in autumn.

The eighth ſort was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the royal garden at Paris; this hath a perennial root, and an annual ſtalk, which riſes upward of two feet high, ſtanding erect. The leaves are compoſed of five or ſix pair of ſmall oblong leaves, ranged along the midrib, which is terminated by an odd one. The foot-ſtalks of the flowers are ſtrong, and upward of ſix inches in length, ſupporting large bunches of yellow flowers, which are ſucceeded by ſhort thick pods about an inch long. This flowers in June and July, and in warm ſeaſons the ſeeds will ripen in autumn: there is a variety of this with large white flowers.

This ſort is propagated by ſeeds, which ſhould be ſown on a warm border of light earth in the ſpring; and when the plants come up, they muſt be carefully cleaned from weeds; when they are fit to remove, they ſhould be tranſplanted into a warm border, where they are to remain, ſhading them from the ſun till they have taken freſh root, after which they will require no farther care in ſummer, but to keep them clean from weeds; and in autumn, when the ſtalks are decayed, if the ſurface of the ground is covered with ſome old tan to keep out the froſt, it will be a ſecure method to preſerve the roots. The ſecond year the plants will flower, and, if the ſame care is taken in winter, the roots may be continued ſome years.

The ninth ſort grows naturally in Spain; this riſes from two to four feet high, having many ſlender ligneous branches, garniſhed with narrow ſpear-ſhaped leaves, which are ſometimes trifoliate, and at other times have five lobes on each foot-ſtalk; the flowers ſtand upon pretty long foot-ſtalks, which come out from the wings of the ſtalk, and are collected in ſmall bunches; they are of a bright yellow colour, and appear for ſix or ſeven months together, but have not been ſucceeded by ſeeds here as yet.

This is propagated by ſeeds in the ſame manner as the firſt ſort, and ſome of the plants ſhould be planted in pots that they may be ſheltered under a common frame in winter, becauſe in hard froſts the plants are often deſtroyed; but in mild weather they ſhould be expoſed to the air, otherwiſe they will draw up weak.

The tenth ſort was diſcovered by father Plumier in America. I received the ſeeds of this plant from Carthagena, which were ſent me by my late ingenious friend Dr. William Houſtoun; this hath a ſlender, hairy, twining ſtalk, of a brown colour, twiſting round any of the ſhrubs which ſtand near it, whereby it riſes eight or ten feet high, and is garniſhed with winged leaves, for the moſt part compoſed of five oval lobes, one inch long, and half an inch broad, of a deep green. The flowers come out by pairs at each joint, ſtanding on very ſhort ſeparate foot-ſtalks erect; they are large, and of a pale yellow; theſe are ſucceeded by taper jointed pods, more than three inches long, which are covered with ſhort, ſoft, white, hairy down, and ſtand erect. This plant is propagated by ſeeds, which ſhould be ſown early in the ſpring on a moderate hot-bed; and when the plants are come up, they ſhould be each tranſplanted into a halfpenny pot filled with freſh rich earth, and plunged into a hot-bed of tanners bark, obſerving to ſhade them until they have taken root; after which time they ſhould have air and water in proportion to the warmth of the ſeaſon, and when they have filled theſe pots with their roots, they ſhould be ſhifted into pots of a larger ſize, and plunged into the hot-bed again, where they muſt remain until autumn, when they ſhould be removed into the ſtove, and plunged into the tan. Theſe plants muſt be conſtantly kept in the bark-ſtove, and placed among plants which require a moderate heat; where they will thrive and flower, and ſhould be ſupported by tall ſticks, round which they will twine as Hops do; for if they have not this ſupport, they will twiſt round other plants and ſpoil them. Theſe are very proper plants to place againſt an eſpalier on the back part of the ſtove, amongſt other climbing plants, where they will make an agreeable variety.

If the plants are carefully managed in the winter, they may be preſerved two or three years, and will annually flower in July, and ſometimes they will produce ripe ſeeds in England.

CORONOPUS. See Plantago.

CORTUSA. Lin. Gen. Plant. 181. [This plant is ſo called from Cortuſus, a famous botaniſt, who firſt brought it into uſe.] Bears-ear Sanicle.

The Characters are,

The flower hath a ſmall, ſpreading, permanent empalement, which is indented at the brim in five parts; this hath one wheel-ſhaped petal, ſpreading open to the bottom, and cut into five parts at the brim, having five prominent tubercles at the baſe. It hath five ſhort obtuſe ſtamina, which are terminated by oblong erect ſummits. In the center is ſituated an oval germen, ſupporting a ſlender ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes an oval, oblong, pointed capſule, having two longitudinal furrows, and one cell, opening with two valves, filled with ſmall oblong ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Cortusa (*Matthioli*) calycibus corollâ brevioribus. Lin. Sp. Plant. 144. *Bears Ear Sanicle, with an empalement ſhorter than the petal.* Cortuſa Matthioli. Cluſ. Hiſt. 1. p. 307. *Bears Ear Sanicle of Matthiolus.*
2. Cortusa (*Gmelini*) calycibus corollum excedentibus. Amœn. Acad. 2. p. 340. *Bears Ear Sanicle with an empalement longer than the petal.*

The firſt ſort grows naturally on the Alps, and alſo on the mountains in Auſtria, and in Siberia. This plant ſends out many oblong ſmooth leaves, which are a little indented on the edges, and form a ſort of head, like the Auricula. The foot-ſtalks of the flowers come out in the center of the leaves; theſe riſe about four inches high, and ſupport an umbel of flowers, each ſitting on a ſlender, ſeparate, ſhort foot-ſtalk; they are of a fleſh colour, and ſpread open like thoſe of the Auricula. It flowers in April, but doth not produce ſeeds in the gardens, for this plant is with great difficulty kept in a garden. The only method by which I could ever preſerve it, has been by planting the plants in pots, and placing them in a ſhady ſituation, where they were duly watered in dry weather; in this place they conſtantly remained both ſummer and winter, for the cold will not deſtroy them; the earth for this plant ſhould be light, and not too rich, for dung is very injurious to it. As this very rarely produces any ſeeds in England, the only method to propagate it is, by parting the roots in the ſame manner as is practiſed for Auriculas; the beſt time for this is about Michaelmas, ſoon after which the leaves decay.

The ſecond ſort is very like the firſt, but the flowers are much leſs, and their empalements are larger; this grows naturally in Siberia, but is with great difficulty kept in a garden.

CORYLUS. Lin. Gen. Plant. 953. Tourn. Inſt. R. H. 581. [ſo called from Κόρυλος, *Gr.* a Hazel, or Filbert-tree. It is alſo called Avellana, from Avella, a town in Campania, where it grew in great plenty.] The Hazel, or Nut-tree.

The Characters are,

It hath male and female flowers growing at remote diſtances on the ſame tree. The male flowers are produced in long ſcaly katkins, each ſcale including a ſingle flower, having no petals, but eight ſhort ſtamina faſtened to the ſide of the ſcale, and terminated by oblong erect ſummits. The female flowers are included in the future bud, ſitting cloſe to the branches; theſe have a thick two-leaved perianthium, torn on the border, ſitting under the flower when it is ſmall, but afterward is enlarged to the ſize of the fruit; it hath no petal, but a ſmall round germen occupies the center, ſupporting two briſtly coloured ſtyles, which are longer than the empalement, crowned by two ſingle ſtigmas. The germen afterward becomes an oval nut, ſhaved at the baſe, and compreſſed at the top, ending in a point.

This genus of plants is ranged in the eighth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Polyandria, from there being male and female flowers on the ſame plant, and the male flowers having many ſtamina.

The Species are,

1. Corylus (*Avellana*) ſtipulis ovatis obtuſis. Hort. Cliff. 448. *Hazel Nut with oval blunt ſtipulæ.* Corylus Sylveſtris. C. B. P. 418. *Wild Hazel Nut.*
2. Corylus (*Maxima*) ſtipulis oblongis, obtuſis, ramis erectioribus. *Hazel with oblong blunt ſtipulæ, and the branches growing more erect.* Corylus ſativa fructu oblongo. C. B. P. 418. *The Filbert.*
3. Corylus (*Colurna*) ſtipulis linearibus acutis. Hort. Cliff. 448. *Hazel with narrow acute ſtipulæ.* Corylus Byzantina. H. L. 191. *Byzantine Nut.*

The firſt of theſe trees is common in many woods in England, from whence the fruit is gathered in plenty, and brought to the London markets by the country people. This tree is ſeldom planted in gardens (except by perſons curious in collections of trees and ſhrubs;) it delights to grow on a moiſt ſtrong ſoil, and may be plentifully increaſed by ſuckers from the old plants, or by laying down their branches, which, in one year's time, will take ſufficient root for tranſplanting; and theſe will be much handſomer and better rooted plants than ſuckers, and will greatly outgrow them, eſpecially while young.

There is a variety of this with fruit growing in great cluſters at the end of the branches, which is diſtinguiſhed by the title of Cluſter Nut; but as this is ſuppoſed to be only a variety, which accidentally came from the other, I have not diſtinguiſhed it; however, this may be continued by layers, ſo the kind may always be preſerved.

The ſecond ſort is by many ſuppoſed to be only a ſeminal variety from the firſt, which hath been improved by culture; but this is very doubtful, for I have ſeveral times propagated both from the nuts, but never have found them vary from one to the other, though they have altered in the ſize and colour of their fruit, from the ſorts which were ſown; but as the ſhrubs of this grow more erect than thoſe of the other, and the ſtipulæ are different in their ſhape, ſo I have enumerated it as a diſtinct ſort; of this there are the red and white Filberts, both which are ſo well known, as to need no deſcription.

The third ſort grows naturally near Conſtantinople; the nuts of this are large, roundiſh, and in ſhape like thoſe of the common Hazel, but are more than twice their ſize. The cups in which the nuts grow are very large, ſo as almoſt to cover the nut, and is deeply cut at the brim. This ſort is not common in England, but I take thoſe large nuts which are annually imported from Barcelona in Spain, to be of the ſame kind, the nuts being ſo alike, as not to be diſtinguiſhed when out of their cups; and thoſe of the Spaniſh ſort come over naked, ſo I cannot with certainty ſay how they eſſentially differ.

All theſe ſorts may be propagated by ſowing their nuts in February; which, in order to preſerve them good, ſhould be kept in ſand in a moiſt cellar, where the vermin cannot come at them to deſtroy them nor ſhould the external air be excluded from them, which would occaſion their growing mouldy.

The manner of ſowing the ſeeds being well known to every one, I need not here mention it, eſpecially ſince it is not the ſureſt way to obtain the ſorts deſired; for they ſeldom prove ſo good as the nuts which were ſown, or at leaſt not one in four of them will; and the method of propagating them by layers being not only the ſureſt, but alſo moſt expeditious, is what I would recommend to every one who would cultivate theſe trees for the ſake of their fruits.

CORYMBIFEROUS PLANTS are ſuch as have a compound diſcous flower, but their ſeeds have no down adhering to them. The name is taken from the manner of bearing its flowers in cluſters, and ſpreading round in the form of an umbrella. Of this kind is the Corn Marigold, common Ox Eye, the Daiſy, Camomile, Mugwort, Feverfew, &c.

Mr. Ray diſtinguiſhes them into ſuch as have a radiated flower, as the Sun Flower, Marigold, &c. and ſuch as have a naked flower, as the Lavender Cotton and Tanſey, and alſo thoſe that are akin to them, as Scabious, Teaſel, Carduus, &c.

CORYMBIUM.

The Characters are,

It hath an empalement of two leaves, having ſix angles; the ſmall leaves are erect and cloſe together their whole length, and are triangular on their outſide, cut into three ſegments, and are permanent. The flower has one petal, which is equal, having a very ſhort tube, cut into five ſegments at the brim, which ſpread open; it hath five erect ſtamina ſitting within the tube, crowned with oblong erect ſummits, ſhorter than the petal, joining in a cylinder: the germen is ſituated within the empalement, at the bottom of the petal, ſupporting a ſingle erect ſtyle the length of the petal, terminated by a bifid oblong ſtigma; the germen afterward becomes an oblong ſeed, having a ſort of down adhering to it.

This genus of plants is ranged in the ſixth ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Monogamia, the flower having five ſtamina which join by their ſummits, and is ſucceeded by one ſeed.

We know but one Species of this genus, viz.

Corymbium (*Africanum*). Hort. Cliff. 494. *African Corymbium.* Bupleurifolia ſemine papposo, valerianoides umbellata, cauliculi ſcabro. Pluk. Alm. 73.

This plant grows naturally at the Cape of Good Hope; it riſes with an erect rough ſtalk about a foot high, with a ſingle leaf at each joint, which half embrace the ſtalk with their baſe. The leaves are long, narrow, and triangular, and have a downy ſubſtance intermixed with them at their baſe; the upper part of the ſtalk divides into ſeveral foot-ſtalks, which are terminated by purple flowers of one petal, cut into five parts at the brim, each being ſucceeded by an oblong ſeed.

It is propagated by ſeeds, which ſhould be ſown in a ſmall pot filled with light earth as ſoon as it is received from abroad; the pots ſhould be plunged into a bed of tanners bark, where the heat is near ſpent, and covered with a common frame in winter, to protect the ſeeds from froſt, ſnow, and hard rains. In the ſpring, if the pots are removed into a moderate hot-bed, the plants will ſoon appear: when they are about an inch high, they ſhould be each tranſplanted into a ſeparate ſmall pot, obſerving to ſhade them until they have got new roots; ſoon after which they ſhould be gradually inured to the open air, and in June they ſhould be placed abroad in a ſheltered ſituation; where they may remain till October, when they ſhould be placed in a common frame, where they may be protected from froſt, being too tender to live abroad in England.

CORYMBUS [Κόρυμβος, *Gr.*] ſignifies among botaniſts, round cluſters of berries, as thoſe of Ivy.

Jungius uſes it to ſignify the extremity of a ſtalk, ſo ſubdivided and laden with flowers, or fruits, as to compoſe a ſpherical figure.

It is alſo by modern botaniſts uſed to ſignify a compound diſcous flower, which does not fly away in down, as the Chryſanthemum, Daiſy, Chryſocome, &c. For theſe kind of flowers, being ſpread into breadth, do, after a ſort, reſemble an umbrella, or bunch of Ivy-berries.

COSTUS. Lin. Gen. Plant. 3.

The Characters are,

It hath a ſimple ſpadix and ſpathæ, with a ſmall empalement, divided into three parts, ſitting on the germen. The flower hath three concave petals, which are erect and equal, with a large oblong nectarium of one leaf, having two lips, the lower being broad, and as long as the petal. The upper is ſhorter and ſpear-ſhaped, changing to a ſtamina; this is faſtened to the upper lip of the nectarium, to which adheres a bipartite ſummit. The germen is ſituated within the receptacle of the flower, which is roundiſh, ſupporting a ſlender ſtyle, crowned by a compreſſed indented ſtigma. The germen afterward becomes a roundiſh capſule with three cells, containing ſeveral triangular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's firſt claſs, intitled Monandria Monogynia, the flower having but one ſtamen and one ſtyle.

We have but one Species of this plant, viz.

Costus (*Arabicus*). Hort. Cliff. 2. Coſtus Arabicus. C. B. P. 36. *Arabian Coſtus.*

This hath a fleſhy jointed root like that of Ginger, which propagates under the ſurface as that doth; from which ariſe many round, taper, herbaceous ſtalks, garniſhed with oblong ſmooth leaves, embracing the ſtalks like thoſe of a Reed; theſe ſtalks riſe near two feet high; out of the center, the club, or head of flowers is produced, which is near two inches long, the thickneſs of a man's finger, and blunt at the top, compoſed of ſeveral leafy ſcales, out of which the flowers come; theſe have but one thin white petal, which is of ſhort duration, ſeldom continuing longer than one day before it fades, and is never ſucceeded by ſeeds in this country. The time of its flowering is very uncertain, for ſometimes it flowers late in the winter, and at other times it has flowered in ſummer, ſo is not conſtant to any ſeaſon in England. It grows naturally in moſt parts of India.

This is propagated by parting of the roots; the beſt time for doing this is in the ſpring, before the roots put out new ſtalks. The roots muſt not be divided too ſmall, becauſe that will prevent their flowering. They ſhould be planted in pots, filled with light kitchen-garden earth, and plunged into the tan-bed in the ſtove, where they ſhould conſtantly remain, and may be treated in the ſame manner as the Ginger, which is fully treated of under the article Amomum.

The roots of this plant were formerly imported from India, and were much uſed in medicine; but of late years they have not been regarded, the roots of Ginger being generally ſubſtituted for theſe.

COTINUS. See Rhus.

COTONEA MALUS. See Cydonia.

COTONEASTER. See Mespilus.

COTULA. Lin. Gen. Plant. 868. Annathocyclus. Vaill. Act. Reg. Scien. 1719. Mayweed.

The Characters are,

It hath a flower compoſed of hermaphrodite florets in the diſk, and female half florets which form the rays; theſe are included in one common convex empalement, divided into ſeveral oval parts. The hermaphrodite florets are tubular, and cut into four unequal ſegments at the top; theſe have four ſmall ſtamina, terminated by tubular ſummits, and have two obtuſe ſtigmas, having one ſmall, oval, angular ſeed to each. The female half florets have an oval compreſſed germen, ſupporting a ſlender ſtyle, crowned by two ſtigmas, but have no ſtamina; theſe are ſucceeded by ſingle heart-ſhaped ſeeds, plain on one ſide, and convex on the other, with an obtuſe border.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua; the plants of this ſection have hermaphrodite and female flowers, which are fruitful.

The Species are,

1. Cotula (*Anthemoides*) foliis pinnato-multifidis, corollis radio deſtitutis. Hort. Cliff. 417. *Mayweed with many pointed winged leaves, and no rays to the flower.* Chamæmelum luteum capite aphyllo. C. B. P. 135.
2. Cotula (*Turbinata*) receptaculis ſubtus inflatis, turbinatis. Hort. Cliff. 417. *Mayweed whoſe receptacles are ſwollen and turbinated beneath.* Cotula Africana calice eleganter cæſio. Tourn. Inſt. R. H. 495.
3. Cotula (*Coronopi folia*) foliis lanceolato-linearibus, amplexicaulibus pinnatifidis. Hort. Cliff. 417. *Mayweed with narrow ſpear-ſhaped leaves embracing the ſtalk, having many points.* Chryſanthemum exoticum minus, capite aphyllo, Chamæmeli nudi facie. Breyn. Cent. 156.

The firſt ſort grows naturally in Spain, Italy, and the Archipelago; this is an annual plant, which riſes with a branching ſtalk half a foot high, garniſhed with leaves which are finely divided like thoſe of Chamomile. The flowers are produced ſingly at the end of the branches, which are very like thoſe of the naked Chamomile, but the heads riſe higher in the middle like a pyramid. This flowers in May and June, and the ſeeds ripen in Auguſt. If the ſeeds of this ſort are permitted to ſcatter, the plants will come up in the ſpring, and require no other care but to keep them clean from weeds, and thin the plants where they are too cloſe.

The ſecond ſort grows naturally at the Cape of Good Hope, from whence I have received the ſeeds; this is an annual plant, ſending out many branching ſtalks from the root, which ſpread on the ground, and are garniſhed with very fine divided leaves, covered with a lanugo, or cotton. The flowers are produced ſingly upon long foot-ſtalks, ariſing from the ſide of the branches; theſe have a narrow border of white rays, with a pale yellow diſk. It flowers in June and July, and the ſeeds ripen in autumn. This ſort muſt be raiſed on a moderate hot-bed in the ſpring, and when the plants have obtained ſtrength, they may be tranſplanted into a warm border, where they will ripen their ſeeds very well.

The third ſort is an annual plant, which ſends out trailing ſtalks about ſix inches long, garniſhed with ſucculent leaves, in ſhape like thoſe of Buckſhorn Plantain. The flowers grow from the diviſions of the ſtalks upon ſhort weak foot-ſtalks, being deſtitute of rays; they are of a ſulphur colour, and appear about the ſame time with the former. If the ſeeds of this ſort are ſown on a warm border where the plants are to remain, they will require no other culture but to keep them clean from weeds. The flowers of the two laſt ſorts ſtand erect, when they firſt appear, but ſo ſoon as the florets are impregnated, and their colour changes, the foot-ſtalks become very flaccid toward the top, and the flowers hang downward; but when the ſeeds are ripe, the foot-ſtalks become ſtiff, and the heads ſtand erect for the winds to diſperſe the ſeeds.

COTYLEDON. Lin. Gen. Plant. 512. Tourn. Inſt. R. H. 90. tab. 19. [Κοτυληδῶν, *Gr.* of Κοτυλη, *Gr.* a cavity; becauſe the leaves of this are hollowed like the navel, or becauſe it reſembles a veſſel wherewith the ancients uſed to draw water.] Navelwort.

The CHARACTERS are,

The flower hath a ſmall empalement of one leaf, divided into five parts at the top. It hath one funnel-ſhaped petal, cut into five parts at the brim, which turn backward. It hath five germina, which have each a ſquamous concave nectarium at their baſe, and each ſuſtains a ſtyle, crowned by a ſingle ſtigma; theſe are attended by ten erect ſtamina, which are terminated by erect ſummits, having four furrows. The germen afterward become ſo many oblong ſwelling capſules, opening longitudinally, with one valve, filled with ſmall ſeeds.

This genus of plants is ranged in the fourth ſection of Linnæus's tenth claſs, intitled Decandria Pentagynia, the flower having ten ſtamina and five ſtyles.

The SPECIES are,

1. COTYLEDON (*Umbilicus*) foliis cuculato-peltatis, ſerrato-dentatis, alternis, caule ramoſo, floribus erectis. Lin. Sp. Plant. 429. *Navelwort with hooded leaves ſharply indented, growing alternate, and a branching ſtalk with erect flowers.* Cotyledon major. *Greater Navelwort.* Umbilicus Veneris. Cluſ. H.
2. COTYLEDON (*Spinoſo*) foliis oblongis ſpinoſo-mucronatis, caule ſpicato. Lin. Sp. Plant. 429. *Navelwort with oblong pointed leaves, ending with a ſpine, and a ſpiked ſtalk.*
3. COTYLEDON (*Serrata*) foliis ovalibus, crenatis, caule ſpicato. Lin. Sp. Plant. 429. *Navelwort with oval crenated leaves and a ſpiked ſtalk.* Cotyledon Cretica, folio oblongo, fimbriato. Hort. Elth. 113. tab. 95. *Navelwort of Crete, with an oblong fringed leaf.*
4. COTYLEDON (*Hemiſpherica*) foliis ſemigloboſis. Hort. Cliff. 176. *Navelwort with ſemiglobular leaves.* Cotyledon Capenſis, folio ſemiglobato. Hort. Elth. 112. tab. 94.
5. COTYLEDON (*Orbiculata*) foliis ſubrotundis, planis integerrimis. Hort. Cliff. 276. *Navelwort with roundiſh, plain, entire leaves.* Sedum Africanum fruteſcens, incanum, orbiculatis foliis. H. L. 349.
6. COTYLEDON (*Ramoſiſſimo*) caule ramoſiſſimo, foliis rotundis, planis, marginibus purpureis. *Navelwort with a very branching ſtalk, and round, plain, hairy leaves, with purple edges.*
7. COTYLEDON (*Arboreſcens*) caule ramoſo, ſucculento, foliis obverſe ovatis, emarginatis, marginibus purpureis. *Navelwort with a branching ſucculent ſtalk, and obverſe oval leaves, which are indented at the top, and have purple borders.* Cotyledon major, arboreſcens Afra, foliis orbiculatis, glaucus, limbo purpureo, & maculis viridibus ornatis. Boerh. Ind. alt. 1. p. 287.
8. COTYLEDON (*Ovata*) caule ramoſo, ſucculento, foliis ovatis, planis, acuminatis oppoſitis ſemiamplexicaulibus. *Navelwort with a ſucculent branching ſtalk, and oval, plain, pointed leaves growing oppoſite, which half embrace the ſtalk.*
9. COTYLEDON (*Spuria*) foliis alternis ſpatulatis carnoſis integerrimis. Lin. Sp. 614. *Navelwort with ſpatule-ſhaped leaves.* Cotyledon Africana fruteſcens, folio longo & anguſto, flore flaveſcente. Com. Rar. Plant. 23. tab. 23.
10. COTYLEDON (*Laciniata*) foliis laciniatis, floribus quadrifidis. Hort. Cliff. 175. *Navelwort with cut leaves, and four-pointed flowers.* Cotyledon Afra, folio craſſo lato laciniato, floſculo aureo. Boerh. Ind. alt. 288.

The firſt ſort, which is that uſed in medicine, grows upon old walls and buildings in divers parts of England, particularly in Shropſhire and Somerſetſhire; in both which counties it greatly abounds upon old buildings, and on rocky places, but is not often found wild near London, nor often cultivated in gardens. This hath many round ſucculent leaves, whoſe foot-ſtalks are placed almoſt in the center, ſo as to reſemble a target. They are alternately ſawed on their edges, which frequently turn inward; the upper ſurface of the leaves are hollow in the middle, where the foot-ſtalks are joined on the lower ſide, ſo as to reſemble a navel, from whence the plant was titled Navelwort. From between the leaves ariſe the foot-ſtalks of the flowers, which in ſome places grow near three feet high, and in others not more than ſix inches, their lower part being garniſhed with leaves, and their upper part with flowers, which ſtand cloſe to the ſide of the branches, and grow erect; they are of a whitiſh yellow colour, and appear in June. It requires a dry rubbiſhy ſoil, and to have a ſhady poſition. This is a biennial plant, ſo that after it has perfected ſeed, the plant decays; but if the ſeeds are ſcattered on walls and old buildings as ſoon as it is ripe, or if the ſeeds are permitted to fall upon ſuch places, the plants will come up, and thrive much better than when they are ſown in the ground; and when once the plants are eſtabliſhed upon an old wall or building, they will ſow their ſeeds, and maintain their place better than when cultivated with more care.

The ſecond ſort grows naturally in Siberia, from whence it was brought to the imperial garden at Peterſburgh. This was ſent me by Dr. Amman, the late profeſſor of botany in that garden. It is a low plant, in ſhape like the Houſleek, but the leaves are longer, and terminate in ſoft ſpines. The flower-ſtalks riſe about four inches high, and ſupport four or five whitiſh flowers, which are cut at the brim into five parts. Theſe appear in April, and are ſometimes ſucceeded by ſeeds in England. This ſort requires a very ſhady ſituation, for if it is expoſed to the ſun in ſummer, the plants will ſoon decay. It is propagated by offſets like the Houſleek, and requires a pretty ſtrong ſoil.

The third ſort grows naturally in the Levant. This hath a fibrous root, from which is produced a ſingle upright ſucculent ſtalk, garniſhed with oblong, thick, ſucculent leaves, placed alternate, which are ſawed on their edges. The upper part of the ſtalk is garniſhed with purpliſh flowers, growing in a looſe ſpike, two or three being joined on the ſame foot-ſtalk, which is very ſhort. The flowers appear in June, and the ſeeds ripen in autumn. It is a biennial plant, which decays ſoon after the ſeeds are ripe. If this ſort is ſown upon a wall, it will thrive better than in the ground, and be leſs liable to ſuffer by froſt; ſo that where the ſeeds ſcatter themſelves in ſuch ſituations, the plants thrive better than when they are cultivated.

The fourth ſort grows naturally at the Cape of Good Hope. This hath a thick ſucculent ſtalk, which rarely riſes above a ſpan high, dividing into many branches, garniſhed with ſhort, thick, ſucculent leaves, which are very convex on their under ſide, but plain on their upper, not more than half an inch long, and a quarter broad, of a grayiſh colour ſpotted over with ſmall green ſpots, and ſit cloſe to the branches: the foot-ſtalks of the flower riſe from the top of the branches, and are ſix inches long, naked, and ſupport five or ſix flowers, which come out alternate from the ſide, ſitting very cloſe to the ſtalks; they are tubular, and cut into five parts at the top; theſe are greeniſh, with purple tips. It flowers in June and July, but never produces ſeeds in England.

The fifth ſort grows naturally upon dry gravelly ſpots at the Cape of Good Hope. It hath a thick ſucculent ſtalk, which by age becomes ligneous, and riſes three or four feet high, ſending out crooked branches, which grow irregular, garniſhed with thick, fleſhy, ſucculent leaves about two inches long, and near as wide toward the top; they are narrow at their baſe, and rounded at the top, of a ſea-green colour, with a purple edge, which is frequently irregularly indented. The flowers grow upon thick ſucculent foot-ſtalks, which ariſe from the end of the branches, and are near a foot long, naked, and ſupporting eight or ten flowers, growing in an irregular umbel at the top; theſe are of a pale yellow colour, having long tubes, which hang downward, cut into five parts at the brim, which turn backward, the ſtamina and ſtyle being longer than the tube of the flower, hanging downward. This ſort flowers in July, Auguſt, and September, but doth not ripen ſeeds in England.

The ſixth ſort is alſo a native of the Cape of Good Hope. This hath a ſhort, thick, ſucculent ſtalk, which rarely riſes more than a foot high, branching out on every ſide, ſo as to ſpread over the pots in which they are planted: they become woody by age, and are cloſely garniſhed with thick round leaves, of a grayiſh colour, with purple borders, plain on their upper ſide, but convex on their under, and very fleſhy, of an herbaceous colour within, and full of moiſture. This ſort hath not flowered in England, ſo far as I can learn, for I have kept plants of it which were twenty years old, but never attempted to flower. It is undoubtedly a different ſort from the former, although they have been ſuppoſed to be the ſame by ſome writers.

The ſeventh ſort is ſomewhat like the ſixth, but the ſtalks riſe higher, the leaves are much larger, and ſhaped more like thoſe of the fifth, but are ſpotted on their upper ſide with great numbers of dark green ſpots; they have a deep border of purple on their edges, and ſit cloſe to the branches. This hath not as yet flowered in England. This is alſo a native of Æthiopia.

The eighth ſort hath been of late years introduced into the gardens in Holland, from the Cape of Good Hope, where it grows naturally, and was ſent me by Dr. Adrian Van Royen, late profeſſor of botany at Leyden. This riſes with a ſucculent ſtalk near three feet high, which divides into many branches, growing erect, garniſhed with oval ſucculent leaves, placed oppoſite; they are of a lively green, and end in points, and half embrace the ſtalks with their baſe. This ſort hath not as yet produced any flowers in England.

The ninth ſort grows on rocky places at the Cape of Good Hope, from whence it was firſt brought to the gardens in Holland, and hath ſince been ſpread into moſt parts of Europe, where there are curious perſons who preſerve exotic plants in their gardens: this hath a ſhort, greeniſh, ſucculent ſtalk, which ſeldom riſes more than a ſpan high, dividing into ſeveral irregular branches, garniſhed with thick ſucculent leaves four inches long, and half an inch broad, and as much in thickneſs, having a broad concave furrow on their upper ſide, running almoſt their whole length, and are convex on their under ſide, of a bright green, with a purple tip. The foot-ſtalks of the flowers are produced at the end of the branches, and riſe near a foot high, having here and there an oblong pointed leaf, growing on their ſide. The flowers ſtand upon ſhort foot-ſtalks, which branch out from the principal ſtem; theſe are yellow, having pretty long tubes, which are cut at the top into five parts, and are reflexed backward. The flowers of this ſort hang downward, and the ſtamina are longer than the tube of the flower; the reflexed parts of the petal are tipped with purple. Dr. Linnæus has ſuppoſed this to be the ſame with the fifth ſort, but whoever has ſeen both plants, cannot doubt of their being diſtinct ſpecies.

The tenth ſort grows naturally in the warm parts of Africa, ſo is much more tender than either of the other ſorts: this riſes with an upright ſtem about a foot high, which is jointed and ſucculent, garniſhed with broad leaves, which are deeply cut on their edges; they are of a grayiſh colour, placed oppoſite, and almoſt embrace the ſtalks with their baſe. The foot-ſtalks of the flowers ariſe from the end of the branches, which are about ſix inches long, ſuſtaining ſeven or eight ſmall flowers of a deep yellow colour, which are divided into four parts almoſt to the bottom. The ſtamina of theſe flowers are not longer than the ſhort tube. This flowers at different ſeaſons of the year, but never produces any ſeeds in England. This ſort requires a warm ſtove to preſerve it through the winter in England, nor ſhould it be expoſed abroad in ſummer; for if it receives much wet, the ſtalks are very ſubject to rot; ſo that it ſhould conſtantly remain either in the ſtoves, or in ſummer ſhould be placed in an airy glaſs-caſe with other tender ſucculent plants, where they may have free air in warm weather, and be ſcreened from cold and wet; but in autumn they muſt be removed into the ſtove, where they ſhould be kept in a moderate temperature of warmth: this is propagated by cuttings, which ſhould be taken off in ſummer, and planted into ſmall pots, and plunged into a moderate hot-bed, and when they have taken root, they ſhould be removed into the ſtove. This plant muſt have but little water, eſpecially in winter.

The African kinds are all of them propagated by planting cuttings in any of the ſummer months, which ſhould be laid in a dry place for a fortnight or three weeks after they are taken from the plant, before they are planted; for theſe abound with juice through every part of the plant, which will certainly rot the cuttings, if they are not ſuffered to lie out of the ground, that the wounded part may heal over, and the great redundancy of ſap evaporate. The ſoil in which theſe plants thrive beſt, is one third freſh light earth from a paſture, one third ſand, and the other third part lime-rubbiſh and rotten tan, in equal quantities; theſe ſhould be well mixed, and laid in a heap ſix or eight months before it is uſed, turning it over five or ſix times, that the parts may the better incorporate; and before it is uſed, it will be proper to paſs it through a ſcreen, to ſeparate the large ſtones, clods, &c. therefrom.

Having prepared the earth, and your cuttings being in a fit order for planting, you muſt fill as many halfpenny pots with earth as you have cuttings to plant; then put one cutting in the middle of each pot about two or three inches deep or more, according to their ſtrength; then give them a little water to ſettle the earth cloſe about them, and ſet the pots in a warm ſhady place for about a week, to prepare the cuttings for putting forth roots; after which they ſhould be plunged into a moderate hot-bed of tanners bark, which will greatly facilitate their rooting; but obſerve to give them air, by raiſing the glaſſes at all times when the weather will permit, as alſo to ſhade the glaſſes in the heat of the day.

In about ſix weeks or two months time after planting, theſe cuttings will be rooted, when you muſt begin to expoſe them to the open air by degrees, firſt drawing the pots out of the tan, and ſetting them on the top, then raiſe the glaſſes very high in the daytime; and in about a week after remove the pots into a green-houſe, and there harden them for another week; after which they may be expoſed to the open air in a well defended place, obſerving not to ſet them into a place too much expoſed to the ſun, until they have been inured to the open air for ſome time.

In this place the plants may remain until the beginning of October, at which time you ſhould remove them into the conſervatory, placing them as near the windows as poſſible at firſt, letting them have as much free open air as the ſeaſon will permit, by keeping the windows open whenever the weather is good; and now you muſt begin to abate your waterings, giving it to them ſparingly; but you ſhould not ſuffer their leaves to ſhrink for want of moiſture, which is another extreme ſome people run into for want of a little obſervation; for when they are ſuffered to ſhrink for want of ſufficient moiſture to keep their veſſels diſtended, they are rendered incapable of diſcharging this moiſture whenever they receive it again. The tenth ſort ſhould be placed in a moderate ſtove in winter, nor muſt it be ſet abroad till Midſummer, for it is much tenderer than any of the others.

The beſt method to treat moſt of theſe plants is, to place them in an open, airy, dry glaſs-caſe, among Ficoideſſes and African Houſleeks, where they may enjoy as much of the ſun-ſhine as poſſible, and have a free, dry, open air; for if theſe are placed in a common green-houſe among ſhrubby plants, which perſpire freely, it will fill the houſe with a damp air, which theſe ſucculent plants are apt to imbibe; and thereby becoming too replete with moiſture, often caſt their leaves, and many times their branches alſo decay, and the whole plant periſhes.

COURBARIL. See Hymenæa.

COWSLIP. See Primula.

CRAB-TREE. See Malus.

CRAMBE. Lin. Gen. Plant. 739. Tourn. Inſt. R. H. 211. tab. 100. [Κραμϐὴ, *Gr.*] Sea Cabbage.

The Characters are,

The empalement of the flower is compoſed of four oval concave leaves which ſpread open. The flower hath four petals, placed in form of a croſs, which are large, oblong, and ſpread open; it hath ſix ſtamina, two of which are the length of the empalement, the other four are longer, and bifid at their points; theſe are terminated by ſingle ſummits, which branch into threads on their outſide. The petals have honey glands on their inſide, which are longer than the ſtamina. It hath an oblong germen, but no ſtyle, crowned by a thick ſtigma. The germen afterward becomes a round dry capſule, with one cell, incloſing one roundiſh ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia ſiliquoſa, the flower having four long and two ſhort ſtamina, and the ſeeds growing in pods.

The Species are,

1. Crambe (*Maritima*) foliis cauleque glabris. Fl. Suec. 570. *Sea Cabbage with ſmooth ſtalks and leaves.* Crambe maritima braſſicæ folio. Tourn. Inſt. 211.
2. Crambe (*Suecica*) foliis profundè laciniatis, caule erecto, ramoſo. *Sea Cabbage with leaves deeply cut, and an upright branching ſtalk.*
3. Crambe (*Orientalis*) foliis ſcabris, caule glabro. Lin. Sp. Plant. 671. *Sea Cabbage with rough leaves and a ſmooth ſtalk.* Crambe foliis & foliolis alternatim pinnatifidis. Prod. Leyd. 330.
4. Crambe (*Hiſpanica*) foliis cauleque ſcabris. Hort. Upſal. 193. *Sea Cabbage with rough ſtalks and leaves.* Rapiſtrum maximum rotundifolium monoſpermum. Corn. Canad. 147.

The firſt ſort ſends out many broad ſmooth leaves, which are deeply jagged on their ſides in obtuſe ſegments, and are of a grayiſh colour, ſpreading near the ground; between theſe ariſe a thick ſmooth foot-ſtalk about one foot high, which ſpreads out into many branches, which have at each joint one leaf of the ſame form as thoſe below, but much leſs; theſe foot-ſtalks ſubdivide again into many ſmaller, which are garniſhed with white flowers, growing in a looſe obtuſe ſpike, compoſed of four concave petals, placed in form of a croſs; theſe are ſucceeded by round dry ſeed-veſſels about the ſize of large Peaſe, having a ſingle ſeed in each. It flowers in June, and the ſeeds ripen in autumn. The roots of this ſort creep under ground, whereby it propagates very faſt.

The ſeeds of the ſecond ſort were ſent me from Peterſburgh for the firſt ſort, from which it differs greatly. This hath a perennial root, which ſends out ſeveral oblong, ſmooth, pointed leaves, irregularly cut on their ſides into acute ſegments almoſt to the midrib; theſe are very ſmooth, and of a ſea-green colour: between theſe ariſe the ſtalk, which grows three feet high, garniſhed below by oblong pointed leaves, which are acutely indented on their edges. The ſtalks branch out into many ſmaller, and theſe ſubdivide again into leſs, which are garniſhed with looſe ſpikes of white flowers like thoſe of the firſt ſort, which are ſucceeded by ſeeds of the ſame form. This differs greatly from the firſt in the ſhape of its leaves, which are longer, ending in points, and the ſegments do the ſame; whereas thoſe of the other are blunt, and not half ſo deeply cut. The ſtalks riſe more than twice the height of the firſt, branch out more, and the branches grow more erect; and theſe differences are conſtant, where the plants of both ſorts grow in the ſame ſoil.

The third ſort grows naturally in the Eaſt. This hath a biennial root, from which ariſe many leaves in the ſpring, that are alternately divided to the midrib; and theſe diviſions are again alternately cut on their edges into many points, ſo that they have the appearance of winged leaves, and are of a grayiſh colour. The ſtalks riſe about two feet high, and divide into many branches, which are terminated by looſe panicles of ſmall white flowers, placed in form of a croſs, which are ſucceeded by ſmall round capſules, each containing a ſingle ſeed. This flowers in June, and the ſeeds ripen in autumn, ſoon after which the roots decay.

The fourth ſort is an annual plant, which grows naturally in Spain and Italy. This riſes with a very branching ſtalk near three feet high, garniſhed with roundiſh heart-ſhaped leaves, indented on their edges, ſtanding upon long foot-ſtalks; the branches ſubdivide into many ſlender ones, which end in long looſe ſpikes of ſmall white flowers, which are ſucceeded by ſmall, round, dry ſeed-veſſels, which contain a ſingle ſeed. The leaves and ſtalks of this ſort are rough. It flowers in June, and the ſeeds ripen in autumn.

The firſt ſpecies is found wild upon ſea-ſhores in divers parts of England, but particularly in Suſſex and Dorſetſhire in great plenty, where the inhabitants gather it in the ſpring to eat, preferring it to any of the Cabbage kind; as it generally grows upon the gravelly ſhore, where the tide overflows it, the inhabitants obſerve where the gravel is thruſt up by the ſhoots of this plant, and open the gravel, and cut the ſhoots before they come out, and are expoſed to the open air, whereby the ſhoots appear as if they were blanched; and when they are cut ſo young, they are very tender and ſweet; but if they are ſuffered to grow till they are green, they become tough and bitter.

This plant may be propagated in a garden, by ſowing the ſeed ſoon after it is ripe, in a ſandy or gravelly ſoil, where it will thrive exceedingly, and increaſe greatly by its creeping roots, which will ſoon overſpread a large ſpot of ground, if encouraged; but the heads will not be fit to cut until the plants have had one year's growth: and in order to have it good, the bed in which the plants grow, ſhould, at Michaelmas, be covered over with ſand or gravel about four or five inches thick, which will allow a proper depth for the ſhoots to be cut before they appear above ground; and if this is repeated every autumn, in the ſame manner as is practiſed in earthing of Aſparagus-beds, the plants will require no other culture. This may be cut for uſe in April and May, while it is young; but if the ſhoots are ſuffered to remain, they will produce fine regular heads of white flowers, which appear very handſome, and will perfect their ſeeds, by which they may be propagated.

The other ſorts are only preſerved in curious gardens of plants for variety, but are not of any uſe or beauty. The perennial ſorts may be propagated in the ſame manner as the firſt.

CRANE'S-BILL. See Geranium.

CRANIOLARIA. Lin. Gen. Plant. 670. Martynia. Houſt. Gen.

The Characters are,

The flower hath a permanent empalement, compoſed of four ſhort narrow leaves which ſpread open, with a large ſwollen head, which is cut longitudinally on the ſide. The flower hath one petal, which is unequal, having a very long narrow tube, whoſe brim is divided into two lips; the upper being roundiſh and entire, but the under is divided into three parts, the middle ſegment being the largeſt. It hath four ſtamina, two of which are the length of the tube, and two are ſhorter; theſe are terminated by ſingle ſummits; at the bottom of the tube is ſituated an oval germen, ſupporting a ſlender ſtyle, crowned by an obtuſe thick ſtigma. The germen afterward becomes an oval leathery fruit, pointed at both ends, opening with two valves, incloſing a depreſſed woody nut, pointed at both ends, and recurved, having two or three furrows, ſo as to reſemble a ſkull, opening in two parts.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flowers having two long and two ſhort ſtamina, and the ſeeds being included in a capſule.

The Species are,

1. **Craniolaria** (*Annua*) foliis cordatis, angulatis lobatis. Lin. Sp. Plant. 862. *Craniolaria with angular heart-ſhaped leaves.* Martynia annua, villoſa, & viſcoſa, aceris folio, flore albo, tubo longiſſimo. Houſt. MSS.
2. **Craniolaria** (*Fruticoſa*) foliis lanceolatis dentatis. Lin. Sp. Plant. 618. *Craniolaria with ſpear-ſhaped indented leaves.* Geſnera arboreſcens amplo flore fimbriato & maculoſo. Plum. Nov. Gen. 27.

The firſt ſort was diſcovered in the neighbourhood of Carthagena in New Spain, by the late Dr. William Houſtoun, who ſent the ſeeds to England. This is an annual plant, which riſes with a branching ſtalk about two feet high; the branches come out oppoſite, which are hairy and viſcous; the leaves alſo are placed oppoſite, upon very long foot-ſtalks; theſe are of different ſhapes, ſome of them are divided into five lobes, others into three, and ſome are almoſt heart-ſhaped, ending in acute points; they are hairy and clammy. The flowers are produced from the ſide, and alſo at the end of the branches, ſtanding on ſhort foot-ſtalks, having an inflated ſheath or cover, out of which the tube of the flower ariſes, which is ſeven or eight inches long, and very ſlender; but at the top is divided into two lips, the under being large, divided into three broad ſegments, the middle being larger than the other two; the upper lip is roundiſh and entire: the flowers are ſucceeded by oblong fruit, having a thick dry ſkin, which opens lengthways, incloſing a hard furrowed nut, with two recurved horns. This is an annual plant, whoſe ſeeds muſt be ſown on a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, filled with light freſh earth, and plunged into a moderate hot-bed, carefully ſhading them from the ſun till they have taken new root; after which they ſhould have free air admitted to them in proportion to the warmth of the ſeaſon, to prevent their drawing up weak, and afterwards treated in the ſame manner as other tender exotic plants, being too tender to thrive in the open air in England; ſo that when they are grown too large to remain under the frames, they ſhould be removed into the bark-ſtove, and plunged into the tan-bed, where they will flower in July, and with good management they often perfect their ſeeds in autumn. But the ſeeds of this plant ſhould remain on till they drop, otherwiſe they will not grow, for the outer covers of theſe ſeeds ſplit open and drop off like thoſe of the Almond, before the ſeeds are fully ripened.

The ſecond ſort grows naturally at the Havannah, and in ſome of the other iſlands in America. This riſes with a ſhrubby ſtalk to the height of ten or twelve feet, dividing upward into a few branches, which are garniſhed with ſpear-ſhaped leaves, cut on their edges; theſe are ſoft and hairy. The flowers are produced from the ſide of the branches, growing ſeveral together on the ſame foot-ſtalk; they are ſhaped like thoſe of the Foxglove, of a greeniſh yellow colour, with brown ſpots on the inſide; the flowers have a ſwelling tube, which is recurved, and the brim is ſlightly divided into five unequal ſegments. Theſe appear in July, but are not ſucceeded by ſeeds in England.

This ſort is propagated by ſeeds, which muſt be procured from the countries where it grows naturally, and ſhould be ſown on a hot-bed in the ſpring; when the plants are fit to remove, they ſhould be each planted into a ſeparate ſmall pot, filled with light kitchen-garden earth, and plunged into a freſh hot-bed, where they muſt be ſhaded from the ſun till they have taken freſh root; then they muſt have air admitted to them, according to the warmth of the ſeaſon, and frequently watered during the heat of ſummer. In autumn they muſt be removed into the bark-ſtove, and plunged into the tan-bed. During the winter ſeaſon, the plants ſhould not have much water, and may be treated in the ſame manner as other tender plants from thoſe countries. The plants ſeldom flower in England till the third year; and as they do not produce ſeeds here, it is with difficulty the ſort is preſerved in the European gardens, as there is no other method of propagating the plants but by ſeeds.

CRASSULA. Dillen. Hort. Elth. 114. Lin. Gen. Plant. 352. Leſſer Orpine, or Live-ever. This name was formerly applied to the Anacampſeros, or Orpine.

The Characters are,

The flower hath a five-leaved empalement. The corolla conſiſts of five narrow petals, which are joined at their baſe, are reflexed, and ſpread open at the brim. In the bottom of the tube are ſituated five nectarii, and there are five ſtamina ſituated round theſe, which ariſe from the bottom of the tube, and extend to the brim. At the bottom of the tube are placed five oblong pointed germina; after the flower is paſt, theſe become five capſules, opening lengthways, and filled with ſmall ſeeds.

This genus of plants is by Dr. Linnæus ranged in his fifth claſs of plants, and in the fifth diviſion, intitled Pentandria Pentagynia, which includes thoſe plants whoſe flowers have five ſtamina and five ſtyles.

The Species are,

1. **Crassula** (*Coccinea*) foliis planis cartilagineo-ciliatis, baſi connato vaginantibus. Vir. Cliff. 26. *Leſſer Orpine with plain leaves, having ſtiff edges ſet with ſilver hairs, and their baſe ſurrounding the ſtalk like ſheaths.* Cotyledon Africana fruteſcens, flore umbellato Coccineo. Com. Rar. 24.
2. **Crassula** (*Perfoliata*) foliis lanceolato-ſubulatis ſeſſilibus connatis, canaliculatis, ſubtus convexis. Hort. Cliff. 116. *Leſſer Orpine with ſpear-ſhaped awl-faſhioned leaves, ſurrounding the ſtalks with their baſe, channelled on their upper ſide, and convex on their under.* Craſſula altiſſima perfoliata. Dill. Hort. Elth. 114.
3. **Crassula** (*Cultrata*) foliis oppoſitis, obtuſè ovatis, integerrimis, hinc anguſtioribus. Hort. Cliff. 496. *Leſſer Orpine with oval blunt leaves placed oppoſite, which are entire, and narrow at their baſe.* Craſſula Anacampſerotis folio. Hort. Elth. 115. tab. 65.
4. **Crassula** (*Ciliata*) foliis oppoſitis, ovalibus, planiuſculis, diſtinctis, ciliatis, corymbis terminalibus. Hort. Cliff. 496. *Leſſer Orpine with oblong plain leaves placed oppoſite, which are bordered with ſilver hairs, and ſtalks terminated by a corymbus of flowers.* Craſſula cauleſcens, foliis ſempervivi cruciatis. Hort. Elth. 116. tab. 98.
5. **Crassula** (*Scabra*) foliis oppoſitis, patentibus, connatis ſcabris ciliatis, corymbis terminalibus. Lin. Sp. Plant. 283. *Leſſer Orpine with rough ſpreading leaves growing oppoſite.* Cotyledon Africana fruteſcens, foliis aſperis, anguſtis, acuminatis, flore vireſcente. Mart. Cent. 24.
6. **Crassula** (*Nudicaulis*) foliis ſubulatis, radicatis, caule nudo. Hort. Cliff. 116. *Leſſer Orpine with awl-ſhaped leaves which put out roots, and a naked ſtalk.* Craſſula Cæſpitoſa longifolia. Hort. Elth. 116. tab. 98.
7. **Crassula** (*Punctata*) caule flaccido, foliis connatis, cordatis, ſucculentis, floribus confertis terminalibus. *Leſſer Orpine with a weak ſtalk growing through the leaves, which are heart-ſhaped and ſucculent, and flowers growing in cluſters at the end of the branches.*
8. **Crassula** (*Fruticoſa*) foliis longis, teretibus, alternis, caule fruticoſo, ramoſo. *Leſſer Orpine with long taper leaves placed alternate, and a branching ſhrubby ſtalk.*
9. **Crassula** (*Sediodes*) caule flaccido, prolifero, determinatè-folioſo, foliis patentiſſimis, imbricatis. Hort. Cliff. 496. *Leſſer Orpine with a proliferous weak ſtalk, which is leafy, and leaves placed in the manner of tiles, and ſpreading open.* Sedum Afrum, ſaxatile, foliis ſedi vulgaris, in roſam verè compoſitis. Boerh. Ind. alt. 1. 287.
10. **Crassula** (*Pelucida*) caule flaccido repente, foliis oppoſitis. Lin. Sp. Plant. 283. *Leſſer Orpine with a weak creeping ſtalk, leaves placed oppoſite, and a ſhrubby ſucculent ſtalk.* Craſſula portulacæ facie repens. Hort. Elth. 119.

11. **Crassula** (*Portulacaria*) foliis obovatis, oppoſitis, caule arboreo. Lin. Sp. 406. *Leſſer Orpine with obverſe oval leaves placed oppoſite, and a tree-like ſtalk.* Craſſula portulacæ facie arboreſcens. Hort. Elth. 120. tab. 90.

The firſt ſort hath a round reddiſh ſtalk, which is jointed, riſing about three feet high, which divides upward into many irregular branches, garniſhed with oblong plain leaves placed oppoſite, having a griſtly border, ſet with ſmall ſilver hairs, and cloſely embrace the ſtalks with their baſe. The flowers are produced at the end of the branches in cloſe umbels, ſitting very cloſe to the end of the branches; theſe are funnel-ſhaped, having pretty long tubes cut at the top into five parts, which ſpread open; they are of a fine ſcarlet colour, and ſtand erect; the uſual time of their flowering is July or Auguſt. This is propagated by cuttings during any of the ſummer months; theſe ſhould be cut off about a fortnight before they are planted, and laid in a dry place that the wounded part may heal over; then they ſhould be each planted in a ſmall pot filled with light ſandy earth, and plunged into a moderate hot-bed, giving them but little water. In about ſix weeks theſe will have put out roots and begin to grow, when they ſhould have a large ſhare of air admitted to them, and muſt be gradually inured to bear the open air, into which they ſhould be removed, placing them in a ſheltered ſituation, where they may remain till autumn; when they muſt be removed into a dry airy glaſs-caſe, where they may enjoy the ſun as much as poſſible, and be ſcreened from the wet and cold. In warm dry weather, during the ſummer months while they are abroad, theſe plants ſhould be gently watered two or three times a week; but in winter they ſhould have very little water, leſt it rot their ſtems. Theſe plants require no artificial heat in winter, but they muſt be ſecured from froſt and wet.

The ſecond ſort will riſe with an upright ſtalk ten or twelve feet high, if it is not broken or injured, but it requires ſupport; for the ſtalks being ſlender, and the leaves very weighty, they are very ſubject to break, eſpecially if they are expoſed to the wind. The leaves of this plant are about three inches long; they are hollowed on the upper ſide, and have a convex ridge on their lower, and are placed oppoſite, ſurrounding the ſtalks with their baſe; theſe alternately croſs each other; they are very thick, ſucculent, and of a pale green colour, ending in acute points; at the top of the ſtalk the flowers are produced in large cluſters; they are of a whitiſh herbaceous colour, having ſhort tubes, which are cut into five parts at the brim, ſpreading open. The ſtalk which ſuſtains the flowers is pretty thick and ſucculent, generally turning firſt downward, and then upward again, almoſt in the form of a ſyphon. It flowers in July, but doth not produce ſeeds here. This ſort is propagated by cuttings in the ſame manner as the firſt, and the plants require the ſame treatment.

The third ſort riſes with a weak ſucculent ſtalk about two feet high, ſending out many irregular branches, garniſhed with oblong, oval, thick leaves, plain on their upper ſide, but convex below, of a deep green; their borders are ſet with a few ſilvery hairs. The ſtalk which ſupports the flowers riſes from the top of the branches, and is from four to ſix inches long, putting out ſeveral ſide branches, which grow erect; theſe are terminated by large cluſters of ſmall greeniſh flowers, which appear in June and July. This is propagated by cuttings in the ſame manner as the two former, but being pretty hardy, ſhould not be ſo tenderly treated; for if the cuttings of this are planted in a border of light earth, they will put out roots, and may afterward be taken up and potted, to be ſheltered in winter.

The fifth ſort hath a very weak ſucculent ſtalk, which riſes about a foot and a half high, dividing upward into ſmall branches, garniſhed with thin rough leaves which are flat, near two inches long, and a quarter broad at their baſe, gradually narrowing to a point; theſe are rough, placed oppoſite, and embrace the ſtalks with their baſe. The flowers come out in ſmall cluſters at the end of the branches; they are ſmall, and of an herbaceous colour, ſo make no figure; they appear in June and July. This may be propagated by cuttings, which may be treated in the ſame manner as the fourth ſort.

The ſixth ſort never riſes with a ſtalk, but the leaves come out cloſe to the ground, forming a ſort of head; they are taper, ſucculent, ending in points, and frequently put out roots; out of the center of theſe ariſe the flower-ſtalk, which grow about ſix inches high, branching into two or three ſhoots upward, each being terminated by cluſters of greeniſh flowers, which make no great appearance. It flowers in May, and ſometimes again in the latter part of ſummer. This is propagated by taking off the heads, or ſide offsets, which ſhould be laid to dry three or four days before they are planted; then they may be treated in the ſame manner as the other hardier ſorts beforementioned.

The ſeventh ſort hath been lately introduced to the gardens in Holland, from the Cape of Good Hope; it was ſent me by Dr. Adrian Van Royen, late profeſſor of botany at Leyden. This hath very ſlender ſtalks, which are full of joints, ſo trail upon the ground, unleſs they are ſupported, cloſely garniſhed with thick, ſucculent, heart-ſhaped leaves, placed oppoſite, which are cloſely joined at their baſe, ſo that the ſtalks run through them; they are of a grayiſh colour; the ſtalks are divided, and grow about eight or nine inches long, and are terminated by cluſters of ſmall white flowers, ſitting very cloſe to the top of the ſtalks; theſe appear in the ſpring, and alſo again in the latter part of ſummer. It is propagated by cuttings in the ſame manner as the other hardier ſorts, and may be treated in the ſame way.

The eighth ſort was ſent me from Leyden, by the gentleman before-mentioned; this riſes with a ſhrubby ſtalk four or five feet high, dividing into many branches, which at firſt are taper and ſucculent, but by age becomes ligneous; they are garniſhed with very ſlender, taper, ſucculent leaves, which are near three inches long, and are flaccid, generally turning downward, eſpecially in winter, when they are in the houſe; but as it hath not as yet flowered here, I can give no further deſcription of it. This is equally hardy with the former ſorts, and takes eaſily from cuttings, ſo may be treated in the ſame way as the former.

The ninth ſort is a low plant, with the appearance of Houſleek, having open ſpreading heads very like thoſe of ſome ſorts of Houſleek, which grow on the ends of very ſlender trailing ſtalks, which are produced in plenty on every ſide the parent plant, in like manner as the childing Marigold. The flower-ſtalks ariſe from the center of theſe heads, which are naked, about four inches long, and are terminated by cloſe cluſters of herbaceous flowers, which appear in different ſeaſons of the year. This plant propagates very faſt by the ſide heads, which come out from the parent plant, which frequently put out roots as they trail on the ground, ſo may be taken off and potted, during any of the ſummer months; this is equally hardy with the former ſorts, ſo the plants may be treated in the ſame way.

The tenth ſort hath very ſlender, trailing, ſucculent ſtalks, of a reddiſh colour, which put out roots at the joints as they lie upon the ground. The ſtalks and leaves of this ſort have the appearance of Purſlane, but trail upon the ground like Chickweed. The flowers are produced in ſmall cluſters at the end of the branches; theſe are white, with a bluſh of purple at their brim; they appear in ſummer at different times, and are often ſucceded by ſeeds, which grow eaſily. This ſort is eaſily propagated by its trailing branches, and the plants require the ſame treatment as the other hardy ſorts, but unleſs they are often renewed will decay.

The eleventh ſort riſes with a very thick, ſtrong, ſucculent ſtalk to the height of three or four feet, ſending out branches on every ſide, ſo as to form a kind of pyramid, the lower branches being extended to a great length, and the other diminiſhing gradually to the top; theſe are of a red or a purpliſh colour, and very ſucculent; they are garniſhed with roundiſh ſucculent leaves very like thoſe of Purſlane, from whence the gardeners have titled it the Purſlane-tree.

This ſort hath not flowered in England, though it has been many years in the gardens, ſo that we are not ſure if it is properly ranged in this genus; but from the outward appearance it ſeems to be nearly allied to ſome of the other ſpecies, on which account Dr. Dillenius has placed it here.

It is propagated with great facility by cuttings, which may be planted during any of the ſummer months; but theſe ſhould be laid to dry for ſome days before they are planted, that the wounded part may be healed over, otherwiſe they will rot. This ſort is ſomewhat tenderer than the four ſorts laſt mentioned, ſo muſt be placed in a warm glaſs-caſe in winter, where it may enjoy the full ſun, and ſhould have very little water during that ſeaſon. In ſummer the plants ſhould be placed abroad in a ſheltered ſituation, and in warm weather will require to be refreſhed with water twice a week; but as the ſtalks are very ſucculent, too much wet at any ſeaſon is very hurtful to theſe plants.

All the hardy ſorts of Craſſula may be treated in the ſame way as the Ficoides, and other hardier kinds of ſucculent plants, with this difference only, not to give them ſo much water; but the firſt, ſecond, and eleventh ſorts require to be placed in a warm dry glaſs-caſe in winter, and muſt not be ſo long expoſed abroad in the ſummer as the other ſpecies, nor ſhould have much water, eſpecially in the winter.

Theſe plants are preſerved in moſt curious gardens for the ſake of variety, which conſiſts more in the outward appearance of their plants, than in the beauty of their flowers, except the firſt ſort, whoſe flowers are of a beautiful ſcarlet, and grow in cloſe bunches at the end of the branches; ſo that when ſeveral of the branches are garniſhed with flowers at the ſame time, they make a fine appearance, and theſe flowers continue in beauty a long time; but the flowers of the other ſorts are ſmall, and moſt of them are of an herbaceous colour, ſo make no figure.

Dr. Dillenius, who firſt eſtabliſhed this genus, and ſeparated the ſpecies from Cotyledon, to which many of them had been joined by former botaniſts, made their difference to conſiſt in the ſhape of the flower; ſo that all the ſorts with long tubulous flowers of one leaf, he placed under the genus of Cotyledon, and thoſe whoſe flowers have five petals, he placed under this genus of Craſſula: but Dr. Linnæus makes their difference to conſiſt in the number of their ſtamina, ſo that all thoſe whoſe flowers have but five ſtamina, he ranges under the title of Craſſula, and thoſe which have ten ſtamina, he puts under that of Cotyledon; ſo that by his ſyſtem they are removed to a great diſtance from each other, and the firſt ſort here mentioned is brought from Cotyledon, with whoſe characters in every other reſpect it agrees, and is placed here.

CRATÆGUS. Tourn. Inſt. R. H. 633. Lin. Gen. Plant. 547. The Wild Service.

The Characters are,

The flower hath a permanent empalement of one leaf, cut into five concave ſegments, which ſpread open. It hath five roundiſh concave petals, which are inſerted into the empalement, and many ſtamina, terminated by roundiſh ſummits, which are alſo inſerted in the empalement. The germen is ſituated under the flower, ſupporting two ſlender ſtyles, crowned with roundiſh ſtigmas. The germen afterward becomes an oval or roundiſh umbilicated berry, incloſing two oblong hard ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's twelfth claſs, intitled Icoſandria Digynia, the flower having twenty or more ſtamina, which are inſerted to the empalement, and two ſtyles.

The Species are,

1. Cratægus (*Aria*) foliis ovatis inæqualiter ſerratis, ſubtus tomentoſis. Hort. Cliff. 187. *Wild Service with oval leaves unequally ſawed, and woolly on their under ſide.* Cratægus folio ſubrotundo, ſerrato, ſubtus incano. Tourn. Inſt. R. H. 633. Aria Theophraſti, and in ſome countries, *The White Beam, or white Leaf-tree.*
2. Cratægus (*Torminalis*) foliis cordatis ſeptangulis, lobis infimis divaricatis. Lin. Sp. Plant. 476. *Wild Service with heart-ſhaped leaves, having ſeven angles, whoſe lower lobes ſpread aſunder.* Cratægus folio laciniato. Tourn. Inſt. 633. *Wild, or Maple-leaved Service.*
3. Cratægus (*Alpina*) foliis oblongo-ovatis ſerratis, utrinque virentibus. *Wild Service with oblong, oval, ſawed leaves, which are green on both ſides.* Cratægus folio oblongo, ſerrato, utrinque virenti. Tourn. Inſt. 633.
4. Cratægus (*Coccinea*) foliis ovatis repando-angulatis ſerratis glabris. Hort. Cliff. 187. *Cratægus with oval, ſmooth, ſawed leaves, having angles.* Meſpilus ſpinoſa, ſc. oxyacantha Virginiana maxima. Tourn. Inſt. 633. *Commonly called Cockſpur Hawthorn.*
5. Cratægus (*Crus Galli*) foliis lanceolato ovatis ſerratis glabris, ramis ſpinoſis. Lin. Sp. 682. *Cratægus with oval, ſpear-ſhaped, ſawed leaves, and prickly branches.* Meſpilus aculeata pyrifolia denticulato ſplendens, fructu inſigni rutilo, Virginienſis. Pluk. Alm. 249. *Commonly called Virginian L'Azarole.*
6. Cratægus (*Lucida*) foliis lanceolatis ſerratis lucidus, ſpinis longiſſimis, floribus corymboſis. *Cratægus with lucid, ſpear-ſhaped, ſawed leaves, very long ſpines, and flowers in a corymbus.* Meſpilus prunifolius, ſpinis longiſſimis fortibus, fructu rubro magno. Flor. Virg. 55.
7. Cratægus (*Azarolus*) foliis obtuſis ſubtrifidis dentatis. Lin. Sp. 683. *Cratægus with obtuſe, trifid, indented leaves.* Meſpilus Apii folio laciniato. C. B. P. 453. *Commonly called L'Azarole.*
8. Cratægus (*Oxyacantha*) foliis obtuſis ſubtrifidis ſerratis. Hort. Cliff. 188. *Cratægus with obtuſe, trifid, ſawed leaves.* Meſpilus Apii folio, ſylveſtris ſpinoſa, ſc. oxycantha. C. B. P. 454. *The common White Thorn.*
9. Cratægus (*Tomentoſa*) foliis cuneiformi-ovatis ſerratis ſubangulatis ſubtus villoſis ramis ſpinoſis. Lin. Sp. 682. *Cratægus with oval, wedge-ſhaped, ſawed, angular leaves, hoary on their under ſide, and prickly branches.* Meſpilus Virginiana groſſulariæ foliis. Pluk. Phyt. 100. f. 1.

The firſt ſort grows naturally on the chalky hills in Kent, Surry, and Suſſex, and in ſome other parts of England, and riſes to the height of thirty or forty feet, with a large trunk, dividing upward into many branches; the young ſhoots have a brown bark, covered over with a mealy down, garniſhed with oval leaves between two and three inches long, and one and a half broad in the middle, of a light green on their upper ſide, but very white on their under, having many prominent tranſverſe veins, running from the midrib to the border, where they are unequally ſawed, ſome of the indentures being much deeper, and the ſegments broader than others. The flowers are produced at the ends of the branches in bunches, their foot-ſtalks being meally, as are alſo the empalements of the flowers, which are cut into five obtuſe ſegments, and are reflexed. The flowers have five ſhort petals, which ſpread open like thoſe of the Pear-tree, having a great number of ſtamina of the ſame length with the petals, terminated by oval ſummits. The germen, which is ſituated below the flowers, afterwards becomes an oval fruit, crowned with the empalement of the flower, having one cell, in which is incloſed three or four ſeeds. It flowers in May, and the fruit ripens in autumn.

This tree may be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe; for if they are kept out of the ground till ſpring, they remain at leaſt one year in the ground before the plants appear; ſo that the fruit ſhould be buried in the ground, as is practiſed with the common Haws, Holly-berries, and thoſe other hard ſeeds which do not come up the ſame year; and when the plants come up, they may be treated in the ſame manner as the Haws, but they ſhould by no means be headed or cut down; when theſe plants are upon a poor chalky ſoil, they make great progreſs, and the wood is very white and hard, ſo has been often uſed for making cogs for mills, and many other purpoſes where hard tough timber is wanted.

It may alſo be propagated by layers in the ſame manner as the Lime-tree and Elm, but theſe ſhould be laid in the young wood; but they are two years before they have ſufficient roots to tranſplant. I have alſo raiſed a few plants from cuttings, which were planted in autumn, in a ſhady border, but there was not more than one eighth part of the cuttings which ſucceeded; therefore I would recommend the raiſing them from ſeeds, for the trees ſo raiſed grow much larger and ſtraiter than thoſe which are raiſed either from layers or cuttings.

The tree will take by grafting, or budding it upon Pear-ſtocks very well, and Pears will take by grafting upon theſe trees, ſo that there is a nearer affinity between the Cratægus and Pear, than there is between either of theſe and the Meſpilus; for although both theſe will ſometimes take upon the Meſpilus, yet neither of them thrive ſo well, or laſt ſo long, when grafted, or budded upon thoſe ſtocks, as they do upon each other; therefore Tournefort, who has joined the Cratægus in his ſection, with the Pear and Quince, has come nearer to the natural diviſion of their genera, than thoſe who have joined the Cratægus to the Meſpilus.

There is another ſpecies of this tree which grows naturally about Verona, from whence I have received dried ſamples of it, but they were without flower and fruit, and came over by the ſame title as the former; for as there is no other growing in that neighbourhood, they have ſuppoſed it to be the common ſort; but if that is the Aria of Theophraſtus, thoſe trees which grow in England are not, for the leaves of the ſort from Verona are ſpear-ſhaped, and above an inch long, and not ſo broad by an inch as thoſe of the Engliſh, and the nerves on the under ſide of the leaves are purpliſh, the leaves terminating in acute points, ſo that I make no doubt of its being a different ſpecies; but as I have not ſeen the growing tree, I would not enumerate it till I had been better informed.

The ſecond ſort grows naturally in many parts of England, and is chiefly found upon ſtrong ſoils; it formerly grew in great plenty in Cane-Wood, near Hampſtead; and lately there was ſome young trees growing in Biſhop's-Wood, near the ſame place; but in many parts of Hertfordſhire there are large trees now growing: this riſes to the height of forty or fifty feet, with a large trunk, ſpreading at the top into many branches, ſo as to form a large head. The young branches are covered with a purpliſh bark, marked with white ſpots, and are garniſhed with leaves placed alternately, ſtanding on pretty long foot-ſtalks; theſe are cut into many acute angles, like thoſe of the Maple-tree; they are near four inches long, and three broad in the middle, having ſeveral ſmaller indentures toward the top, of a bright green on their upper ſide, but a little woolly on their under. The flowers are produced in large bunches toward the end of the branches, they are white, and ſhaped like thoſe of the Pear-tree, but ſmaller, and ſtand upon longer foot-ſtalks; theſe appear in May, and are ſucceeded by roundiſh compreſſed fruit, which are ſhaped like large Haws, and ripen late in autumn, when they are brown; and if kept till they are ſoft, in the ſame way as Medlars, they have an agreeable acid flavour. The fruit of this tree is annually ſold in the London markets in autumn.

The wood of this tree is hard, and very white, and is very uſeful for many purpoſes; but particularly ſo to the millwrights. It may be propagated in the ſame way as the former ſort, but requires a ſtrong ſoil.

The third ſort grows naturally upon mount Baldus, from whence I received it, and on other mountainous parts of Italy; this riſes with a woody trunk about twenty feet high, dividing into many branches, which are covered with a purpliſh ſpotted bark, and cloſely garniſhed with oblong ſawed leaves, ſtanding alternate, on very ſhort foot-ſtalks; they are about three inches long, and one and a half broad, in the broadeſt part, leſſening toward both ends; they are ſlightly ſawed on their edges, and of a deep green on both ſides. The flowers are produced at the end of the branches in ſmall bunches, which have rarely more than four or five flowers in each; they are white, and much ſmaller than thoſe of the former ſorts; theſe are ſucceeded by fruit about the ſize of the common Haw, which is of a dark brown colour when ripe. It flowers in May, and the fruit ripens in autumn.

The fourth ſort is a native of North America, but has been many years cultivated in the Engliſh gardens, where it is known by the title of Cockſpur Haw. Of this there are two ſpecies, one of which has no ſpikes on the branches; but the other has ſtrong thorns which are curved downwards, greatly reſembling the ſpur of a cock, from whence it had this appellation: in other reſpects both ſorts agree in the form of their leaves, their flowers and fruit. However, Dr. Linnæus has been ill informed of the two ſorts by Kalm, who went to America, and is now profeſſor at Abo in Sweden; for the doctor has added the appellation of Cockſpur to the fifth ſort here mentioned, which has long been known in England by the title of Virginia L'Azarole.

The fourth ſort riſes to the height of near twenty feet in England, where the trunk becomes large, and divides into many ſtrong branches, ſo as to form a large head; the leaves are large, oval, and deeply ſawed on their edges, ſo as almoſt to divide them into lobes, which are placed without order; the flowers come out from the ſide of the branches in cluſters; they are large, compoſed for the moſt part of five petals, which ſpread open, and are ſucceeded by pretty large Pear-ſhaped fruit of a ſcarlet colour. It flowers in May, and the fruit ripens in September.

The fifth ſort is generally known by the title of Virginia L'Azarole; this riſes with a ſtrong ſtem to the height of fifteen feet or more, ſending out many irregular branches covered with a light brown bark, and have a few thorns on their ſides; the leaves have ſhort foot-ſtalks, they are narrow at their baſe, but widen upward ſo as to become almoſt of an oval figure, of a lucid green on their upper ſide, and pretty deeply ſawed on their edges; the flowers are white, pretty large, and compoſed of five petals which expand: theſe are ſucceeded by large fruit of a ſcarlet colour; it flowers the end of May, and the fruit ripens in September.

The ſixth ſort grows naturally in North America; this riſes with a ſtrong ſtem to the height of ten or twelve feet, ſending out many ſtrong irregular branches, which, while young, is covered with a bright brown bark, but that on the older branches is of a lighter colour; the leaves are oval, ſpear-ſhaped, ſlightly ſawed on their edges, of a bright green on their upper ſide, but paler on their under; ſometimes they are placed by pairs, at others three or four come out from the ſame joint; the flowers are produced in large cluſters toward the end of the branches, forming a ſort of corymbus, and are ſucceeded by roundiſh fruit of a middling ſize, and a deep red colour. As the branches of this ſort ſhoot very ſtrong, and are generally interwoven with each other, being armed with very long ſtrong thorns, it is very proper for outward fences round gardens or fields.

The ſeventh ſort grows naturally in Italy and the Levant, where the fruit is ſerved up to table with their deſert; this hath a ſtrong ſtem riſing twenty feet high, having many ſtrong irregular branches, covered with a light-coloured bark; the leaves are in ſhape ſomewhat like thoſe of the common Hawthorn, but they are much larger, have broader lobes, and are of a paler colour; the flowers come out in ſmall cluſters from the ſide of the branches, which are in ſhape like thoſe of the common Hawthorn, but are much larger; as is alſo the fruit, which when fully ripe has an agreeable acid taſte, for which it is eſteemed by the inhabitants of the countries where it grows naturally.

The eighth ſort is the common Hawthorn, which is generally planted for fences in moſt parts of England, therefore being univerſally known to the inhabitants, it requires no deſcription: there are two or three varieties of this ſort, which differ in the ſize of their leaves and the ſtrength of their ſhoots; however, thoſe with the ſmalleſt leaves are generally preferred for hedges, as their branches always grow cloſer together; the method of raiſing the plants, and planting them for hedges, being fully treated of under the article of Hedges, I need not repeat here.

The ninth ſort grows naturally in North America, this has a ſlender ſhrubby ſtalk, riſing about ſix or ſeven feet high, ſending out many irregular branches, armed with long ſlender thorns, and garniſhed with ſhort, oval, wedge-ſhaped leaves, which are ſawed on their edges, and are woolly on their under ſide; the flowers are ſmall, proceeding from the ſide of the branches, ſtanding ſometimes ſingle, and at other times two or three upon the ſame foot-ſtalk, having large leafy empalements, and are ſucceeded by ſmall roundiſh fruit, with a large leafy umbilicus, which was before the empalement of the flower: the flowers appear the beginning of June, and the fruit ripens very late in the autumn.

This ſort may be propagated in the ſame manner as the firſt, but requires a ſtrong deep ſoil, otherwiſe it will not thrive. It is very hardy in reſpect to cold, but at preſent is very rare in England.

All the ſorts of Haws may be propagated by ſeeds, which ſhould be ſown in autumn, in the ſame manner as hath been directed for the firſt ſort; but as theſe ſeeds are frequently brought from America, and do not arrive here till ſpring, the fruit may be buried in the ground till the autumn following, when they may be taken up and ſown in drills, being careful to cover them ſo as to prevent birds from deſtroying them. In the ſpring following the plants will come up, which ſhould be moderately watered two or three times a week, if the ſpring ſhould prove dry; during the ſummer, they muſt be kept clean from weeds, which if ſuffered to grow, will ſoon overbear the plants and deſtroy them. The following ſpring the plants ſhould be planted out before they begin to ſhoot, into a nurſery-bed, where they may grow two years to get ſtrength, when they may be tranſplanted where they are to remain. If theſe plants are planted in a moiſt light ſoil, their roots will extend to a conſiderable diſtance, and put up many ſhoots, which may be taken off in the ſpring, and thereby may be increaſed; this will alſo take if grafted on the Pear, and if the young branches are laid down, they will take root, ſo the plants may be propagated either way.

The other ſorts of Hawthorn are generally planted among flowering ſhrubs of the ſame growth, where they add to the variety.

CRATEVA. Lin. Gen. Plant. 528. Tapia. Plum. Nov. Gen. 22. tab. 21. Garlic Pear.

The Characters are,

The empalement of the flower is of one leaf, cut at the top into four oval ſegments, which ſpread open. The flower hath four oval petals, which are narrow at their baſe, and broad at the top. It hath many briſtly ſtamina, which are longer than the petals, terminated by oblong erect ſummits. It hath a long incurved ſtyle, upon which ſits the oval germen, crowned by the ſtigma, ſitting cloſe on the top. The germen afterward becomes a large fleſhy globular fruit with one cell, including many kidney-ſhaped ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's eleventh claſs, intitled Dodecandria Monogynia, the plants of this claſs and ſection have twelve ſtamina in their flowers, and one ſtyle.

The Species are,

1. Crateva (*Tapia*) inermis foliis integerrimis, foliolis lateralibus baſiantica brevioribus. Lin. Sp. 673. *Smooth Crateva, or Garlic Pear.* Tapia arborea triphylla. Plum. Nov. Gen. 22.
2. Crateva (*Marmalos*) ſpinoſa foliis ſerratis. Flor. Zeyl. 212. *Prickly Crateva.* Cucurbitifera trifolia ſpinoſa medica, fructu pulpa Cydonii æmula. Pluk. Alm. 125.

The firſt ſort grows naturally in both Indies. I received the fruit of this from Jamaica, where it grows in great plenty, which were ſent me by William Williams, Eſq; of St. Anne's, in that iſland, who has been ſo kind as to furniſh me with many other curious ſeeds which have ſucceeded in the Chelſea garden.

This tree hath a very large trunk, which riſes to the height of thirty feet or upward, covered with a dark green bark, ſending out many branches, ſo as to form a large head. The branches are garniſhed with trifoliate leaves, ſtanding on pretty long foot-ſtalks; the middle leaf, which is much larger than either of the other, is oval, about five inches long, and two and a half broad in the middle. The two ſide leaves are oblique, thoſe ſides which join the middle leaf being much narrower than the other, and turn at both ends toward the middle, ſo that their midrib is not parallel to the ſides; theſe two end in acute points. The leaves are ſmooth, of a light green on the upper ſide, but pale on their under; their edges are entire. The flowers are produced at the ends of the branches, ſtanding upon long foot-ſtalks; theſe have empalements of one leaf, which are cut into four ſegments, almoſt to the bottom. The flower hath four oblong petals, which ſpread open, and are reflexed, having many long ſlender ſtamina, which are connected at their baſe, but ſpread open above, and are terminated by oblong purple ſummits; theſe ſurround a ſlender long ſtyle, upon which is ſituated the oval germen, which is crowned by an obtuſe ſtigma. The germen afterward becomes a round fruit, about the ſize of an Orange, having a hard brown ſhell, or cover, incloſing a meally pulp, filled with kidney-ſhaped ſeeds. This fruit hath a ſtrong ſmell of Garlic, which is communicated to the animals that feed on it. This is propagated by ſeeds, which muſt be procured from the countries where the trees grow naturally, and muſt be ſown on a hot-bed in the ſpring; when the plants come up, they muſt be treated in the ſame manner as hath been directed for the Annona, to which article the reader is deſired to turn for the culture.

The ſecond ſort grows naturally in India, where it grows to a great height, with a large trunk, ſending out many long branches, garniſhed with trifoliate leaves, which are oblong, entire, and end in acute points; between theſe the branches are armed with long ſharp thorns, which come out by pairs, and ſpread aſunder. The flowers are produced in ſmall cluſters from the ſide of the branches, five or ſeven ſtanding upon a common branching foot-ſtalk; theſe have each five acute petals, which are reflexed, and many ſtamina which ſtand round a ſingle ſtyle of the ſame length; the petals are green on the outſide, whitiſh within, and have a grateful odour. After the flower is paſt, the germen ſwells to a large fruit the ſize of an Orange, having a hard ſhell, which incloſes a fleſhy viſcous pulp, of a yellowiſh colour, having many oblong plain ſeeds ſituated within it; the pulp of this fruit hath an agreeable flavour when ripe, ſo is frequently eaten in India, where they ſerve up the fruit, mixed with Sugar and Orange, in their deſerts, and is eſteemed a great delicacy.

This ſort is propagated by ſeeds, which muſt be procured from the places where it grows naturally; theſe muſt be ſown upon a good hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each tranſplanted into a ſmall pot filled with light kitchen-garden earth, and plunged into a hot-bed of tanners bark, ſhading them every day from the ſun, until they have taken freſh root, after which they may be treated in the ſame manner as the Annona;

but ſhould be ſparingly watered in the winter ſeaſon.

CREPIS. Lin. Gen. Plant. 819. Hieraicioides. Vaill. Act. R. Sc. 1721. Hieraicium. Tourn. Baſtard Hawkweed.

The CHARACTERS are,

It hath a flower compoſed of many hermaphrodite florets, which are included in a double empalement; the outer is ſhort, ſpreading, and falls off; the inner one is permanent, oval, and furrowed, having many narrow ſcales, which are contracted together at the top. The hermaphrodite florets are of one leaf; they are uniform, tongue-ſhaped, and are indented at the top in five parts; theſe ſpread over each other like the ſcales of fiſh; they have each five ſhort hairy ſtamina, terminated by cylindrical ſummits. The germen is ſituated in the center of the florets, ſupporting a ſlender ſtyle, crowned by two reflexed ſtigmas. The germen afterward becomes an oblong ſeed, crowned with a long feathery down, which ſits upon little foot-ſtalks.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Æqualis. The flowers of this ſection are compoſed of hermaphrodite florets, which are fruitful.

The SPECIES are,

1. CREPIS (*Rubra*) foliis amplexicaulibus, lyrato-runcinatis. Vir. Cliff. 79. *Crepis with lyre-ſhaped leaves embracing the ſtalks.* Hieracium dentis leonis folio, flore ſuave rubente. C. B. P. 127. *Hawkweed with a Dandelion leaf.*
2. CREPIS (*Barbata*) foliis pinnatis angulatis, petiolatis, dentatis. Prod. Leyd. 126. *Crepis with angular, indented, winged leaves, having foot-ſtalks.* Hieracium foliis Cichorei ſylveſtris villoſis, odore Caſtorei. Bot. Monſp.
3. CREPIS (*Bœtica*) involucris calyce longioribus incurvatis, foliis lanceolatis dentatis. *Crepis with an incurved volucrum longer than the empalement, and ſpear-ſhaped indented leaves.* Hieracium medio-nigrum, Bœticum majus. Par. Bat. 185. *Greater Spaniſh Hawkweed with flowers black in the middle.*
4. CREPIS (*Alpina*) foliis amplexicaulibus, oblongis, acuminatis inferioribus, superné, ſummis inferné, denticulatis. Hort. Upſal. 238. *Crepis with oblong pointed leaves embracing the ſtalk, the lower being indented upward; and the upper downward.* Hieracium Alpinum Scorzoneræ folio. Tourn. Inſt. 472.

There are ſeveral other ſpecies of this genus, ſome of which grow naturally in England, and others are weeds in divers parts of Europe, ſo are rarely admitted into gardens, therefore I ſhall not enumerate them here.

The firſt ſort grows naturally in Apulia, but is now commonly cultivated in Engliſh gardens for ornament; it is an annual plant, which periſhes after it hath ripened ſeeds. This hath many ſpear-ſhaped leaves which ſpread on the ground, deeply jagged on their ſides; between them ariſe the branching ſtalks, which grow a foot and a half high, dividing into many ſlender branches, garniſhed with oblong leaves deeply indented on their edges, embracing the ſtalks with their baſe; the ſtalks are each terminated by one large radiated flower, of a ſoft red colour, compoſed of many half florets, which are ſucceeded by oblong ſeeds crowned with a feathery down. It flowers in June and July, and the ſeeds ripen in autumn. This plant, when bruiſed, emits an odour like bitter Almonds.

The ſeeds of this plant ſhould be ſown in the ſpring, on the borders of the flower-garden where they are deſigned to remain, ſo that if ſix or eight ſeeds are ſown in each patch, when the plants come up, they may be reduced to three or four; and if theſe are kept clean from weeds, they will require no other culture, excepting the putting ſmall ſticks down, to faſten the ſtalks, to prevent their being broken by winds or rain. If the ſeeds are ſown in autumn, or permitted to ſcatter, the plants will come up and live through the winter without ſhelter, and theſe will flower early in the ſpring.

The ſecond ſort grows naturally in the ſouth of France, and in Italy. This is a biennial plant, and ſometimes, when it is in poor ground, it will continue longer; it hath a thick tap-root, which ſtrikes deep into the ground, ſending out many ſmall fibres; the lower leaves are from four to five inches long, and about a quarter of an inch broad, having ſeveral deep jags on their edges, the ſegments ending in acute points; from the ſame root ariſes four or five ſtalks, which grow about nine or ten inches high, the lower part of theſe are garniſhed with leaves of the ſame form with thoſe near the root, but are ſmaller, and more jagged; the upper part of the ſtalks are naked, and branch out into two, and ſometimes three branches, each being terminated by one flower of a gold colour, inclining to copper, compoſed of many florets which are included in a ſingle empalement; the flowers are ſucceeded by oblong narrow ſeeds, crowned with a feathery down: the whole plant, when bruiſed, emits a ſtrong odour of Caſtor. It flowers in June, and the ſeeds ripen in autumn. This is frequently preſerved in gardens for the ſake of variety.

It is propagated by ſeeds in the ſame manner as the firſt ſort, but as this continues longer, the ſeeds need not be annually ſown. The plants will require no other culture but to keep them clean from weeds, and if the ſeeds are permitted to ſcatter, the plants will come up without any trouble, ſo need only be thinned where they are too cloſe.

The third ſort is an annual plant, which grows naturally in Spain, but is now frequently propagated in the flower-gardens for ornament. This puts out leaves near the root, which are nine inches long, and almoſt two broad in the middle, of a light green colour, and a little jagged on their edges; the ſtalks riſe a foot and a half high, dividing into many branches, garniſhed with leaves of the ſame form as thoſe at bottom, but ſmaller, and ſit cloſe to the branches; the flowers are produced at the end of the branches; theſe have a double empalement, compoſed of many long very narrow leaves; the outer ſeries are reflected downward, and turn upward again, and are inflexed at their extremities. The flowers are compoſed of many florets, which are ſtretched out on one ſide at the top like a tongue, theſe are cut at their extremities into four or five parts; they ſpread regularly in form of rays, and are ſituated over each other like ſcales of fiſh; there are two varieties of this, one with a deep yellow, and the other of a ſulphur colour inclining to white; but both have a dark black bottom or middle, ſo make a pretty appearance in a garden. It flowers in June and July, and the ſeeds ripen in autumn. This plant requires the ſame culture as the firſt, and is equally hardy, ſo that where the ſeeds are permitted to ſcatter, the plants will come up without care.

The fourth ſort grows naturally on the Alps; this is alſo an annual plant, which ſends out many oblong pointed leaves near the root; they are five inches long, and almoſt two broad at their baſe, leſſening gradually to a point; the upper part of theſe are ſlightly indented, but their lower parts are entire; the ſtalks are ſtrong and upright, riſing two feet high, dividing into three or four branches, which grow erect, and are terminated by pale white flowers, incloſed in a ſtrong hairy empalement, which contracts cloſe toward the top; the ſtalks are garniſhed with leaves of the ſame form as the lower, which embrace them with their baſe, where they are ſlightly indented, but their upper parts are entire; theſe leaves are hairy and rough. It flowers in June, and the ſeeds ripen in autumn. This requires the ſame culture as the firſt, and the ſeeds will ſcatter about the garden, ſo that if the plants are not deſtroyed, they will maintain themſelves without any care.

CRESCENTIA. Lin. Gen. Plant. 680. Cujete. Plum. Nov. Gen. 23. tab. 16. Calabaſh-tree.

The CHARACTERS are,

The flower hath one petal, which is irregular, having a *curved gibbous tube, whoſe brim is cut into five unequal ſegments, which are reflexed; this hath an empalement, which is ſhort, of one leaf, cut into two obtuſe ſegments, which are concave. It hath four ſtamina, two of which are of the length of the petal; the other are ſhorter, terminated by twin ſummits which are proſtrate. It hath an oval germen ſitting on a foot-ſtalk, ſupporting a long ſlender ſtyle, crowned by a roundiſh ſtigma. The germen afterward becomes an oval or bottle-ſhaped fruit, with a hard ſhell, incloſing many flat heart-ſhaped ſeeds.*

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia. The flower having two long and two ſhort ſtamina, and the ſeeds being included in a capſule.

The Species are,

1. Crescentia (*Cujete*) foliis lanceolatis, utrinque attenuatis. Hort. Cliff. 327. *Creſcentia with ſpear-ſhaped leaves, narrowed at both ends.* Cujete foliis oblongis anguſtis magno fructu ovato. Plum. Nov. Gen. 23. *Calabaſh-tree with oblong narrow leaves, and a large oval fruit.*
2. Crescentia (*Latifolia*) foliis oblongo-ovatis, fructu rotundo, cortice fragili. *Creſcentia with oblong oval leaves, and round fruit with a tender ſhell.* Cujete latifolia, fructu putamine fragili. Plum. Nov. Gen. 23. *Broad-leaved Calabaſh-tree whoſe fruit hath a tender ſhell.*

There are ſome varieties of theſe trees, which only differ in the ſize and ſhape of their fruit; but thoſe are variations which ariſe from ſeeds of the ſame tree, ſo are not to be enumerated as diſtinct ſpecies; but the two here mentioned are undoubtedly different ſpecies, for I have frequently raiſed them from ſeeds, and have never found either of them vary.

The firſt ſort grows naturally in Jamaica, and in all the Leeward Iſlands. This hath a thick trunk, covered with a whitiſh bark, which riſes from twenty to thiry feet high, having ſeveral knots all the length, and at the top divides into many branches, which ſpread every way, and form a large regular head, garniſhed with leaves which come out irregularly; ſometimes ſingle, at others many ariſe from the ſame knot; they are near ſix inches long, and one and a half broad in the middle, diminiſhing gradually to both ends; they are of a lucid green, and have very ſhort foot-ſtalks, with one midrib, and ſeveral tranſverſe veins running from that to the ſides. The flowers are produced from the ſide of the large branches, and ſometimes from the trunk, ſtanding upon long foot-ſtalks; their empalement is deeply divided into two obtuſe ſegments. The flower hath but one petal, which is irregular, having an incurved tube, which is divided at the brim into two irregular ſegments, which turn backward; theſe are of a greeniſh yellow colour, ſtriped and ſpotted with brown; the flowers are an inch and a half long, from the bottom of the tube to the extent of the upper ſegment. They have four ſlender ſtamina, of the ſame colour with the petal, which are of unequal lengths, two being full as long as the petal, and the other are much ſhorter, terminated by oblong ſummits, divided in the middle, which lie proſtrate on the ſtamina. From the lower part of the tube ariſes a long ſlender foot-ſtalk, ſupporting the oval germen, which hath a headed ſtigma ſitting cloſe on the top; the germen afterward turns to a large fruit, of different forms and ſize; they are often ſpherical, ſometimes they are oval, and at other times they have a contracted neck like a bottle; and are ſo large, as when the pulp and ſeeds are cleaned out, the ſhells will contain three pints or two quarts of liquid. Theſe fruit or ſhells, are covered with a thin ſkin of a greeniſh yellow when ripe, which is peeled off; and under this is a hard ligneous ſhell, incloſing a pale, yellowiſh, ſoft pulp, of a tart unſavory flavour, ſurrounding a great number of flat heart-ſhaped ſeeds.

The ſhells of this fruit are cleaned of their pulp, and the outer ſkin taken off, by the inhabitants of the iſlands, and dried; then they uſe them for drinking-cups, ſome of which are tipped with ſilver, and to the necks they faſten handles, and ſome of the long ſmall fruit are formed into the ſhape of ſpoons or ladles, and are uſed as ſuch; the round ones are cut through the middle, and are uſed as cups for Chocolate. The Indians put a number of ſmall ſtones into theſe ſhells, when cleared of the pulp, to make a ſort of rattle: in ſhort, they convert theſe ſhells into many ſorts of furniture, which is the principal uſe made of the fruit; for the pulp is ſeldom eaten, except by the cattle in the time of great droughts. The leaves and branches of this tree are alſo eaten by the cattle in times of ſcarcity. The wood of this tree is hard and ſmooth, ſo is frequently uſed for making ſaddles, ſtools, and other furniture.

The ſecond ſort ſeldom riſes more than fifteen or twenty feet high; this hath an upright trunk, covered with a white ſmooth bark, ſending out many lateral branches at the top, garniſhed with leaves three inches in length, and one and a quarter broad; theſe are ranged alternately on the branches, ſitting upon ſhort foot-ſtalks; they are of a deeper green than thoſe of the firſt ſort, and their edges are entire. The flowers come out from the ſide of the large branches and the trunk; theſe are ſmaller, and of a deeper yellow colour than thoſe of the firſt; the fruit of this is ſometimes round, at others oval, ſome being much larger than the other; the ſhells of this fruit are thin and very brittle, ſo are unfit for any purpoſes to which thoſe of the former are employed; the ſeeds are alſo much thinner, and the pulp is of a deeper yellow. The wood of this tree is hard, and very white, ſo might be uſeful, were it not for the plenty of other ſorts, which abound in many of the iſlands. This was found growing naturally in plenty at Campeachy by the late Dr. Houſtoun, who ſent the fruit to England.

Theſe trees are too tender to live abroad in England, ſo require a warm ſtove to be preſerved here. They are eaſily propagated by ſeeds, which muſt be procured from the countries where they grow naturally; the way is to have the entire fruit ſent over when fully ripe; for when the ſeeds are taken out of the pulp abroad, and ſent over hither, if they are long in their paſſage they will loſe their growing quality before they arrive, as I have often experienced. Theſe muſt be ſown on a good hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted into a ſmall halfpenny pot filled with light ſandy earth, and plunged into a hot-bed of tanners bark, obſerving to ſhade them from the ſun till they have taken freſh root; when they muſt be treated in the ſame manner as other tender plants, which are natives of the ſame countries. In winter they muſt be placed in the tan-bed of the bark-ſtove, and during that ſeaſon ſhould have but little water; in ſummer they will require to be gently watered two or three times a week, according to the warmth of the ſeaſon; and in hot weather they ſhould have a large ſhare of air admitted to them. With this management the plants will make great progreſs, and their leaves being of a fine green, they make a pretty variety in the ſtove, but have not as yet flowered in England.

CRESS the Garden. See Lepidium.

CRESS the Indian. See Tropæolum.

CRESS the Water. } See Sisymbrium.
CRESS the Winter. }

CRINUM. Lin. Gen. Plant. 366. Lilio-Aſphodelus. Com. Rar. 14. Dillen. Hort. Elth. 194. Aſphodel Lily.

The Characters are,

The involucrum is compoſed of two oblong leaves, in form of a ſheath or cover, which dries and is reflexed. The flower hath one petal, which is funnel-ſhaped, having a long tube, deeply cut at the top into ſix ſegments which are reflexed. It hath ſix long ſtamina, which are inſerted in the tube of the petal, and are ſtretched out beyond the flower, ſpreading open; theſe are terminated by oblong proſtrate ſummits, riſing at one end; the germen is ſituated *in the bottom of the flower, ſupporting a long ſlender ſtyle, crowned by a ſmall trifid ſtigma. The germen afterward becomes an oval capſule with three cells, each containing one or two oval ſeeds.*

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle.

The Species are,

1. Crinum (*Africanum*) foliis ſublanceolatis planis, corollis obtuſis. Lin. Sp. Plant. 292. *Crinum with plain ſpear-ſhaped leaves, and obtuſe petals.* Hyacinthus Africanus tuberoſus, flore cæruleo umbellato. Hort. Amſt. 1. p. 133. *African tuberous Hyacinth, with a blue umbellated flower.*
2. Crinum (*Aſiaticum*) foliis carinatis. Flor. Zeyl. 127. *Crinum with keel-ſhaped leaves.* Lilium Zeylanicum, bulbiferum & umbelliferum. H. L. 682.
3. Crinum (*Americanum*) corollarum apicibus introrſum unguiculatis. Lin. Sp. Plant. 292. *Crinum with the tops of the petals formed on the inſide like the nails of a finger.* Lilio-aſphodelus Americanus ſempervirens, maximus Polyanthus albus. Com. Rar. Pl. 15. tab. 15.
4. Crinum (*Latifolium*) foliis ovato-lanceolatis acuminatis ſeſſilibus planis. Lin. Sp. 419. *Crinum with oval, ſpear-ſhaped, plain leaves, ending in acute points.* Jovanna-pola-tali. Hort Mal. vol. 11. p. 77.

The firſt ſort grows naturally at the Cape of Good Hope, from whence it was brought to the gardens in Holland, and hath ſince been ſpread into moſt of the curious gardens in Europe. The root of this plant is compoſed of many thick fleſhy fibres, diverging from the ſame head, which ſtrike deep into the ground, and put out many ſmaller fibres, which are white and fleſhy; from the ſame head ariſes a cluſter of leaves ſurrounding each other with their baſe, ſo as to form a kind of herbaceous ſtalk, about three inches high, from which the leaves ſpread only two ways, appearing flat the other two. The flower-ſtalk ariſes by the ſide of theſe leaves, which is round, hollow, and near three feet high, terminated by a large head of flowers, included in a kind of ſheath, which ſplits into two parts, and is reflexed. The flowers ſtand each upon a foot-ſtalk about one inch long; they are tubulous, have but one petal, which is cut almoſt to the bottom, into ſix oblong blunt ſegments, which are waved on their edges; in the center is ſituated an oval three-cornered germen, ſupporting a long ſtyle, which is attended by ſix ſtamina, two of the ſame length, two ſomewhat ſhorter, and the two which reſt upon the lower ſegments are the ſhorteſt. The flowers are of a bright blue colour, and grow in large umbels, ſo make a fine appearance. They begin to flower in September, and frequently continue in beauty till ſpring, which renders them more valuable.

This plant is propagated by offſets, which come out from the ſide of the old plants, and may be taken off the latter end of June, at which time theſe plants are in their greateſt ſtate of reſt; when the plants ſhould be turned out of the pots, and the earth carefully cleared away from the roots, that the fibres of the offſets may be better diſtinguiſhed, which ſhould be ſeparated from thoſe of the old roots, being careful not to break their heads. But where they adhere ſo cloſely to the old plant, as not to be ſo ſeparated, they muſt be cut off with a knife, taking great care not to wound or break the roots of either the offſets or the parent plant. When theſe are parted, they ſhould be planted each into a ſeparate pot, filled with light kitchen-garden earth, and placed in a ſhady ſituation, where they may enjoy the morning ſun, giving them a little water twice a week, if the weather proves dry; but they muſt not have too much wet, eſpecially at this ſeaſon, when they are almoſt inactive; for as the roots are fleſhy and ſucculent, they are apt to rot with great moiſture. In about five weeks time the offſets will have put out new roots, when the pots may be removed to a more ſunny ſituation, and then they may have a little more water, which will ſtrengthen their flowering, but it muſt not be given them too liberally for the reaſons before given. In September they will put out their flower-ſtalks, and toward the end of that month the flowers will begin to open; when, if the weather ſhould not be good, they ſhould be removed under ſhelter, to prevent the flowers from being injured by froſt or too much wet; but they ſhould have as much free air as poſſible, otherwiſe the flowers will be pale-coloured and weak. Toward the end of October they ſhould be removed into the green-houſe, and placed where they may enjoy as much free air as poſſible, and not be over-hung by other plants; and during the winter, they may have a little water once a week or oftener in mild weather, but in froſt they ſhould be kept dry. This plant only requires protection from froſt and moiſture, ſo ſhould not have any artificial warmth in winter, and muſt be placed in the open air in ſummer.

The ſecond ſort hath large bulbous roots, which ſend out many large fleſhy fibres, having bulbs formed at their ends; the leaves are near three feet long, hollow on their upper ſide, and cloſely fold over each other at their baſe, ſpreading out on every ſide; the outer leaves generally turn downward at the top; they are of a deep green, obtuſe at their points, with a ridge on their under ſide. The flower-ſtalk ariſes on one ſide the leaves, which is thick, ſucculent, hollow in the middle, and a little compreſſed on two ſides; this grows two feet high or more, and is of the ſame colour with the leaves, and are terminated by large umbels of flowers, with a ſheath or cover, which ſplits lengthways, and reflexed back to the ſtalk, where it dries and remains; the tubes of the flowers are narrow, near four inches long, and the upper part is deeply cut into ſix long ſegments, which are reflexed back almoſt to the tube; in the center ariſes the ſtyle, attended by ſix long ſtamina, which ſtand out beyond the petal, and is terminated by oblong proſtrate ſummits of a yellow colour. After the flowers are paſt, the germen, which is ſituated at the bottom of the tube, becomes a large, roundiſh, three-cornered capſule, having three cells, two of which are generally abortive, and the third hath one or two irregular bulbs, which if planted produce young plants.

The third ſort hath broader leaves than the ſecond, which are plain, and not hollowed on their upper ſide, but they are ſhorter and of a lighter green; theſe embrace each other at their baſe; by the ſide of theſe ariſe the flower-ſtalk, which is compreſſed and hollow, riſing about two feet high, and terminated by large umbels of white flowers, like thoſe of the former ſort, but the ſegments of the petal are broader and not ſo much reflexed.

The fourth ſort hath roots like thoſe of the ſecond ſort; the leaves of this are narrower at their baſe, and are ſtained with purple on their under ſide; the flower-ſtalks are purple, and grow to the ſame height as thoſe of the ſecond; the flowers are in ſhape like them, but the tube is purple, and the ſegments have a purple ſtripe running through them; the ſtamina alſo are purple, which renders this more beautiful than either of the other ſorts; and theſe differences are conſtant in all the plants which riſe from ſeeds, ſo there can be no doubt of its being a diſtinct ſort.

Theſe three ſorts grow naturally in both Indies, ſo are very tender, therefore muſt be kept in a warm ſtove, otherwiſe they will not thrive in England; they are eaſily propagated by offſets, which the roots put out in plenty; or by the bulbs which ſucceed the flowers, and ripen perfectly here. Theſe muſt be planted in pots filled with rich earth, and if plunged into the tan-bed in the ſtove, the plants will make greater progreſs and flower oftener, than when they are placed on ſhelves; though in the latter way they will ſucceed very well, provided they are kept in a good temperature of heat. The roots ſhould be tranſplanted in the ſpring, and all the offſets taken off, otherwiſe they will fill the pots and ſtarve the old plants: they muſt be frequently refreſhed with water, but it muſt not be given them too plentifully, eſpecially in winter. Theſe ſorts flower at every ſeaſon of the year, which renders them more valuable; for where there are many plants, there will be almoſt a perpetual ſucceſſion of flowers, which emit a very agreeable odour.

CRITHMUM. Lin. Gen. Plant. 303. Tourn. Inſt. R. H. 317. tab. 169. Samphire.

The Characters are,

It is a plant with an umbelliferous flower; the great umbel is hemiſpherical, and compoſed of many ſmaller of the ſame figure; the involucrum of the general umbel is compoſed of ſeveral ſpear-ſhaped leaves; thoſe of the particular umbels have very narrow leaves the length of the umbel; the general umbel is uniform; the flowers have five oval inflexed petals, which are almoſt equal; they have five ſtamina the length of the petals, which are terminated by roundiſh ſummits. The germen is ſituated under the flower, ſupporting two reflexed ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes an oval compreſſed fruit, dividing into two parts, each having one compreſſed, elliptical, furrowed ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The Species are,

1. Crithmum (*Maritimum*) foliolis lanceolatis carnoſis. Hort. Cliff. 98. *Samphire with ſpear-ſhaped fleſhy leaves.* Crithmum ſive Fœniculum maritimum minus. C. B. P. 288. *Samphire.*
2. Crithmum (*Pyrenaicum*) foliolis lateralibus bis trifidis. Hort. Cliff. 98. *Samphire whoſe ſmaller leaves on their ſides are doubly trifid.* Apium Pyrenaicum thapſicæ facie. Tourn. Inſt. 305.

The firſt ſort grows upon the rocks by the ſea-ſide, in many parts of England. This hath a root compoſed of many ſtrong fibres, which penetrate deep into the crevices of the rocks, ſending up ſeveral fleſhy ſucculent ſtalks, which riſe about two feet high, garniſhed with winged leaves, which are compoſed of three or five diviſions, each of which hath three or five ſmall, thick, ſucculent leaves near half an inch long; the foot-ſtalks of the leaves embrace the ſtalks at their baſe. The flowers are produced in circular umbels at the top of the ſtalks; theſe are of a yellow colour, compoſed of five petals, which are near equal in ſize, and are afterward ſucceeded by ſeeds ſomewhat like thoſe of Fennel, but are larger. This herb is pickled, and eſteemed very comfortable to the ſtomach, and is very agreeable to the palate; it provokes urine gently, removes the obſtructions of the viſcera, and creates an appetite; it is commonly uſed for ſauce; it is gathered on the rocks where it grows naturally, but the people who ſupply the markets with it, ſeldom bring the right herb, but inſtead of it they bring a ſpecies of Aſter, which is called golden Samphire, but hath a very different flavour from the true, nor has it any of its virtues. This grows in greater plenty, and upon the plain ground which is overflowed by the ſalt water; whereas, the true Samphire grows only out of the crevices of perpendicular rocks, where it is very difficult to come at. It flowers in July, and the ſeeds ripen in autumn.

This plant is with difficulty propagated in gardens, nor will it grow ſo vigorous with any culture, as it does upon rocks; but if the plants are planted on a moiſt gravelly ſoil, they will thrive tolerably well, and may be preſerved ſome years. It may be propagated either by ſeeds or parting the roots.

The ſecond ſort is by Tournefort ranged in his genus of Apium. This grows naturally on the Pyrenean mountains. It is a biennial plant, which doth not flower till the ſecond year, and periſhes ſoon after the ſeeds are ripe. There are two or three ſorts of this plant, which differ in their outer appearance, but I am not certain of their being diſtinct ſpecies. One of theſe is titled by Mr. Ray, Apium montanum ſive petræum album. This is of humbler growth than the other; the ſmall leaves are broader, and not ſo much cut on their edges, and are of a paler green: theſe plants are preſerved in a few gardens for the ſake of variety; they are propagated by ſeeds, which ſhould be ſown in the autumn where they are deſigned to remain, and will require no other culture but to keep them clean from weeds, and thin them where they are too cloſe.

CRISTA GALLI. See **Pedicularis.**

CRISTA PAVONIS. See **Poinciana.**

CROCUS. Lin. Gen. Plant. 53. Tourn. Inſt. R. H. 350. tab. 183, 184. [is ſo called of the youth Crocus, who (as the poets feign) loved Smilax with ſo violent a paſſion, that, by reaſon of impatience, he was turned into a flower of his name.] Saffron.

The Characters are,

It hath a ſpatha or ſheath of one leaf. The flower hath one petal, which is deeply cut into ſix oblong ſegments, which are equal. It hath three ſtamina which are ſhorter than the petal, terminated by arrow-pointed ſummits. The roundiſh germen is ſituated at the bottom of the tube, ſupporting a ſlender ſtyle, crowned by three twiſted ſtigmas, which are ſawed. The germen afterward becomes a roundiſh fruit, with three cells, filled with roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, the flower having three ſtamina and one ſtyle.

The Species are,

1. Crocus (*Sativus*) ſpathâ univalvi radicali, corollæ tubo longiſſimo. Lin. Sp. Plant. 36. *Saffron with a ſpatha near the root, having one valve, and a long tube to the flower.* Crocus ſativus. C. B. P. 65. *Cultivated Saffron.*
2. Crocus (*Autumnalis*) ſpathâ univalvi pedunculato, corollæ tubo breviſſimo. *Saffron with a ſpatha on the foot-ſtalk, having one valve, and a very ſhort tube to the flower.* Crocus juncifolius autumnalis, flore magno purpuraſcente. Boerh. Ind. alt. 2. 120.
3. Crocus (*Vernus*) ſpathâ bivalvi radicali, floribus ſeſſilibus. *Crocus with a bivalve ſpatha near the root, and flowers ſitting cloſe to the ground.* Crocus vernus latifolius, flavo flore varius. C. B. P. 66. *Commonly called Biſhop's Crocus.*
4. Crocus (*Biflora*) ſpathâ biflorâ corollæ tubo tenuiſſimo. *Crocus with two flowers in each ſpatha, having very narrow tubes.* Crocus vernus, ſtriatus, vulgaris. Par. Bat. *Ordinary, ſpring, ſtriped Crocus.*

There are a much greater variety of theſe flowers than are here enumerated; but as moſt, if not all of them are only ſeminal variations, I thought it would be needleſs to particularize them here, eſpecially as there are frequently new varieties obtained from ſeeds. Thoſe which are here enumerated, I think muſt be allowed to be ſpecifically different, ſince they have many diſtinguiſhing characters, which are ſufficient to determine the ſpecific difference in plants.

The firſt ſort is the plant which produces the Saffron, which is a well known drug: this hath a roundiſh bulbous root as large as a ſmall Nutmeg, which is a little compreſſed at the bottom, and is covered with a coarſe, brown, netted ſkin; from the bottom of this bulb is ſent out many long fibres, which ſtrike pretty deep into the ground; from the upper part of the root come out the flowers, which, together with the young leaves, whoſe tops juſt appear, are cloſely wrapped about by a thin ſpatha or ſheath, which parts within the ground, and opens on one ſide. The tube of the flower is very long, ariſing immediately from the bulb, without any foot-ſtalk, and at the top is divided into ſix oval obtuſe ſegments, which are equal, of a purple blue colour. In the bottom of the tube is ſituated a roundiſh germen, ſupporting a ſlender ſtyle, which is not more than half the length of the petal, crowned with three oblong golden ſtigmas (which is the Saffron;) theſe ſpread aſunder each way. The ſtyle is attended by three ſtamina, whoſe baſes are inſerted in the tube of the petal, and riſe to the height of the ſtyle, where they are terminated by arrow-pointed ſummits. This plant flowers in October, and the leaves keep growing all the winter, but it never produces any ſeeds here.

The ſecond ſort grows naturally on the Alps and Helvetian mountains: this hath a ſmaller bulbous root than the firſt, which is more compreſſed; the flowers appear about the ſame ſeaſon with the former, but they riſe with a ſhort foot-ſtalk, having a ſhort ſpatha or ſheath juſt below the flower, which covers it before it expands. The tube of the flower is very ſhort, the petal being divided almoſt to the bottom, and the ſegments terminate in acute points; the ſtamina and ſtyle are ſhort, and the leaves of the plant are very narrow. The flower is of a deep blue; but there is a variety of this with a ſky blue flower, which is ſuppoſed to have been produced by ſeeds. Dr. Linnæus has ſuppoſed theſe, and alſo all the varieties of the Spring Crocus, to be but one ſpecies, but there can be no doubt of theſe being diſtinct from thoſe of the Spring.

The third ſort hath a pretty large, compreſſed, bulbous root, covered with a light, brown, netted ſkin, from which ariſe four or five leaves, like thoſe of the the other Vernal Crocuſes, of a purpliſh colour on their lower parts; from between theſe come out one or two flowers of a deep yellow colour, ſitting cloſe between the young leaves, never riſing above two inches high; theſe have an agreeable odour; the outer ſegments of the petal are marked with three black ſtreaks or ſtripes running lengthways from the bottom to the top of the ſegment; theſe are narrower than the inner ſegments. From the double arrangement of theſe ſegments ſome have called it a double flower. Theſe ſegments have dark purple bottoms, and the tube of the flower hath as many purple ſtripes as there are ſegments in the petal. Out of the center of the tube ariſes a ſlender ſtyle, crowned by a golden ſtigma, which is broad and flat, and is attended by three ſlender ſtamina of the ſame length, terminated by yellow ſummits. After the flower is paſt, the germen puſhes out of the ground, and ſwells to a roundiſh three-cornered ſeed-veſſel, which opens in three parts, and is filled with roundiſh brown ſeeds. This is one of the earlieſt Crocuſes in the ſpring.

The fourth ſort riſes with a few very narrow leaves, which are, together with the flower-buds, cloſely wrapped round by a ſpatha or ſheath, out of which ariſe two flowers, one of which hath a longer tube than the other, but theſe are very ſlender, and do not riſe much above the ſpatha; there the petal enlarges, and is divided into ſix obtuſe ſegments, which are of equal ſize; they are of a dirty white on their outſide, with three or four purple ſtripes in each; the inſide of the petal is of a purer white; the ſtamina and ſtyle are nearly the ſame as thoſe of the former ſort. This is one of the earlieſt ſorts which flowers in the ſpring.

The VARIETIES of the autumnal Crocus are,

1. The ſweet-ſmelling autumnal Crocus, whoſe flowers come before the leaves. C. B. This is our ſecond ſort.
2. The autumnal mountain Crocus. C. B. This hath a paler blue flower.
3. The many flowering bluiſh autumnal Crocus. C. B. This hath many ſky blue flowers.
4. The ſmall flowering autumnal Crocus. C. B. This hath a ſmall deep blue flower.

The VARIETIES of the Spring Crocus are,

1. Broad-leaved, purple, variegated, Spring Crocus. C. B. This hath broad leaves and a deep blue flower ſtriped.
2. Broad-leaved Crocus of the ſpring with a purple flower. C. B. This hath a plain purple flower.
3. Broad-leaved Spring Crocus with a Violet-coloured flower. C. B. This hath a large deep blue flower.
4. Spring Crocus, with a white flower and a purple bottom. C. B.
5. Broad-leaved, white, variegated, Spring Crocus. C. B.
6. Broad-leaved Spring Crocus, with many purple Violet flowers ſtriped with white. C. B.
7. Broad-leaved Spring Crocus with an Aſh-coloured flower.
8. Broad-leaved Spring Crocus with a large yellow flower. C. B.
9. Broad-leaved Spring Crocus with a ſmaller and paler yellow flower. C. B.
10. Broad-leaved Spring Crocus, with ſmaller yellow flowers ſtriped with black.
11. Narrow-leaved Spring Crocus with a ſmaller brimſtone-coloured flower.
12. Narrow-leaved Spring Crocus with a ſmall white flower.

Theſe are the principal varieties which I have obſerved in the Engliſh gardens, but there are many more mentioned in the foreign catalogues of flowers, many of which are ſo nearly alike, as ſcarce to be diſtinguiſhed; and if the ſeeds of theſe flowers were ſown, there might be a greater variety of them obtained than is at preſent; but as they propagate very faſt by offsets, the ſeeds are very rarely regarded.

All theſe ſeveral varieties of Crocuſes are very hardy, and will increaſe exceedingly by their roots, eſpecially if they are ſuffered to remain two or three years unremoved; they will grow in almoſt any ſoil or ſituation, and are very great ornaments to a garden early in the ſpring of the year, before many other flowers appear. They are commonly planted near the edges of borders on the ſides of walks; in doing of which, you ſhould be careful to plant ſuch ſorts in the ſame line as flower at the ſame time, and are of an equal growth, otherwiſe the lines will ſeem imperfect. Theſe roots, loſeing their fibres with their leaves, may then be taken up, and kept dry until the beginning of September, obſerving to keep them from vermin, for the mice are very fond of them. When you plant theſe roots (after having drawn a line upon the border,) make holes with a dibble about two inches deep or more, according to the lightneſs of the ſoil, and two inches diſtance from each other, in which you muſt place the roots with the bud uppermoſt; then with a rake fill up the holes in ſuch a manner as that the upper part of the root may be covered an inch or more, being careful not to leave any of the holes open; for this will entice the mice to them, which, when once they have found out, will deſtroy all your roots, if they are not prevented.

This is the way in which theſe flowers are commonly diſpoſed in gardens, but the better way is to plant them ſix or eight near each other in bunches between ſmall ſhrubs, or on the borders of the flower-garden; where, if the varieties of theſe flowers are planted in different patches, and properly intermixed, they will make a much better appearance than when they are diſpoſed in the old method of ſtrait edgings.

In January, if the weather is mild, the Crocus will often appear above ground; and in February their flowers will appear, before the green leaves are grown to any length, ſo that the flower ſeems at firſt to be naked; but ſoon after the flowers decay, the green leaves grow to be ſix or eight inches long, which ſhould not be cut off until they decay, notwithſtanding they appear a little unſightly; for by cutting off the leaves, the roots will be ſo weakened as not to arrive at half their uſual bigneſs, nor will their flowers the ſucceeding year be half ſo large. Their ſeeds are commonly ripe about the latter end of April, or the beginning of May, when the green leaves begin to decay.

The autumnal Crocuſes are not ſo great increaſers as are thoſe of the ſpring, nor do they produce ſeeds in our climate; ſo that they are leſs common in the gardens, except the true Saffron, which is propagated for uſe in great plenty in many parts of England; theſe muſt be taken up every third year, as was directed for the Spring Crocuſes, otherwiſe the roots will run long, and produce no flowers; but they ſhould not be kept out of the ground longer than the beginning of Auguſt, for they commonly produce their flowers the beginning of October; ſo that if they remain too long out of the ground, they will not produce their flowers ſo ſtrong, nor in ſuch plenty, as when they are planted early.

The method of cultivating Saffron being ſomewhat curious, I thought it not improper to inſert in this place an abſtract of it, as it was preſented to the Royal Society by Dr. James Douglaſs.

As Saffron grows at preſent moſt plentifully in Cambridgeſhire, and has grown formerly in ſeveral other counties of England, the method of culture does not, I believe, vary much in any of them, and therefore I judge it ſufficient to ſet down here the obſervations which I employed proper perſons, in different ſeaſons, to make, in the years 1723, 1724, 1725, and 1728, up and down all that large tract of ground that lies between Saffron-Walden and Cambridge, in a circle about ten miles diameter.

In that county Saffron has been cultivated, and therefore it may be reaſonably expected, that the inhabitants thereof are more thoroughly acquainted with it than they are any where elſe.

I ſhall begin with the choice and preparation of the ground. The greateſt part of the tract already mentioned is an open level country, with few incloſures; and the cuſtom there is, as in moſt other places, to crop two years, and let the land be fallow the third. Saffron is generally planted upon fallow ground, and, all other things being alike, they prefer that which has borne Barley the year before.

The Saffron grounds are ſeldom above three acres, or leſs than one; and in chooſing, the principal thing they have regard to is, that they be well expoſed, the ſoil not poor, nor a very ſtiff clay, but a temperate dry mould, ſuch as commonly lies upon chalk, and is of an Hazel colour; though if every thing elſe anſwers, the colour of the mould is pretty much neglected.

The ground being made choice of, about Lady-Day, or the beginning of April, it muſt be carefully ploughed, the furrows being drawn much cloſer together, and deeper, if the ſoil will allow it, than is done for any kind of corn; and accordingly, the charge is greater.

About five weeks after, during any time in the month of May, they lay between twenty and thirty loads of dung upon each acre, and having ſpread it with great care, they plough it in as before. The ſhorteſt rotten dung is the beſt; and the farmers, who have the conveniency of making it, ſpare no pains to make it good, being ſure of a proportionable price for it. About Midſummer they plough a third time, and between every ſixteen feet and an half, or pole in breadth, they leave a broad furrow or trench, which ſerves both as a boundary to the ſeveral parcels, when there are ſeveral proprietors to one incloſure, and to throw the weeds in at the proper ſeaſon.

To this head likewiſe belongs the fencing of the grounds, becauſe moſt commonly, though not always, that is done before they plant. The fences conſiſt of what they call dead hedges, or hurdles, to keep out not only cattle of all ſorts, but eſpecially hares, which would otherwiſe feed on the Saffron leaves during the winter.

About the weather we need not only obſerve, that the hotteſt ſummers are certainly the beſt, and therewith, if there be gentle ſhowers from time to time, they can hardly miſs of a plentiful crop, if the extreme cold, ſnow, or rain of the foregoing winter have not prejudiced the heads.

The next general part of the culture of Saffron is, planting, or ſetting the roots; the only inſtrument uſed for which is a narrow ſpade, commonly termed a ſpit ſhovel.

The time of planting is commonly in the month of July, a little ſooner or later, according as the weather anſwer. The method is this: one man with his ſpit ſhovel raiſes between three and four inches of earth, and throws it before him about ſix or more inches; two perſons, generally women, following with heads, place them in the fartheſt edge of the trench he makes, at three inches diſtance from each other, or thereabouts; as ſoon as the digger or ſpitter has gone once the breadth of the ridge, he begins again at the other ſide, and digging as before, covers the roots laſt ſet, and makes the ſame room for the ſetters to place a new row, at the ſame diſtance from the firſt, that they are from one another. Thus they go on, till a whole ridge, containing commonly one rod, is planted; and the only nicety in digging is, to leave ſome part of the firſt ſtratum of earth untouched, to lie under the roots, and, in ſetting, to place the roots directly upon their bottom.

What ſort of roots are to be preferred ſhall be ſhewn under the fourth head, but it muſt be obſerved in this place, that formerly, when roots were very dear, they did not plant them ſo thick as they do now; and that they have always ſome regard to the ſize of the roots, placing the largeſt at a greater diſtance than the ſmall ones.

The quantity of roots planted in an acre, is generally about 16 quarters, or 128 buſhels, which, according to the diſtances left between them, as before aſſigned, and ſuppoſing all to be an inch in diameter one with another, ought to amount to 392,040 in number.

From the time that the roots are planted, till about the beginning of September, or ſometimes later, there is no more labour about them; but as they then begin to ſpire, and are ready to ſhew themſelves above ground (which is known by digging a few out of the earth,) the ground muſt be carefully pared with a ſharp hoe, and the weeds, &c. raked into the furrows, otherwiſe they would hinder the growth of the plants.

In ſome time after appear the Saffron flowers, and this leads us to the third branch of our preſent method. The flowers are gathered as well before as after they are full blown, and the moſt proper time for this is early in the morning. The owners of the Saffron get together a ſufficient number of hands, who place themſelves in different parts of the field, who pull off the whole flowers, and throw them handful by handful into a baſket, and ſo continue till all the flowers are gathered, which happens commonly about ten or eleven o'clock.

Having then carried home all they have got, they immediately ſpread them upon a large table, and fall to picking out the filamenta ſtyli, or chives, and together with them a pretty long proportion of the ſtylus itſelf, or ſtring to which they are joined; the reſt of the flower they throw away as uſeleſs. The next morning they return into the field again, whether it be wet or dry weather, and ſo on daily, even on Sundays, till the whole crop be gathered.

The chives being all picked out of the flowers, the next labour about them is to dry them on the kiln. The kiln is built upon a thick plank (that it may be moved from place to place) ſupported by four ſhort legs; the outſide conſiſts of eight pieces of wood about three inches thick, in form of a quadrangular frame, about twelve inches ſquare at the bottom on the inſide, and twenty-two inches at top, which is likewiſe equal to the perpendicular height of it. On the foreſide is left a hole about eight inches ſquare, and four inches above the plank, through which the fire is put in; over all the reſt laths are laid pretty thick, cloſe to one another, and nailed to the frame already mentioned, and then are plaiſtered over on both ſides, as are alſo the planks at bottom very thick, to ſerve for a hearth. Over the mouth, or wideſt part, goes a hair cloth, fixed to the ſides of the kiln, and likewiſe to two rollers, or moveable pieces of wood, which are turned by wedges or ſcrews, in order to ſtretch the cloth. Inſtead of the hair cloth, many people now uſe a net-work, or iron wire, with which it is obſerved that the Saffron dries ſooner, and with leſs quantity of fuel; but the difficulty in preſerving the Saffron from burning, makes the hair cloth be preferred by the niceſt judges in drying.

The kiln is placed in a light part of the houſe, and they begin by laying five or ſix ſheets of white paper on the hair cloth, upon which they ſpread the wet Saffron between two and three inches thick; this they cover with other ſheets of paper, and over theſe lay a coarſe blanket five or ſix times doubled, or, inſtead thereof, a canvas pillow filled with ſtraw; and after the fire has been lighted for ſome time, the whole is covered with a board, having a large weight upon it.

At firſt they give it a pretty ſtrong heat, to make the chives ſweat (as their expreſſion is;) and in this, if they do not uſe a great deal of care, they are in danger of ſcorching, and ſo of ſpoiling all that is on the kiln.

When it has been thus dried about an hour, they take off the board, blanket, and upper papers, and take the Saffron off from that which lies next it, raiſing at the ſame time the edges of the cake with a knife; then laying on the paper again, they ſlide in another board between the hair cloth and upper papers, and turn both papers and Saffron upſide-down, afterwards covering them as above.

The ſame heat is continued for an hour longer; then they look on the cake again, free it from the papers, and turn it; then they cover it, and lay on the weight as before. If nothing happens amiſs during theſe firſt two hours, they reckon the danger to be over; for they have nothing more to do but to keep a gentle fire, and to turn their cakes every half hour till thoroughly dry, for the doing of which as it ought, there are required full twenty-four hours.

In drying the larger plump chives they uſe nothing more, but towards the latter end of the crop, when theſe come to be ſmaller, they ſprinkle the cake with a little ſmall beer, to make it ſweet as it ought; and they begin now to think, that uſing two linen cloths next the cake, inſtead of the two innermoſt papers, may be of ſome advantage in drying, but this practice is followed as yet but by few.

Their fire may be made of any kind of fuel, but that which ſmokes the leaſt is beſt, and charcoal, for that reaſon, is preferred to any other.

What quantity of Saffron a firſt crop will produce, is very uncertain; ſometimes five or ſix pounds of wet chives are got from one rood, ſometimes not above one or two, and ſometimes not enough to make it worth while to gather and dry it; but this is always to be obſerved, that about five pounds of wet Saffron go to make one pound of dry, for the firſt three weeks of the crop, and ſix pounds during the laſt week; and when the heads are planted very thick, two pounds of dried Saffron may, at a medium, be allowed to an acre for the firſt crop, and twenty-four pounds for the two remaining, the third being conſiderably larger than the ſecond.

In order to obtain theſe, there is only a repetition to be made every year of the labour of hoeing, gathering, picking, and drying, in the ſame manner as before ſet down, without the addition of any thing new, except that they let cattle into the fields, after the leaves are decayed, to feed upon the weeds, or, perhaps, mow them for the ſame uſe.

About the Midſummer after the third crop is gathered, the roots muſt be all taken up and tranſplanted; the management requiſite for which, is the fourth thing to be treated of. To take up the Saffron heads, or break up the ground (as the term is,) they ſometimes plough it, ſometimes uſe a forked kind of hoe, called a pattock, and then the ground is harrowed once or twice over; during all which time of ploughing, or digging, and harrowing, fifteen or more people will find work enough to follow and gather the heads as they are turned up.

They are next to be carried to the houſe in ſacks, and there cleaned and raſed; this labour conſiſts in cleaning the roots thoroughly from earth, and from the remains of old roots, old involucra, and excreſcences, and thus they become fit to be planted in new ground immediately, or to be kept for ſome time without danger of ſpoiling.

The quantity of roots taken up, in proportion to thoſe which were planted, is uncertain; but at a medium, it may be ſaid, that allowing for all the accidents which happened to them in the ground, and in breaking up from each acre, may be had twenty-four quarters of clean roots, all fit to be planted.

The owners are ſure to chooſe for their own uſe the largeſt, plumpeſt, and fatteſt roots, but do leaſt of all approve the longeſt pointed ones, which they call ſpickets, or ſpickards, for very ſmall, round, or flat roots, are ſometimes obſerved to flower well.

This is the whole culture of Saffron in the county above-mentioned, and we have only now to conſider the charges and profits which may be ſuppoſed, one year with another, to attend that branch of agriculture; and of theſe I have drawn up the following computation for one acre of ground, according to the price of labour in this country.

	l.	s.	d.
Rent for three years	3	0	0
Ploughing for three years	0	18	0
Dunging	3	12	0
Hedging	1	16	0
Spitting and ſetting the heads	1	12	0
Weeding or paring the ground	1	4	0
Gathering and picking the flowers	6	10	0
Drying the flowers	1	6	0
Inſtruments of labour for three years, with the kiln, about	0	10	0
Ploughing the ground once, and harrowing twice	0	12	0
Gathering the Saffron heads	1	0	0
Raiſing the heads	1	12	0
Total charge	23	12	0

This calculation is made upon ſuppoſition, that an acre of ground yields twenty-ſix pounds of nett Saffron in three years, which I ſtated only as a mean quantity between the greateſt and the leaſt, and therefore the price of Saffron muſt be judged accordingly, which I think cannot be done better than by fixing it at 30 ſhillings per pound; ſince in very plentiful years it is ſold at twenty, and is ſometimes worth between three and four pounds; at this rate, twenty-ſix pounds of Saffron are worth thirty-nine pounds, and the nett profits of an acre of ground producing Saffron, will, in three years, amount to fifteen pounds, thirteen ſhillings, or about five pounds four ſhillings yearly.

This, I ſay, may be reckoned the nett profit of an acre of Saffron, ſuppoſing that all the labour were to be hired for ready money; but as the planter and family do a conſiderable part of the work themſelves, ſome of this expence is ſaved; that is, by planting Saffron, he may not only reaſonably expect to clear about five pounds yearly per acre, but alſo to maintain himſelf and family for ſome part of each year; and it is upon this ſuppoſition only, that the reſult of other computations can be ſaid to have any tolerable degree of exactneſs, but the calculations themſelves are undoubtedly very inaccurate.

I have ſaid nothing here concerning the charge in buying, or profits in ſelling, the Saffron heads, becauſe, in many large tracts of ground, theſe muſt at length balance one another, while the quantity of ground planted yearly continues the ſame, which has been pretty much the caſe for ſeveral years paſt.

Dr. Patrick Blair, deſigning to treat concerning the Crocus, in his ſixth Decad of his Pharmaco-Botanologia, did, in the year 1725, ſend to me the following queries:

1. After what manner the ſpecies are propagated?
2. Whether the tap-root ſprings firſt, or the bulb?
3. At what ſeaſon the leaves ſpring forth?

To theſe queries I ſent him the following anſwer:

1. As to the propagation of the ſpecies.

This is only by the roots or offſets, which the old roots produce in great plenty, for I never ſaw any thing like a ſeed, or a ſeed-veſſel produced, though I have let ſtand great quantities of flowers purpoſely to try.

2. As to the query, Whether the tap-root ſprings firſt, and the bulb be afterwards formed?

As ſoon as the roots begin to ſhoot upwards, there are commonly two or three large tap-roots ſent forth from the ſide of the old root, which will run downright two inches and a half or more, into the ground; at the place where theſe bulbs firſt come out from the old one, will be formed a bulb ſometimes (though not always, as you will hear preſently;) and this tap-root decays. The bulb will increaſe in its bigneſs, till at laſt it quite falls off, and is then left entire, which commonly happens in April, when the green begins to decay; but many times theſe tap or carrotty roots never produce any bulbs, but always retain the ſame figure, and for ever after, I believe are barren; for I planted a parcel of theſe carrotty roots four years ago in a little bed, where they have ever ſince remained, but have not produced one ſingle flower, notwithſtanding they have produced a numerous offſpring of the ſame carrotty roots.

And the people about Saffron Walden are well appriſed of this barrenneſs, and therefore throw away all ſuch roots when they make a new plantation; but as this change of the root is not peculiar to the Saffron only, permit me to digreſs a little, to give you ſome account of this matter.

In the pariſh of Fulham, near London, the gardeners uſed to drive a great trade in the Jonquil, or Narciſſus juncifolius, flore multiplici, at which place the greateſt quantity of thoſe roots was raiſed for ſale, as perhaps was in any part of England, and turned to as great account for the maſter, as any crop they could employ their ground in, till of late years, that moſt of their roots have turned carrotty, and ſo proved barren, or have produced only ſingle flowers; ſo that the gardeners being hereby diſheartened, have thrown them out entirely, neglecting to cultivate them, ſatisfying themſelves with this reaſon, that their ground was tired with them.

But to return to the Crocus. Beſides thoſe roots already mentioned, there will be three or four ſmall bulbs formed upon the upper part of the root, and ſome underneath, which from the firſt appearance aſſume the round ſhape of its parent root, and have no tap-root belonging to them; thoſe on the upper part of the root rarely emit ſo much as a fibre, but receive their nouriſhment immediately from the old root; but thoſe on the under ſide ſend out many fibres all around, by which they draw their nouriſhment from the ground; theſe being parted from the old root much ſooner than the other, ſtand in need of fit organs for receiving their nouriſhment.

I have ſometimes taken up ſome, through the middle of which hath been a root of the Gramen caninum, or Couch Graſs, which ſome people have imagined had ſtrength enough to force its way through the Crocus root; but the truth is, the root of the Graſs cloſely adhering to the old root of the Crocus, juſt at the place where the young roots were emitted, theſe young roots being quick of growth, incloſed the root of the Graſs, and thus I have ſeen ſeveral roots run through each other in the ſame manner.

But beſides theſe offſets mentioned, directly upon the upper part of the root is one large root formed, of equal bigneſs with the old one, and this is the time that the root is Radix gemina, as Tournefort calls it; for they are not ſo at any other ſeaſon, and therefore I think it a very improper appellation; for when the new roots are perfectly formed, the old ones, with their coats, fall off and die, and leave the new roots all ſingle. This has occaſioned ſeveral people to doubt of what Tournefort had ſaid of the roots, till I took up ſome plants at that ſeaſon, and with them the two roots of equal bigneſs, i. e. the old at the bottom, and the new one at the top.

Dr. Blair alſo happening, in viewing a root, to be ſurpriſed with a different appearance from what he had ſeen before or heard of, ſent me another letter.

The manner of the root was thus; from the upper part of the bulb, where it ſends forth all the leaves within a common tunicle, at the exit there was an appendix about an inch and a half long, about the groſſneſs of a large turkey or gooſe-quill, cylindrical and blunt, without the leaſt radical fibre, by which it might receive the nouriſhment, ſmooth or poliſhed, and bluiſh in the ſurface, conſiſting of ſeveral circular lines, when cut tranſverſly; white, with a hard greeniſh center like a Carrot, when it hath puſhed forth the flowering-ſtem, not unlike the ſtolones of of ſome running root, ſuch as the Mints below ground, only the extremity deſcended obliquely, inſtead of aſcending, to ſend forth leaves to produce a new plant; and what is moſt remarkable, this did not happen to one or two plants, but to the whole bundle, which were above twenty diſtinct roots, differing in nothing but majus and minus; the bulb ſeemed at the ſame time to be pined and emaciated, though it emitted large radical fibres like thoſe of a Leak.

I having received this account from him by letter, ſent him the following anſwer:

I received yours in anſwer to my laſt, with the figure of the roots of ſome ſets of Crocus Autumnalis you have taken out of the ground; I have found a figure in Dodonæus which correſponds with it, and thoſe roots are no new thing with the Saffron gardeners, who always throw them away when they make freſh plantations.

Your figure does not agree with my tap-roots, as you will ſee by the figure taken as juſt from the life as I could. In mine you will find the bulb turned ſideways, which I ſtill find to be conſtant in all the roots I have examined, which have been a great many, and makes me ſuſpect theſe tap-roots are occaſioned by the accidental poſition of the roots in planting, which may retard the aſcending ſap, the flowering-ſtem being thereby turned into a crooked figure, and the tap-roots are full of longitudinal veſſels, of a conſiderable dimenſion; ſo that the greater attracting power of the ſap being hereby diverted downwards, the flower-ſtem may be quite deſtitute of proper nouriſhment.

The method you propoſe to remedy this inconveniency, will not do, for I have removed ſome of theſe roots at the ſeaſon when the tap-roots were forming, and this alone deſtroyed them all; ſo that I am perſuaded, the cutting them off entirely will kill them.

The method I uſed with the Jonquils was, to lay ſome tiles juſt under the roots, to prevent their running downwards, but this has not anſwered, nor do I think it poſſible wholly to recover them; for the alteration is not only in the root and flower, but alſo in the leaf and blade, which before was fiſtulous, but after this alteration in the root, becomes a plain ſulcated leaf, and if it ever bloſſoms after, the flowers are large and ſingle, which before were ſmall and double; but the Saffron, after the change of its roots, produces a ſmall narrow blade, ſeldom half the length of thoſe in a natural ſtate.

Upon this Dr. Blair formed this concluſion:

Theſe additional obſervations plainly ſhew, that neither the carrotty root, nor the blaſted tap-root, as I may call it, are merely accidental, or what may be called luſus naturæ, but certain diſeaſes incident to ſuch roots; for were they accidental, they would not have the ſame appearances to different perſons in different ſoils and climates, nor would ſo many taken up together have ſuch a reſemblance to each other, as I have twice obſerved.

CROTOLARIA. Lin. Gen. Plant. 771. Dill. Elth. 122. Tourn. Inſt. R. H. 644. [of Κρόταλον, *Gr.* rattle; becauſe its ſeeds in the pods, when ripe, make a rattling noiſe when ſhaken, or becauſe the infants of the Indians make uſe of the branches of this plant furniſhed with pods inſtead of rattles.]

The Characters are,

The empalement of the flower is divided into three large ſegments; the two upper reſting on the ſtandard, the lower is concave, trifid, and is ſituated below the keel. The flower is of the Butterfly kind; the ſtandard is large, heart-ſhaped and pointed; the wings are oval and half the length of the ſtandard; the keel is pointed and as long as the wings; it hath ten ſtamina which are united, ter-

minated by ſingle ſummits, and an oblong reflexed germen, ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a ſhort turgid pod with one cell, opening with two valves, and filled with kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria the flowers of this claſs and ſection having ten ſtamina joined in two bodies.

The Species are,

1. Crotolaria (*Verrucoſa*) foliis ſimplicibus ovatis, ſtipulis lunatis declinatis ramis tetragonis. Flor. Zeyl. 277. *Crotolaria with ſingle oval leaves, lunated declining ſtipulæ, and four-cornered branches.* Crotolaria Aſiatica folio ſingulari verrucoſo, floribus cæruleis. H. L. 199.
2. Crotolaria (*Piloſa*) foliis ſimplicibus lanceolatis piloſis, petiolis decurrentibus. *Crotolaria with ſingle, hairy, ſpear-ſhaped leaves, and running foot-ſtalks.* Crotolaria Americana, caule alato foliis piloſis, floribus in thyrſo luteis. Martyn. Cent. 43.
3. Crotolaria (*Sagittalis*) foliis ſimplicibus lanceolatis ſtipulis ſolitariis decurrentibus bidentatis. Hort. Cliff. 357. *Crotolaria with ſingle ſpear-ſhaped leaves, and ſingle ſtipulæ indented.* Crotolaria hirſuta minor Americana herbacea, caule ad ſummum ſagittato. H. L. 202.
4. Crotolaria (*Fruticoſa*) foliis ſimplicibus, lineari-lanceolatis hirſutis, petiolis decurrentibus, caule fruticoſo. *Crotolaria with ſingle, narrow, ſpear-ſhaped leaves, which are hairy, running foot-ſtalks, and a ſhrubby ſtalk.* Crotolaria frutеſcens hirſuta, flore luteo, ramulis alatis, foliis mucronatis. Houſt. MSS.
5. Crotolaria (*Juncea*) foliis ſimplicibus lanceolatis, petiolatis caule ſtriato. Hort. Cliff. 357. *Crotolaria with ſingle ſpear-ſhaped leaves having foot-ſtalks.* Crotolaria Benghalenſis foliis geniſtæ hirſutis. Pluk. Alm. 121.
6. Crotolaria (*Perfoliata*) foliis perfoliatis cordato-ovatis. Lin. Sp. Plant. 1005. *Crotolaria with oval heart-ſhaped leaves perforated by the ſtalks.* Crotolaria perfoliatæ folio. Hort. Elth. 122. tab. 102.
7. Crotolaria (*Retuſa*) foliis ſimplicibus, oblongis cuneiformibus retuſis. Flor. Zeyl. 276. *Crotolaria with ſingle, oblong, wedge-ſhaped leaves, reflexed at the top.* Crotolaria Aſiatica, floribus luteis, folio ſingularo cordiformi. H. L. 200.
8. Crotolaria (*Villoſa*) foliis ſimplicibus ovatis villoſis, petiolis ſimpliciſſimis, ramis teretibus. Hort. Cliff. 357. *Crotolaria with ſingle, oval, hairy leaves, ſingle pedicles and taper branches.* Crotolaria arboreſcens Africana, Styracis folio. H. L. 170.
9. Crotolaria (*Angulata*) foliis ovatis ſeſſilibus, ramulis angulatis hirſutis, floribus lateralibus ſimpliciſſimis. *Crotolaria with oval leaves ſitting cloſe to the branches, which are angular, hairy, and ſingle flowers proceeding from the ſides of the branches.*
10. Crotolaria (*Laburnifolia*) foliis ternatis ovatis acuminatis, ſtipulis nullis, leguminibus pedicillatis. Flor. Zeyl. 278. *Crotolaria with oval, trifoliate, pointed leaves, no ſtipula, and foot-ſtalks to the pods.* Crotolaria Aſiatica frutеſcens, floribus luteis amplis trifoliata. H. L. 196.
11. Crotolaria (*Alba*) foliis ternis lanceolato-ovatis, caule lævi herbaceo, racemo terminali. Hort. Cliff. 499. *Crotolaria with oval, ſpear-ſhaped, ternate leaves, ſmooth herbaceous ſtalks, which are terminated by looſe ſpikes of flowers.* Anonis Caroliniana perennis non ſpinoſa, foliorum marginibus integris, floribus in thyrſo candidis. Martyn. Cent. 44.

The firſt ſort grows naturally in India. This is an annual plant, which hath an herbaceous four-cornered ſtalk, riſing about two feet high, dividing into three or four branches; theſe have alſo four acute angles, and are garniſhed with oval warted leaves, of a pale green colour, ſtanding on very ſhort foot-ſtalks; the flowers are produced in ſpikes at the end of the branches, which are of the butterfly ſhape, and of a light blue colour, ſucceeded by ſhort turgid pods, which incloſe one row of kidney-ſhaped ſeeds. It flowers in July and Auguſt, and the ſeeds ripen in autumn.

This plant is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring, and when the plants are come up an inch high, they ſhould be tranſplanted to another hot-bed to bring them forward, obſerving to ſhade them from the ſun till they have taken new root; after which they ſhould have free air admitted to them in proportion to the warmth of the ſeaſon, to prevent their being drawn up weak. When the plants have acquired ſtrength in this bed, they ſhould be carefully taken up, with balls of earth to their roots, and each planted in a ſeparate pot, filled with light kitchen-garden earth, and plunged into a moderate hot-bed of tanners bark, carefully ſhading them till they are rooted again; then they muſt be treated in the ſame manner as other tender exotic plants, giving them proper air and water in warm weather; when the plants are grown ſo tall as to nearly reach the glaſſes of the hot-bed, the pots may be removed into an airy glaſs-caſe, or ſtove, where they may be ſcreened from inclement weather, and have proper air in hot weather; with this treatment the plants will flower in July, and continue to produce freſh ſpikes of flowers till the end of Auguſt; and thoſe ſpikes of flowers which appear early in the ſeaſon, will be ſucceeded by ripe ſeeds in September, ſoon after which the plants will decay.

The ſecond ſort grows naturally at La Vera Cruz in New Spain, from whence the ſeeds were ſent me by the late Dr. Houſtoun; this riſes with a compreſſed winged ſtalk near three feet high, putting out ſeveral ſide branches, garniſhed with ſpear-ſhaped leaves near three inches long, and one broad, covered with ſoft hairs, and ſit cloſe to the branches, alternately; from the foot-ſtalks of each there runs a border or leafy wing, along both ſides of the branches; the flowers are produced in looſe ſpikes at the end of the branches, which are of a pale yellow colour, the ſtandard being ſtretched out a conſiderable length beyond the wings. Theſe are ſucceeded by ſhort turgid pods, which, when ripe, are of a deep blue colour, having one row of ſmall kidney-ſhaped ſeeds, which are of a greeniſh brown colour. This flowers and ſeeds about the ſame time with the former, and requires the ſame treatment.

The third ſort was ſent me from South Carolina by the late Dr. Dale, and alſo from Jamaica by Dr. Houſtoun, ſo that it grows naturally in ſeveral parts of America; this is an annual plant, which riſes with a ſlender ſtalk a foot and a half high, dividing into three or four ſpreading branches, garniſhed with oblong oval leaves ſitting cloſe. The upper part of the branches have two leafy borders or wings, running from one leaf to the other, but the lower part of the branches have none; the foot-ſtalks of the flowers ariſe from the ſide of the ſtalk, thoſe from the lower part of the branches are above a foot long, the upper are about ſix inches, they are very ſlender, and ſuſtain one or two pale yellow flowers at their tops, which are not more than half ſo large as the former ſort, and are ſucceeded by very ſhort turgid pods, in which are incloſed three or four ſmooth kidney-ſhaped ſeeds. This ſort requires the ſame culture as the two former, and flowers at the ſame ſeaſon.

The fourth ſort grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. Houſtoun; this riſes with a ſhrubby taper ſtalk near four feet high, ſending out many ſide branches which are very ſlender, ligneous, and covered with a light brown bark, garniſhed with very narrow ſpear-ſhaped leaves, which are hairy, ſitting cloſe to the branches; the younger ſhoots have a leafy border or wing on two ſides, but the old branches have none; the flowers are produced near the end of the branches, three or four growing alternate on a looſe ſpike; they are of a dirty yellow, and ſmall; the pods which ſucceed them are about an inch long, very turgid, and of a dark blue when ripe. This ſort is propagated by ſeed, which ſhould be ſown on a hot-bed, and the plants treated in the ſame manner as thoſe before; but in autumn they ſhould be placed in the ſtove, where they will live through the winter, and flower early the following ſummer, ſo will perfect their ſeeds very well.

The ſeeds of the fifth ſort were brought me from the coaſt of Malabar, which ſucceeded in the Chelſea garden. This riſes with an angular ſtalk near four feet high, dividing upward into three or four branches, garniſhed with narrow ſpear-ſhaped leaves, placed alternately on very ſhort foot-ſtalks; they are pretty cloſely covered with ſoft ſilvery hairs. The flowers are produced at the end of the branches, in looſe ſpikes; they are large, and of a deep yellow colour, and the ſtyle ſtands out beyond the ſtandard. The flowers are ſucceeded by large turgid pods, containing one row of large kidney-ſhaped ſeeds.

This plant is annual in England, but by the lower part of the ſtalk growing woody, it appears to be of longer duration in the country where it naturally grows; though it will not live through the winter here, for if the plants are placed in a ſtove, the heat is too great for them, and in a green-houſe they are very ſubject to mouldineſs in damp weather. I have ſown the ſeeds of this in the full ground, where the plants have grown upward of three feet high, and have flowered very well, but no pods were formed on theſe; and when they have been treated tenderly, the plants have grown much larger, and produced a greater number of flowers, but theſe have produced no ſeeds. The only way which I could ever obtain any ſeeds, was by raiſing the plants in pots upon hot-beds; and the beginning of July, turning them out of the pots into the full ground on a very warm border under a wall, in which ſituation they flowered very well, and ſome few pods of ſeeds were ripened.

The ſixth ſort was ſent me by the late Dr. Dale from South Carolina, who had the ſeeds ſent him from the country, at a great diſtance from the Engliſh ſettlements. By the deſcription ſent me with the ſeeds, it grows with a ſhrubby ſtalk four or five feet high; but the plants which were raiſed here, periſhed at the approach of winter, ſo that they only flowered, without producing any pods. The ſtalks of this are round, and covered with a light brown bark, garniſhed with ſmooth, oval, heart-ſhaped leaves, which are about four inches long, and near three broad; ſurrounding the ſtalk in ſuch a manner, as if it were run through the middle of the leaves. The flowers grow ſingly, ſitting cloſe to the boſom of each leaf, toward the upper part of the branches; they are of a pale yellow colour, and appear here in Auguſt; but as the plants did not produce any pods, ſo I can give no account of them. This is one of the moſt ſingular plants of the genus I have yet ſeen.

The ſeventh ſort riſes with an herbaceous ſtalk near three feet high, dividing upward into ſeveral branches, garniſhed with oblong leaves, which are narrow at their baſe, but gradually widen to the top, where they are rounded and indented in the middle in the ſhape of a heart; they are of a pale green, and ſmooth. The flowers are produced in ſpikes at the end of the branches, they are pretty large, and of a yellow colour. Theſe appear in July, and the ſeeds ripen in autumn, provided the plants are brought forward in the ſpring, and afterward treated in the ſame manner as hath been directed for the firſt ſort. This grows naturally in the iſland of Ceylon, and is an annual plant, periſhing ſoon after it perfects ſeeds. I received the ſeeds of this plant from the late Dr. Boerhaave, profeſſor at Leyden.

The eighth ſort grows naturally at the Cape of Good Hope, from whence I received the ſeeds. This riſes with a ſhrubby ſtalk about five feet high, dividing into ſeveral branches, garniſhed with roundiſh leaves, ſitting cloſe to the branches; they are of a hoary green, and ſoft to the touch, the branches are taper and ſmooth; the flowers are produced at the end of the branches in looſe ſpikes; they are about the ſize of thoſe of the firſt ſort, and of a fine blue cour. This plant flowers in June and July, and in warm ſeaſons will ripen its ſeeds in autumn. It is propagated by ſeeds, which muſt be ſown upon a good hot-bed in the ſpring, and when the plants are fit to remove, ſhould be each tranſplanted into a ſmall halfpenny pot, and plunged into a hot-bed of tanners bark, and after muſt be treated in the ſame manner as hath been directed for the fourth ſort, placing the plants in a moderate ſtove in winter, otherwiſe they cannot be preſerved in England; the ſecond year the plants will flower, and with proper care their ſeeds will ripen.

The ninth ſort was ſent me from Campeachy, where the plant grows naturally; this riſes with a taper upright ſtalk near three feet high, dividing upward into ſeveral hairy branches, which grow erect, garniſhed with oval ſpear-ſhaped leaves, of a pale green colour; the flowers are produced ſingly from the ſide of the branches, which are of a bright yellow, and are ſucceeded by ſhort turgid pods, having one row of kidney-ſhaped ſeeds. It flowers in July and Auguſt, and with the ſame treatment as hath been directed for the firſt ſort, will perfect ſeeds in autumn. This is an annual plant, which periſhes ſoon after the ſeeds are ripe.

The tenth ſort grows naturally in India; this riſes with a ſhrubby ſtalk four or five feet high, dividing into many branches, garniſhed with ternate oval leaves ending in points; the flowers are large, yellow, growing in large bunches from the ſide of the branches; they appear in July, Auguſt, and September, but I have not ſeen any pods ſucceed them here. However, when the plants are in flower, they make a fine appearance.

It is eaſily propagated by cuttings, during the ſummer months, if the cuttings are planted in pots, and plunged into a moderate hot-bed, being careful to ſhade them till they have taken root, and frequently refreſh them with water: during the months of July, Auguſt, and September, the plants may be expoſed to the open air in a ſheltered ſituation, where they will produce many flowers; but in the autumn they ſhould be placed in a temperate ſtove, to preſerve them in winter.

The eleventh ſort grows naturally in Virginia and Carolina, from both thoſe countries I have received the ſeeds; there are two varieties of this ſpecies, one with a white, and the other a blue flower; but the ſeeds of one will produce both varieties, as I have more than once experienced. The root is perennial, ſending up every ſpring a number of leaves, in proportion to the ſize of the root; the foot-ſtalks of the leaves are ſmooth, riſing two feet high, dividing upward into three or five branches, garniſhed with ternate ſmooth leaves, whoſe lobes are oval, ſpear-ſhaped, and entire; the foot-ſtalks of the flowers ariſe immediately from the root, and advance rather higher than the leaves, being terminated by a thyrſe of large butterfly-ſhaped flowers, near a foot in length; in one variety they are white, and in the other deep blue: theſe are ſucceeded by large ſwelling pods, of a black colour when ripe, having one row of kidney-ſhaped ſeeds. It flowers in June, and the ſeeds ripen in the autumn.

It is propagated by ſeeds, which ſhould be ſown on a moderate hot-bed in the ſpring; when the plants come up they ſhould have free air admitted to them daily, to prevent their drawing up weak, and as ſoon as they are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, plunging them into a moderate hot-bed again, obſerving to ſhade them till they have taken freſh root; then they ſhould be gradually inured to the open air; but in the autumn they ſhould be placed in a common frame, or covered with mats in winter to ſhelter them; but the following ſpring they ſhould be turned out of the pots, and planted in the full ground, where, if the ſoil is dry, and the ſituation ſheltered, they will live many years, producing flowers and ſeeds annually.

As moſt of theſe plants are annual, ſo they require to be brought forward in the ſpring, otherwiſe the ſummers are too ſhort for them to perfect ſeeds; ſo that unleſs they are carefully managed, they will not flower well here; for in general, the ſummers in this country are not very favourable for theſe tender plants. Therefore in order to have theſe tender annual plants in perfection, there ſhould be a low glaſs-caſe erected about five or ſix feet high, which ſhould be made with glaſſes to open or ſlide down on every ſide, as ſhould alſo the top on both ſides, having ſliding glaſſes, that the plants may have ſun and air on every ſide; in this there ſhould be a pit for tanners bark to make a hot-bed, the whole extent, (a particular deſcription of which will be exhibited under the article STOVE) in this hot-bed may be placed all the very curious tender annual plants, where the ſun will conſtantly ſhine on them, ſo long as he makes his appearance above the horizon; and here they may have plenty of free air admitted at all times, when the weather is warm, ſo may be brought to equal perfection, as in the warm countries where they naturally grow; for the warmth of the tan to the roots, and the heat of the ſun through the glaſſes, will in ſummer, be equal to the heat of moſt countries.

Theſe plants naturally grow on ſandy light ſoils, ſo they ſhould always be planted in ſuch; and the pots in which they are planted, muſt not be too large, for in ſuch they will not thrive, ſo that after they have filled the ſmall pots with their roots in which they were firſt planted, they ſhould be ſhaken out of thoſe, and put into penny pots, which will be large enough for moſt of the annual kinds; but thoſe which are of longer duration, will require pots a little larger the following ſpring The waterings of theſe plants ſhould be performed with caution, for too great moiſture will rot the fibres of their roots; ſo that in ſummer, if they are gently watered three or four times a week in hot weather, it will be ſufficient.

CROTON. Lin. Gen. Plant. 960. Ricinoides. Tourn. Inſt. 655. tab. 423. Baſtard Ricinus.

The CHARACTERS are,

It hath male and female flowers in the ſame plant; the flowers have a five-leaved empalement, they have five petals, thoſe of the male being no larger than the leaves of the empalement; the male have five nectarious glands, which are ſmall, and fixed to the receptacle; theſe have ten or fifteen ſtamina, which are joined at their baſe, and terminated by twin ſummits. The female flowers have a roundiſh germen, ſupporting three reflexed ſpreading ſtyles, crowned by bifid reflexed ſtigmas; the germen afterward becomes a roundiſh three-cornered capſule, with three cells, each containing a ſingle ſeed.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Monodelphia. The plants of this claſs and ſection have male and female flowers in the ſame plant, and the male parts are joined in one body.

The SPECIES are,

1. CROTON (*Tinctorium*) foliis rhombeis repandis, capſulis pendulis caule herbaceo. Hort. Upſal. 290. *Croton with rhomboid reflexed leaves, pendulous capſules, and an herbaceous ſtalk.* Ricinoides ex quâ paratur. Tournſol. Gallorum. Tourn. Inſt. 655. *Baſtard Ricinus, from which the Tournſole of the French is made.*
2. CROTON (*Argenteum*) foliis cordato-ovatis ſubtus tomentoſis integris ſubſerratis. Hort. Cliff. 444. *Croton with oval heart-ſhaped leaves, which are entire and woolly.* Ricinoides herbacea, folio ſubrotundo ſerrato fructu parvo conglomerato. Houſt. MSS.
3. CROTON (*Paluſtre*) foliis ovato-lanceolatis plicatis ſerratis ſcabris. Hort. Cliff. 445. *Croton with oval ſpear-ſhaped leaves, which are plaited, ſawed, and rough.* Ricinoides paluſtre, foliis oblongis ſerratis fructu hiſpido. Martyn. Cent. 38.
4. CROTON (*Lobatum*) foliis inermi-ſerratis, inferioribus quinquelobis, ſuperioribus trilobis. Hort. Cliff. 445. *Croton with leaves ſmoothly ſawed, the lower ones having five lobes, and the upper three.* Ricinoides herbacea, foliis trifidis vel quinquefidis & ſerratis. Houſt. MSS.
5. CROTON (*Humile*) tetraphyllum, foliis lanceolatis, acuminatis ſubtus cæſiis, caule herbaceo ramoſo. *Four-leaved Croton with ſpear-ſhaped pointed leaves, gray on their under ſide, and a branching herbaceous ſtalk.* Ricinoides humilis foliis oblongis acuminatis, ſubtus cæſiis. Houſt. MSS.
6. CROTON (*Fruticoſum*) foliis lanceolatis glabris, caule fruticoſo, floribus alaribus & terminalibus. *Croton with ſmooth ſpear-ſhaped leaves, a ſhrubby ſtalk, and flowers growing from the ſides and tops of the branches.* Ricinoides fruteſcens, lauri folio, calyce ampliſſimo viridi. Houſt. MSS.
7. CROTON (*Populi folia*) foliis cordatis, acuminatis, ſubtus tomentoſis, floribus alaribus ſeſſilibus, caule fruticoſo. *Croton with heart-ſhaped pointed leaves, woolly on their under ſide, and flowers growing cloſe to the ſides of the ſtalks, which are ſhrubby.* Ricinoides foliis populi hirſutis. Plum. Cat. 20.
8. CROTON (*Caſcarilla*) foliis lanceolatis acutis integerrimis petiolatis ſubtus tomentoſis, caule arboreo. Amœn. Acad. 5. p. 411. *Croton with ſpear-ſhaped, entire, acute-pointed leaves, woolly on their under ſide, and a tree-like ſtalk.* Ricinoides fruteſcens odorata, foliis anguſtis ſubtus albicantibus. Houſt. MSS. Caſcarilla.
9. CROTON (*Althæafolia*) foliis oblongo-cordatis tomentoſis, caule fruticoſo ramoſo, floribus ſpicatis terminalibus. *Croton with oblong, heart-ſhaped, woolly leaves, a ſhrubby branching ſtalk, and flowers growing in ſpikes at the ends of the branches.* Ricinoides Americana fruteſcens, Althææ folio. Plum. Cat. 20.
10. CROTON (*Salviæ folia*) foliis cordatis acutis, ſubtus tomentoſis, caule fruticoſo, floribus ſpicatis terminalibus & alaribus. *Croton with pointed heart-ſhaped leaves, woolly on their under ſide, a ſhrubby ſtalk, and flowers growing in ſpikes on the tops and ſides of the branches.* Ricinus ſalviæ folio utrinque molli. Pet. Hort. Siec.

The firſt ſort grows naturally in the ſouth of France, from whence I have frequently received the ſeeds; this is an annual plant, which riſes with an herbaceous branching ſtalk about nine inches high, garniſhed with irregular, or rhomboidal figured leaves, which are near two inches long, and one inch and a quarter broad in their wideſt part; theſe ſtand upon ſlender foot-ſtalks, near four inches long. The flowers are produced in ſhort ſpikes from the ſide of the ſtalks, at the end of the branches; the upper part of the ſpike is compoſed of male flowers, having many ſtamina, which coaleſce at the bottom; the lower part hath female flowers, which have each a roundiſh three-cornered germen; theſe afterward become a roundiſh capſule with three lobes, having three cells, each including one roundiſh ſeed. This flowers in July, but unleſs the plants are brought forward in a hot-bed, they do not ripen ſeeds in this country.

The ſeeds of this plant ſhould be ſown in the autumn, ſoon after they are ripe, in a ſmall pot filled with light earth, and plunged into an old tan-bed in a frame, where they may be ſcreened from cold in the winter; and in the ſpring following the pot ſhould be removed to a freſh hot-bed, which will bring up the plants in a month's time; when theſe are grown large enough to remove, they ſhould be each planted in a ſmall pot, and plunged into a freſh hot-bed, being careful to ſhade the glaſſes daily, until the plants have taken new root; then they ſhould have air daily admitted according to the warmth of the ſeaſon, and but little water given to them: with this management I have had the plants flower and produce good ſeeds here, but never could obtain any with other treatment.

This is the plant from which the Tournſole is made, which is uſed for colouring wines and jellies; it is made of the juice which is lodged between the empalement and the ſeeds, which, if rubbed on cloths, at firſt appears of a lively green, but ſoon changes to a bluiſh purple colour; if theſe cloths are put into water, and afterward wrung, they will dye the water to a claret colour; the rags thus dyed, are brought to England, and ſold in the druggiſts ſhops by the name of Tournſole.

The ſecond ſort grows naturally at La Vera Cruz in New Spain, from whence the ſeeds were ſent me by the late Dr. Houſtoun; this is an annual plant, which riſes about a foot high; it hath an angular ſtalk; the branches are naked from their diviſions to the top, where they are garniſhed with a few oval ſpear-ſhaped leaves, which are ſawed on their edges; they are an inch and a half long, and three quarters of an inch broad, ſtanding on foot-ſtalks one inch long. The flowers are produced in cloſe ſhort ſpikes at the end of the branches, thoſe on the upper part being male, and the lower female; they are white, and the male ſoon falls away, but the female are ſucceeded by roundiſh capſules, having three lobes; theſe grow in cloſe cluſters, they have three cells, each containing one roundiſh ſeed. It flowers in July, and the ſeeds ripen in autumn.

The third ſort was diſcovered by the late Dr. Houſtoun at La Vera Cruz, from whence he ſent me the ſeeds; this is alſo an annual plant, which grows naturally in low marſhy grounds, where it hath a very different appearance from what it puts on when ſown upon dry land; thoſe of the watery places have broad flat ſtalks, and leaves three inches long, which are ſcarce a quarter of an inch broad; theſe are rough, and but little indented on their edges; but thoſe plants upon dry ground have oval leaves three inches long, and upwards of two inches broad, which are ſawed on their edges. The flowers are produced at the wings of the leaves, in ſhort looſe ſpikes, having four or five herbaceous male flowers at the top of each, and three or four female flowers at the bottom, which are ſucceeded by roundiſh capſules with three lobes, covered with a prickly huſk; theſe have three cells, each incloſing a ſingle ſeed. It flowers and ſeeds about the ſame time as the former.

The fourth ſort was diſcovered by the ſame gentleman, at the ſame place as the former; this is an annual plant, which riſes with a taper herbaceous ſtalk a foot and a half high, dividing into ſeveral branches, garniſhed with ſmooth leaves, ſtanding upon very long foot-ſtalks, and are for the moſt part placed oppoſite, as are alſo the branches; the lower leaves are divided deeply into five oblong ſegments or lobes, and the upper into three, which are ſlightly ſawed on their edges, ending in acute points. The flowers are produced in looſe ſpikes at the end of the branches, thoſe on the upper part being male, and the lower female, they are of an herbaceous colour; the female flowers are ſucceeded by oblong capſules, having three lobes, which open in three parts, having three cells, each containing one oblong ſeed. This flowers and ſeeds at the ſame time as the former ſorts.

The fifth ſort was found growing naturally at the Havannah, by the late Dr. Houſtoun, who ſent me the ſeeds; this is an annual plant, which rarely grows more than ſix inches high, dividing into two or three branches; the lower part of theſe are garniſhed at each joint with four leaves placed in form of a croſs, two of which are three inches long, and one inch broad near their baſe, ending in acute points; theſe ſtand oppoſite, and the other two leaves between theſe are about two inches long, and a quarter of an inch broad; they are of a light green on their upper ſide, and of a gray or Aſh-colour on their under. The flowers are produced in long looſe ſpikes at the top of the ſtalks, two or three of theſe ſpikes ariſing from the ſame joint; the upper part of theſe ſpikes have male, and the lower female flowers, of an herbaceous colour; the female flowers are ſucceeded by round capſules with three cells, each containing one roundiſh ſeed. This flowers and ſeeds about the ſame time with the former ſorts.

The ſixth ſort was diſcovered by the late Dr. Houſtoun in the iſland of Jamaica, where it grows naturally. It riſes with a ſhrubby ſtalk to the height of ſeven or eight feet, which is covered with an Aſh-coloured bark, and divides into many ſlender branches upward; ſome of theſe branches are terminated by five or ſix ſmaller, which ariſe from the ſame joint; theſe are naked below, but toward their upper part they are garniſhed with ſmooth ſpear-ſhaped leaves, about two inches and a half long, and three quarters of an inch broad, ſtanding on pretty long foot-ſtalks without order; the flowers are produced in ſhort ſpikes at the end of the branches, in the ſame manner as the former; they are of an herbaceous colour, and incloſed in large green empalements.

The ſeventh ſort was ſent me from Jamaica, by Mr. Robert Millar; this riſes with a ſhrubby ſtalk ſeven or eight feet high, ſending out many irregular branches, covered with an Aſh-coloured bark, and garniſhed with heart-ſhaped leaves, near four inches long, and two inches broad in their wideſt part, ending in acute points; they are of a light green on their upper ſide, but woolly on their under, ſtanding on ſlender foot-ſtalks without any order, ſometimes ſingle, and at others, two or three ariſe from the ſame joint. The flowers are produced in ſhort ſpikes from the ſide of the branches; they are of a whitiſh green colour, and the female flowers are ſucceeded by capſules, having three cells, each including a ſingle ſeed.

The eighth ſort grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. Houſtoun; this riſes with a ſhrubby ſtalk about ſix or ſeven feet high, ſending out many ſide branches, which are covered with a ſmooth bark, of a yellowiſh white colour, garniſhed very cloſely with narrow ſtiff leaves near three inches long, and about one eighth of an inch broad, of a light green on their upper ſide, but their under ſide is the ſame colour as the bark; the midrib is furrowed on their upper ſide, and very prominent on the lower; the upper part of the branches divide into four or five ſmaller, which ariſe from the ſame joint, and are nearly equal in their length, and between theſe ariſe a long looſe ſpike of whitiſh green flowers. The whole plant hath an aromatic odour when rubbed. The ſeeds grow in roundiſh capſules having three cells, each including a ſingle ſeed.

The ninth ſort grows naturally in Jamaica, from whence it was ſent me by the late Dr. Houſtoun; this riſes with a ſhrubby ſtalk ſix or ſeven feet high, dividing upward into ſeveral branches, which are covered with a yellowiſh down, garniſhed with long heart-ſhaped leaves, ending in acute points; theſe are two inches and a half long, and one broad in their wideſt part, ſtanding on long foot-ſtalks, covered on both ſides with a woolly down of the ſame colour as the branches. The flowers are produced on long cloſe ſpikes at the end of the branches; the male flowers, which are ſituated on the upper part of the ſpikes, have white flowers of one leaf, divided into five parts almoſt to the bottom, and have five taper ſtamina, ſituated in the bottom. The female flowers on the lower part of the ſpikes, have large woolly empalements, and are ſucceeded by round capſules with three cells, each including a ſingle ſeed.

The tenth ſort riſes with a ſhrubby ſtalk near four feet high, dividing into many ſmaller branches, which have a ſilvery bark, and are garniſhed with ſmall heart-ſhaped leaves, about three quarters of an inch long, and half as broad at their baſe, ending in acute points; theſe are woolly on both ſides, but their under ſide is ſilvery, their upper ſide of a yellowiſh green. The flowers are produced in ſhort ſpikes at the end of the branches, which are ſmall, white, and have woolly empalements. The female flowers on the lower part of the ſpikes are ſucceeded by roundiſh capſules with three cells, each containing one ſeed.

All theſe plants except the firſt, are natives of warm countries, ſo will not thrive in England, unleſs they are tenderly treated. They are all propagated by ſeeds; thoſe which are annual perfect their ſeeds in

England; but the ſhrubby ſorts very rarely arrive to that perfection, ſo their ſeeds muſt be procured from the countries where they naturally grow. The ſeeds muſt be ſown on a hot-bed early in the ſpring, and when the plants are fit to remove, they ſhould be each tranſplanted into a ſmall pot, and plunged into a moderate hot-bed of tanners bark, where they ſhould be ſhaded from the ſun till they have taken freſh root; then they muſt have air admitted to them daily, in proportion to the warmth of the ſeaſon; they muſt alſo be frequently refreſhed with water, particularly the ſecond, third, and fourth ſorts, which will often require water, but the others ſhould have it more ſparingly. After the plants are grown too tall to remain in the frames, they ſhould be removed, either into the ſtove, or a glaſs-caſe, where there is a hot-bed of tanners bark, into which the pots ſhould be plunged, and there the annual ſorts will flower and perfect their ſeeds; but the ſhrubby kinds muſt be removed into the bark-ſtove in the autumn, and during the winter ſeaſon they ſhould have but little water; and the ſtove ſhould be kept in a good temperature of heat, otherwiſe they will not live through the winter in England.

As theſe plants retain their leaves all the year, ſo they make a pretty variety in winter, when they are intermixed with other plants, whoſe leaves are of different forms and colours from theſe.

CROWN IMPERIAL. See PETILIUM.

CRUCIANELLA. Lin. Gen. Plant. 118. Rubeola. Tourn. Inſt. R. H. 130. tab. 50. Petty Madder.

The CHARACTERS are,

The flower hath a two-leaved empalement, which is rigid and compreſſed. It hath one petal, with a ſlender cylindrical tube which is longer than the empalement, and cut into four parts at the brim. It hath four ſtamina ſituated in the mouth of the tube, terminated by ſingle ſummits. It hath a compreſſed germen, ſituated at the bottom of the tube, ſupporting a ſlender bifid ſtyle, crowned by two obtuſe ſtigmas. The germen afterward become two twin capſules, each containing one oblong ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

The SPECIES are,

1. CRUCIANELLA (*Anguſtifolia*) erecta, foliis ſenis linearibus. Hort. Upſal. 27. *Upright Crucianella with ſix narrow leaves.* Rubeola anguſtiore folio. Tourn. Inſt. 130. *Petty Madder.*
2. CRUCIANELLA (*Latifolia*) procumbens, foliis quaternis lanceolatis, floribus ſpicatis. Hort. Upſal. 27. *Trailing Crucianella with four ſpear-ſhaped leaves and ſpiked flowers.* Rubeola latiore folio. Tourn. Inſt. 130.
3. CRUCIANELLA (*Maritima*) procumbens ſuffruticoſa foliis quaternis, floribus oppoſitis quinquefidis. Lin. Sp. Plant. 158. *Crucianella with trailing ſhrubby ſtalks, four leaves at each joint, and flowers growing in whorls.* Rubeola maritima. C. B. P.
4. CRUCIANELLA (*Hiſpida*) caule hiſpido, foliis lanceolatis hirſutis oppoſitis, floribus umbellatis terminalibus. *Crucianella with a ſtinging ſtalk, ſpear-ſhaped hairy leaves placed oppoſite, and flowers growing in umbels at the ends of the branches.* Rubeola Americana hirſuta, parietariæ foliis, floribus umbellatis purpureis. Houſt. MSS.
5. CRUCIANELLA (*Americana*) foliis lineari-lanceolatis hirſutis oppoſitis, caule erecto villoſo, floribus ſolitariis alaribus. *Crucianella with narrow, ſpear-ſhaped, hairy leaves placed oppoſite, an erect hairy ſtalk, and ſingle flowers proceeding from the ſides of the branches.*

The firſt ſort grows naturally in the ſouth of France and Italy; this is an annual plant, which riſes with ſeveral upright ſtalks a foot high, having ſix or ſeven very narrow linear leaves placed in whorls, at each joint. The flowers grow in cloſe ſpikes at the top and from the ſide of the branches; theſe are ſmall, white, and not longer than the empalement, ſo make no great appearance. It flowers in June and July, and the ſeeds ripen in autumn.

The ſecond ſort grows in the iſlands of the Archipelago, and alſo about Montpelier; this is alſo an annual plant, ſending out ſeveral branching ſtalks from the root, which lie proſtrate, and are garniſhed with four ſpear-ſhaped leaves at each joint. The flowers are produced in long ſpikes at the extremity of the branches; theſe are very ſmall, ſo make no great appearance. It flowers about the ſame time as the former.

The third ſort is like the ſecond in the appearance of leaves and ſtalks, but the flowers grow on the ſide of the ſtalks, almoſt in whorls, and make little appearance. This grows naturally on the borders of the ſea, in the ſouth of France and Italy.

Theſe three ſorts are preſerved in ſome gardens for the ſake of variety; if the ſeeds are ſown on a bed of light earth early in the ſpring, where they are deſigned to remain, they will require no other culture, but to thin them where they are too cloſe, and keep them clean from weeds; or if the ſeeds are permitted to ſcatter, the plants will come up in the ſpring, and require no other treatment; but the third ſort will not ripen its ſeeds here, when the autumn is not favourable.

The fourth ſort hath four-cornered, rough, prickly ſtalks, which bend downward, and are garniſhed with ſpear-ſhaped leaves, which are hairy and ſtand oppoſite; the flowers are produced in ſmall cluſters at the end of the branches, which are blue, and cut into four parts at the top; after theſe decay, they are ſucceeded by twin capſules joined, in each of theſe is one oblong ſeed.

The fifth ſort riſes with a ſhrubby branching ſtalk near three feet high, which is garniſhed with narrow ſpear-ſhaped leaves, covered with ſtinging hairs. The flowers are produced from the wings of the leaves, on each ſide the ſtalk ſingly; theſe are of a pale blue colour, and are ſucceeded by twin fruit like the former.

Both theſe ſorts grow naturally at La Vera Cruz in New Spain, from whence the ſeeds were ſent me by the late Dr. Houſtoun; and the plants grew in the Chelſea garden very well during the ſummer ſeaſon, but periſhed in the autumn before their ſeeds were ripe.

CRUCIATA. See VALANTIA.

CRUPINA BELGARUM. See SERRATULA.

CUCUBALUS. Lin. Gen. Plant. 502. Tourn. Inſt. R. H. 339. tab. 176. Berry-bearing Chickweed.

The CHARACTERS are,

The flower hath an oblong permanent empalement of one leaf, cut into five ſegments. It hath five petals, with tails as long as the empalement, but ſpread open at the top. It hath ten ſtamina, five of which are alternately inſerted in the tail of the petals; theſe are terminated by oblong ſummits. In the center is ſituated the oblong germen, ſupporting three ſtyles which are longer than the ſtamina, crowned by oblong hairy ſtigmas. The empalement afterward becomes a pointed cloſe capſule with three cells, opening at the top in five parts, and filled with many roundiſh ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's tenth claſs, intitled Decandria Trigynia, the flowers having ten ſtamina and three ſtyles.

The SPECIES are,

1. CUCUBALUS (*Bacciferus*) calycibus campanulatis, petalis diſtantibus, pericarpiis coloratis, ramis divaricatis. Lin. Sp. Plant. 414. *Cucubalus with a bell-ſhaped empalement, petals ſtanding aſunder, a coloured cover to the fruit, and divaricated branches.* Cucubalus Plinii. Lugd. 1429.
2. CUCUBALUS (*Latifolius*) caulibus erectis glabris, calycibus ſubgloboſis, ſtaminibus corollâ longioribus. *Cucubalus with ſmooth erect ſtalks, globular empalements, and ſtamina longer than the petals.* Lychnis ſylveſtris quæ behen album vulgò. C. B. P. 205. *Commonly called Spatling Poppy.*
3. CUCUBALUS (*Anguſtifolius*) calycibus ſubgloboſis, caule ramoſo patulo, foliis linearibus acutis. *Cucubalus with globular empalements, a branching ſpreading ſtalk,*

and narrow-pointed leaves. Lychnis ſylveſtris quæ behen album vulgò, foliis anguſtioribus & acutioribus. C. B. P. 250. *Spatling Poppy, with narrower pointed leaves.*

4. Cucubalus (*Behen*) calycibus ſubgloboſis glabris reticulato-venoſis, capſulis trilocularibus corollis ſubnudis. Flor. Suec. 360. *Cucubalus with ſmooth globular empalements which have netted veins, capſules having three cells, and naked petals.* Lychnis Suecica behen album folio, habitu, calyce ampliſſimo: gumſepungar ſive ſcrotum arietis dicta. Boerh. Ind. alt. 212. *Called Gumſepungar in Sweden.*

5. Cucubalus (*Fabarius*) foliis obovatis carnoſis. Prod. Leyd. 448. *Cucubalus with oval fleſhy leaves.* Lychnis maritima ſaxatilis, folio anacampſerotis. Tourn. Cor. 24.

6. Cucubalus (*Dubrenſis*) floribus lateralibus decumbentibus, caule indiviſo, foliis baſi reflexis. Lin. Sp. Plant. 414. *Cucubalus with declining flowers on the ſides of the ſtalk, which is undivided, and leaves reflexed at their baſe.* Lychnis major noctiflora Dubrenſis perennis. Raii Hiſt. 995. *Greater perennial night-flowering Lychnis of Dover.*

7. Cucubalus (*Stellatus*) foliis quaternis. Hort. Upſal. 110. *Four-leaved Cucubalus.* Lychnis carophyllæus Virginianus, gentianæ foliis glabris quatuor ex ſingulis geniculis caulem amplexantibus, flore amplo fimbriato. Raii Hiſt. 1895.

8. Cucubalus (*Noctiflora*) calycibus ſtriatis acutis petalis bipartitis, caule paniculato, foliis linearibus. *Cucubalus with ſtriated acute empalements, petals divided in two parts, a paniculated ſtalk, and narrow leaves.* Lychnis noctiflora anguſtifolia odorato. Tourn. Inſt. R. H. 335. *Narrow-leaved, ſweet-ſcented, night-flowering Lychnis.*

9. Cucubalus (*Otites*) floribus dioicis, petalis linearibus indiviſis. Hort. Cliff. 272. *Cucubalus with male and female flowers on different plants, and linear undivided petals.* Lychnis viſcoſa, flore muſcoſo. C. B. P. 206.

10. Cucubalus (*Acaulis*) acaulis. Flor. Lapp. 184. *Cucubalus without ſtalks.* Lychnis Alpina pumila, folio gramineo, ſive muſcus Alpinus Lychnidis flore. C. B. P. 206.

11. Cucubalus (*Catholicus*) petalis bipartitis, floribus paniculatis, ſtaminibus longis, foliis lanceolato ovatis. Hort. Upſal. 111. *Cucubalus with bifid petals, flowers growing in panicles, long ſtamina, and ſpear-ſhaped acute leaves.* Lychnis altiſſima, ocymaſtri facie, flore muſcoſo. Triumfet.

12. Cucubalus (*Paniculatus*) foliis radicalibus ovatis acutis, caulinis lanceolatis oppoſitis, floribus paniculatis erectis. *Cucubalus with lower leaves oval and pointed, thoſe on the ſtalks ſpear-ſhaped, oppoſite, and flowers growing in panicles which are erect.*

13. Cucubalus (*Italicus*) petalis bipartitis, caule paniculato, foliis radicalibus ovato-lanceolatis caulinis linearibus. *Cucubalus with petals divided in two parts, a paniculated ſtalk, whoſe lower leaves are oval and ſpear-ſhaped, and thoſe on the ſtalks very narrow.*

The firſt ſort grows naturally in France, Germany, and Italy, in ſhady places, and is ſeldom kept in gardens, unleſs for the ſake of variety; it ſends out many climbing ſtalks, which grow four or five feet high where they meet with ſupport, otherwiſe they trail on the ground; theſe ſtalks ſend out ſide branches oppoſite, at each joint; the leaves are like thoſe of Chickweed, and are placed oppoſite. The flowers come out ſingle at the end of the branches, which have large inflated empalements; they conſiſt of five petals, which are white, cut at the brim into ſeveral narrow ſegments, and are placed at a diſtance from each other; they are ſucceeded by oval berries, which, when ripe, are black and full of juice, incloſing ſeveral flat ſhining ſeeds. It flowers in June, and the ſeeds ripen in autumn. This hath a perennial creeping root, whereby it is apt to multiply too faſt in gardens. It delights in ſhade, and will thrive in almoſt any ſoil.

The ſecond ſort grows naturally in moſt parts of England, where it is generally called Spatling Poppy. This ſtands in the catalogue of medicinal plants, under the title of Behen album; the roots of it are ſometimes uſed, and are accounted cordial, cephalic, and alexipharmic. It hath a perennial root, which ſtrikes deep into the ground, ſo that they are not eaſily deſtroyed by the plough, therefore it is frequently ſeen growing in bunches among corn. It is a rambling weed, ſo is ſeldom cultivated.

The third ſort grows naturally on the Alps; this differs from the former, in having much longer and narrower leaves, and the ſtalks being more divided and ſpreading, nor do the roots creep under ground like that. Theſe differences are conſtant, for I have ſown it above thirty years, and never found it vary.

The fourth ſort grows naturally in Sweden, and ſome other northern countries, where it paſſes for the common ſort; but although it is there ſo, yet is very different from the ſecond here mentioned, which is the ſort that grows common in moſt other parts of Europe. The ſtalks of this are much larger, the leaves longer and more pointed; the empalement of the flower is curiouſly veined like net-work, of a purpliſh colour, whereas that of our common ſort is plain. Theſe differences are laſting, when the plants are cultivated in a garden.

The fifth ſort was diſcovered by Tournefort in the Levant, who ſent the ſeeds to the royal garden at Paris. This puts out many oval, thick, ſucculent leaves near the ground, out of the middle of which, ariſes an upright ſtalk about fifteen inches high, the lower part of which is garniſhed with leaves of the ſame form and conſiſtence as thoſe at bottom, but are ſmaller; theſe are placed oppoſite; the upper part of the ſtalk divides into two ſmaller, on which ſtand a few ſmall herbaceous flowers at each joint. It flowers in June, and ſometimes ripens ſeeds in autumn. The plant is biennial, generally periſhing when it has produced ſeeds; but unleſs it is ſown upon a very dry rubbiſh, and in a warm ſituation, the plants will not live through the winter in England; for when they are in good ground, they grow large, and are ſo replete with moiſture, as to be affected by the firſt froſt in the autumn; but where they have grown upon an old wall, I have known them eſcape, when all thoſe were killed which grew in the ground.

The ſixth ſort grows naturally upon the cliffs near Dover. This hath a perennial root, from which ariſes a ſingle ſtalk about a foot and a half high, garniſhed with long narrow leaves placed oppoſite; the flowers are produced from the ſide of the ſtalks, each foot-ſtalk ſuſtaining three flowers; the foot-ſtalks come out by pairs oppoſite, the empalement of the flower is long and ſtriped, the flowers are of a pale red. Theſe appear in June, and the ſeeds ripen in autumn.

The ſeventh ſort grows naturally in Virginia, and ſeveral other parts of North America. This hath a perennial root, from which ariſe two or three ſlender upright ſtalks about a foot high, their lower part being garniſhed with four leaves at each joint, placed in form of a croſs; theſe are ſmooth, of a deep green, about an inch and a half long, and half an inch broad near their baſe, terminating in acute points; the joints of the upper part of the ſtalk are garniſhed with white fringed flowers, ſtanding ſingle upon pretty long foot-ſtalks, which come out by pairs oppoſite. The flowers appear in June, and in warm ſeaſons the ſeeds will ripen in England.

The eighth ſort grows naturally in Spain and Italy. This is a perennial plant, which riſes with an upright branching ſtalk a foot and a half high, garniſhed with very narrow leaves placed oppoſite; the upper part of the ſtalk is very branching; ſome of theſe branches are long, and others ſhort; the flowers ſtand upon long naked foot-ſtalks, each ſupporting three or four flowers, which have long tubes, with ſtriped empalements; the petals are large, and deeply divided at the top; they are of a pale bluiſh colour. Theſe flowers are cloſed all day, but when the ſun leaves them, they expand, and then they have a very agreeable ſcent. This ſort may be propagated by ſeeds, which ſhould be ſown in the ſpring upon a bed of light earth; and when the plants are fit to remove, they ſhould be planted in a nurſery-bed, at about four inches diſtance, where they may remain till autumn, when they may be planted in the borders of the flower-garden, where they are deſigned to remain. The following ſummer theſe will produce their flowers, and ripen their ſeeds in the autumn; but the roots will continue ſeveral years, provided they are not planted in rich ground, where they are very ſubject to rot in winter.

The ninth ſort grows naturally in Auſtria, Sileſia, and Italy, as alſo in ſome parts of England. This is male and female in different plants; it hath a thick, fleſhy, biennial root, which ſtrikes deep in the ground, ſending out many oblong leaves, which are broad at their extremity, but contract narrower to their baſe; from between theſe ariſe the ſtalks, which in the male plants often grow four or five feet high, but thoſe of the female are ſeldom above three feet high; the ſtalks are garniſhed with narrow leaves, placed oppoſite at each joint, where there exſudes a viſcous clammy juice, which ſticks to the fingers when handled, and the ſmall inſects which ſettle upon thoſe parts of the ſtalks, are thereby faſtened ſo as not to get looſe again. The flowers of the male plants are produced in looſe ſpikes from the lower joints of the ſtalk, but on the upper part, they ſtand on ſingle foot-ſtalks in cluſters quite round the ſtalks; theſe are ſmall, of a greeniſh colour, and have each ten ſtamina. The female plants have three or four flowers growing upon each foot-ſtalk, which ariſe from the ſide of the ſtalk. Theſe are ſucceeded by oval ſeed-veſſels, containing many ſmall ſeeds; they flower in June, and the ſeeds ripen in autumn. This is propagated by ſeeds, which ſhould be ſown where the plants are deſigned to remain; for as they ſend out long tap-roots, they do not bear tranſplanting, unleſs it is performed while the plants are young. The plants are very hardy, ſo will thrive in almoſt any ſoil or ſituation, but agree beſt with a dry ſoil. It is neceſſary to have ſome male plants among the female, to have perfect ſeeds.

The tenth ſort grows naturally on the Alps, and alſo upon the hills in the north of England and Wales. This is a very low plant, with ſmall leaves, which ſpread on the ground, and have the appearance of moſs. The flowers are ſmall, erect, and rarely riſe more than half an inch high; they are of a dirty white colour, and appear in May. This is a perennial plant, which will not thrive but in a moiſt ſoil and a ſhady ſituation.

The eleventh ſort grows naturally in Italy and Sicily. This is a perennial plant, with large thick roots, ſending out many long ſpear-ſhaped leaves near the ground; between theſe ariſe round viſcous ſtalks, which grow three feet high, garniſhed at each joint by two long narrow leaves, ending in acute points. The ſtalks branch out into many diviſions, on the upper parts of which the foot-ſtalks of the flowers ariſe from each joint by pairs oppoſite; each of theſe ſuſtain three or four flowers of an herbaceous colour, whoſe petals are divided into two parts; the flowers appear in June, and the ſeeds ripen in the autumn. This is propagated by ſeeds in the ſame manner as the ninth.

The twelfth ſort grows naturally in Spain and Italy, from whence I received the ſeeds. This is a biennial plant, which decays ſoon after it hath perfected ſeeds: this hath many oval pointed leaves near the root, ſtanding upon long foot-ſtalks; between theſe ariſe an upright ſtalk, ſending out two ſide branches at each joint, placed oppoſite; under each of theſe is ſituated one ſpear-ſhaped leaf, ending in an acute point; theſe ſide branches, and alſo the upright ſtalks, are terminated by whitiſh flowers, formed into a panicle, and ſtanding erect; theſe appear in June, and are ſucceeded by ſeeds which ripen in autumn. This is propagated by ſeeds, which may be ſown on an open border where the plants are deſigned to remain, and require no other culture but to keep them clear from weeds.

The thirteenth ſort grows naturally in Italy, from whence I received the ſeeds; this is a perennial plant, which hath many oval ſpear-ſhaped leaves near the root; the ſtalks riſe about two feet high; they are viſcous, and from each joint comes out two ſide branches, under which are ſituated two very narrow leaves; the ſtalks ſpread out and form a ſort of panicle, and are terminated by cluſters of greeniſh flowers, whoſe petals are divided into two parts. This flowers in June, and the ſeeds ripen in autumn. It is propagated in the ſame manner as the ninth ſort, and requires the ſame treatment.

CUCULLATE PLANTS are ſo called, of cuculla, *Lat.* a hood or cowl, ſuch as monks wear, becauſe their flowers reſemble it.

CUCUMIS. Lin. Gen. Plant. 969. Tourn. Inſt. R. H. 104. tab. 28. Cucumber; in French, *Concombre.*

The CHARACTERS are,

It hath male and female flowers placed at diſtances on the ſame plant; theſe have a bell-ſhaped empalement of one leaf, whoſe border is terminated by five briſtles. The flowers are bell-ſhaped, have one petal which adheres to the empalement, and is cut into five oval rough ſegments. The male flowers have three ſhort ſtamina, which are inſerted to the empalement, two of which have bifid tops. Theſe are terminated by very narrow ſummits or lines, which run upward and downward, and adhere to the outſide. The female flowers have no ſtamina, but have three ſmall pointed filaments without ſummits. The germen, which is oblong, is ſituated under the flower, ſupporting a ſhort cylindrical ſtyle, crowned by three thick convex ſtigmas, which are bipartite. The germen afterward becomes an oblong fleſhy fruit with three cells, including many oval, flat, pointed ſeeds.

This genus of plants is ranged in the tenth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Syngeneſia. The plants of this claſs have male and female flowers on different parts of the ſame plant, and thoſe of this ſection have their ſtamina joined. To this genus he has joined the Melon, Water Melon, and Bitter Apple; but however theſe may agree in their characters, ſo as to be joined together in a ſyſtem of botany, it will not be proper in a book of gardening to be followed.

The SPECIES are,

1. CUCUMIS (*Sativus*) foliorum angulis rectis, pomis oblongis ſcabris. Hort. Cliff. 451. *Cucumber with leaves having right angles, and an oblong rough fruit.* Cucumis ſativus vulgaris. C. B. P. 310. *The common Garden Cucumber.*
2. CUCUMIS (*Flexuoſus*) foliorum angulis rectis, pomis longiſſimis glabris. *Cucumber with leaves having right angles, and a very long ſmooth fruit.* Cucumis flexuoſus. C. B. P. 310. *The long Turkey Cucumber.*
3. CUCUMIS (*Chata*) hirſutis foliorum angulis integris dentatis, pomis fuſciformibus hirtis utrinque attenuatis. Haſſelq. It. 491. *Hairy Cucumber with angular indented leaves, and narrow hairy fruit.* Cucumis Ægyptius rotundifolius. C. B. P. 310.

The firſt ſort is the Cucumber which is generally cultivated for the table, and is ſo well known as to need no deſcription. The ſecond ſort is the long Turkey Cucumber, which is alſo pretty well known in England. The ſtalks and leaves of this ſort are much larger than thoſe of the common ſort. The fruit is generally twice the length, and hath a ſmooth rind: this is undoubtedly different from the common ſort, for I have cultivated it above forty years, and have not found it alter. There are green and white fruit of this ſort, which differ but little except in their colour, ſo I have not diſtinguiſhed them as diſtinct ſpecies, though I have alſo found them keep their difference from ſeeds. The white is leſs watery than the green, ſo is generally better eſteemed. I have alſo received ſeeds from China of another ſort, with a much longer fruit than the Turkey, but I have found this will degenerate in time, and become more like the common ſort.

In Holland they cultivate a long white prickly Cucumber only, which is very different from the Turkey Cucumber, being near as rough as the common ſort; but this is not ſo hardy as our common ſort, ſo is ſeldom cultivated in England; but the fruit is not ſo watery or full of ſeeds as the common, therefore is preferable to it for the table.

The third ſort here enumerated is rarely cultivated, but in botanic gardens for the ſake of variety, the fruit being very indifferent, and the plants being tender, require a good heat to bring them to perfection in England; theſe plants ramble very far, ſo muſt have much room, and they are not very fruitful.

The common ſort is cultivated in three different ſeaſons, the firſt of which is on hot-beds under garden-frames, for early fruit; the ſecond is under bell or hand-glaſſes, for the middle crop; and the third is in the common ground, for a late crop, or to pickle.

I ſhall begin with giving directions for raiſing Cucumbers early, which is what moſt gentlemens gardeners have an emulation to excel each other in; and ſome have been at the pains and expence to have ripe fruit in every month of the year, which is rather a curioſity than any real advantage; for Cucumbers that are produced before April, cannot be ſo wholeſome as thoſe that are later; for before the ſun hath ſtrength enough to warm the beds through the glaſſes in the day-time, all the heat muſt proceed from the fermentation of the dung, which muſt conſequently occaſion a very conſiderable ſteam, as alſo a great quantity of air will be thereby generated, which, being pent up in the hot-bed, ſoon becomes rancid; and the ſteam of the bed being by the cold of the night condenſed into large drops of water, theſe, being abſorbed or inſpired by the plants, muſt certainly make the fruit crude and unwholeſome, eſpecially when the nights are very long. This, together with the great expence and trouble of procuring them earlier, having in ſome meaſure got the better of peoples ambition, ſo this is leſs practiſed than it hath been ſome years ſince; but as there are many perſons who yet value themſelves on their ſkill in raiſing early Cucumbers, we may probably be cenſured, as being deficient in what they call an eſſential part of gardening, ſhould we omit the method practiſed for raiſing theſe fruit early in the year. Therefore ſhall proceed to give ſuch directions, as if carefully attended to, will not fail of ſucceſs.

Thoſe perſons who are very deſirous to be early with their Cucumbers, generally ſow their ſeeds before Chriſtmas, but the generality of gardeners commonly put their ſeeds into the hot-bed about Chriſtmas. Where perſons have the conveniency of a ſtove for raiſing theſe plants, it is attended with leſs trouble than a common hot-bed, and is a much ſurer method, becauſe the plants will have a much greater ſhare of air, which will alſo be leſs mixed with damp or rancid vapours; for by the heat of the fires theſe will be diſſipated, and the temperature of the air is kept more equal than can be done with all poſſible care in a hot-bed, at a ſeaſon when we enjoy but little ſun; therefore where there is this convenience, the ſeeds ſhould be ſown in ſmall pots, filled with light dry earth, and plunged into the tan-bed, in the warmeſt part of the ſtove. The pots with earth ſhould be plunged three or four days before the ſeeds are ſown, that the earth may be properly warmed to receive them; the ſeeds ſhould be at leaſt three or four years old, but if it is more, provided it will grow, it will be the better. If the ſeeds are good, the plants will begin to appear in about a week or nine days, at which time there muſt be as many halfpenny pots filled with dry light earth, as there are plants deſigned for planting (always allowing for loſs; ſo that where twenty-four plants are wanting, there ſhould be thirty raiſed); theſe pots ſhould be plunged into the bark-bed, that the earth may be warmed to receive the plants, which ſhould be pricked into theſe pots as ſoon as the two firſt leaves are raiſed above ground; into each of theſe pots may be two plants pricked, but when they have taken root, and are ſafe, the worſt ſhould be drawn out, being careful not to diſturb the roots of thoſe which are left. In the management of theſe plants, there muſt be great care taken not to give them too much water; and it will be very proper to put the water into the ſtove ſome hours before it is uſed, that the cold may be taken off; but there muſt be caution uſed not to make it too warm, for that will deſtroy the plants; they muſt alſo be guarded from the moiſture which frequently drops from the glaſſes of the ſtove, which is very deſtructive to theſe plants while young. As theſe plants muſt not be kept too long in the ſtove leſt they become troubleſome to the other plants, there ſhould be a proper quantity of new dung prepared for making a hot-bed to receive them; this muſt be in proportion to the quantity of holes or plants intended: for a middling family ſix or nine lights of Cucumbers will be ſufficient, and for a large one double the quantity; but the beds where they are deſigned to remain need not be made ſo ſoon, but rather a ſmall bed of one light, in which the plants may be trained up, till they have acquired a greater ſhare of ſtrength; and for this bed one good cart load of dung will be ſufficient. This ſhould be new, and not too full of ſtraw, nor ſhould it want a proper portion; it ſhould be well mixed together and thrown in a heap, mixing ſome ſea-coal aſhes with it; after it hath lain in a heap a few days, and has fermented, it ſhould be carefully turned over and mixed, laying it up again in a heap; and if there is a great ſhare of ſtraw in it, there may be a neceſſity for turning it over a third time, after having laid a few days: this will rot the ſtraw and mix it thoroughly with the dung, ſo there will be leſs danger of its burning afterward when the bed is made, which ſhould be done when the dung is in proper order. The place where the hot-bed is made ſhould be well ſheltered by Reed hedges, and the ground ſhould be dry; then there ſhould be a trench made in the ground, of a proper length and breadth, and a foot deep at leaſt; into which the dung ſhould be wheeled and carefully ſtirred up and mixed, ſo that no part of it ſhould be left unſeparated, for where there is not this care taken, the bed will ſettle unequally; there ſhould alſo be great care taken to beat the dung down cloſe in every part of the bed alike. When the bed is made, the frame and glaſſes ſhould be put upon it to keep out the rain, but there ſhould be no earth laid upon the dung till two or three days after, that the ſteam of the dung may have time to evaporate. If there ſhould be any danger of the bed burning, it will be proper to lay ſome ſhort old dung, or ſome neats dung, over the top of the hot dung about two inches thick, which will keep down the heat, and prevent the earth from being burnt; after this there ſhould be a ſufficient number of three farthing pots placed upon the bed, filled with light dry earth, and all the interſtices between them filled up with any common earth. In two or three days the earth in theſe pots will be of a proper temperature of warmth to receive the plants, which ſhould be then turned out of the halfpenny pots, preſerving the ball of earth to their roots, and planted into the three farthing pots, filling up the pots with good earth; then a little water ſhould be given them to ſettle the earth about their roots, being careful not to give them too much wet; and as theſe will have ſuch large balls of earth to their roots, they will not feel their movement, therefore will not require ſhading from the ſun; but the glaſſes ſhould be raiſed up a little on the contrary ſide from the wind, to let the ſteam of the bed paſs off; and they ſhould alſo be frequently turned in the day-time, that the wet occaſioned by the ſteam of the dung may be dried, otherwiſe the moiſture will fall on the plants, which will be very injurious to them. If the bed ſhould heat too violently, ſo as to endanger ſcalding the roots of the plants, the pots may be raiſed ſo as to allow of a little hollow at their bottoms, which will effectually prevent injury thereby; and when the heat declines, the pots may be ſettled down again. The glaſſes of the hot-bed ſhould be well covered with mats every night, to keep the bed in a proper temperature of heat, and great care muſt be taken to admit freſh air every day to the plants; but this ſhould be done with caution, ſo as to guard againſt the cold winds which uſually blow at that ſeaſon; ſo that a mat or canvaſs ſhould be hung over the opening made by raiſing of the glaſſes, to prevent the cold air from ruſhing in too violently, and the glaſſes ſhould always be raiſed on that ſide which is contrary to the wind. The plants will alſo require to be frequently watered, but it muſt be cautiouſly given them at this ſeaſon, and the water ſhould not be cold, but either placed in a ſtove, or put into a warm heap of dung, to take off the chill from it before it is uſed.

If the weather ſhould prove bad, and the heat of the bed decline, there ſhould be ſome hot dung laid round the ſides of the bed to renew the heat, which muſt not be ſuffered to fail; for as the plants have been tenderly brought up, they muſt not ſuffer from cold, for that will ſoon deſtroy them.

In this bed the plants may remain about three weeks or a month, in which time, if they have been properly managed, they will have obtained ſufficient ſtrength to put out for good; therefore a proper quantity of dung ſhould have been mixed and turned ready for making of the beds. The uſual quantity allowed for making of the beds at this ſeaſon, is one good cart load to each light: this ſhould be well mixed and turned over in the manner before directed; then a trench ſhould be dug in the ground the length and width of the intended bed, into which the dung ſhould be wheeled, and properly worked according to the above directions, and ſome old dung or neats dung ſpread over the top. The frames and glaſſes ſhould then be put on the bed, which ſhould be raiſed every day to let the ſteam of the dung paſs off, and in about three days the bed will be in a proper temperature of heat to receive the plants; at which time the dung ſhould be covered over with dry earth about four inches thick, and in the middle of the bed it ſhould be three or four inches thicker; this ſhould be laid upon the dung at leaſt twenty-four hours before the plants are removed into the bed, that the earth may be properly warmed; then the plants ſhould be carefully ſhaken out of the pots, preſerving all the earth to their roots, and placed on the top of the earth in the middle of the bed. Two, or at moſt, three of theſe plants will be ſufficient for each light, and theſe ſhould be placed at about ſeven or eight inches aſunder, not all the roots together, as is too often practiſed. When the plants are thus ſituated in the bed, the earth which was laid ſo much thicker in the middle of the bed, ſhould be drawn up round the ball which remained to the roots of the plants, into which their roots will ſoon ſtrike; there ſhould always be a magazine of good earth laid under cover to keep it dry, for the earthing of theſe beds; for if it is taken up wet, it will chill the beds, and alſo occaſion great damps therein, therefore it is quite neceſſary to have a ſufficient quantity of earth prepared long before it is uſed. When the plants are thus ſettled, they muſt have proper air and water, according as they may require, being careful not to admit too much cold air, or give too much water; the glaſſes ſhould alſo be well covered with mats every night, to keep up the warmth of the bed, and ſome freſh earth ſhould be put into the bed at different times, which ſhould be laid at ſome diſtance from the roots of the plants till it is warmed, and then ſhould be drawn up round the heap of the earth in which the plants grow, to increaſe the depth; this ſhould be raiſed to the full height of the former ball, that the roots of the plants may more eaſily ſtrike into it: by this method of ſupplying the earth, the whole ſurface of the beds will be covered nine or ten inches with earth, which will be of great ſervice to the roots of the plants; for where the earth is very ſhallow, the leaves of the plants will always hang in the heat of the day, unleſs they are ſhaded, and the plants will require more water to keep them alive, than is proper to give them; therefore it will be found much the better way to allow a proper depth of earth to the beds: but the reaſon of not laying the quantity of earth on the bed when it is firſt made, is, that the dung ſhould not be too much chilled by it, or that the earth may not be burned, which might be endangered thereby, were the whole thickneſs to be laid on at once; beſides, by thus gradually applying the earth, it will be freſh, and much better for the roots of the plants, than that which has been long upon the bed, and has been too much moiſtened by the ſteam ariſing from the dung.

If the heat of the bed ſhould decline, there ſhould be ſome hot dung laid round the ſide of the bed to renew the heat; for if that ſhould fail at the time when the fruit appears, they will fall off and periſh, therefore this muſt be carefully regarded; and when the plants have put out ſide branches (which the gardeners call runners) they ſhould be properly placed, and pegged down with ſmall forked ſticks to prevent their riſing up to the glaſſes, and alſo from croſſing and entangling with each other; ſo that when they are properly directed at firſt, there will be no neceſſity of twiſting and tumbling the plants afterward, which is always hurtful to them.

When the earth of the bed is laid the full thickneſs, it will be neceſſary to raiſe the frames, otherwiſe the glaſſes will be too cloſe to the plants; but when this is done, there muſt be care taken to ſtop the earth very cloſe round the ſide of the frame, to prevent the cold air from entering under them. The watering the plants, and admitting freſh air to them, muſt be diligently attended to, otherwiſe the plants will be ſoon deſtroyed; for a little neglect either of admitting air, or letting in too much, or by over watering, or ſtarving the plants, will very ſoon deſtroy them paſt recovery.

When the fruit appears upon the plants, there will alſo appear many male flowers on different parts of the plant; theſe may at firſt ſight be diſtinguiſhed, for the female flowers have the young fruit ſituated under the flowers, but the male have none; but theſe have three ſtamina in their center with their ſummits, which are loaded with a golden powder. This is deſigned to impregnate the female flowers, and when the plants are fully expoſed to the open air, the ſoft breezes of wind convey this farina or male powder from the male to the female flowers; but in the frames where the air is frequently too much excluded at this ſeaſon, the fruit often drops off for want of it; and I have often obſerved, that bees that have crept into the frames when the glaſſes have been raiſed to admit the air, have ſupplied the want of thoſe gentle breezes of wind, by carrying the farina of the male flowers on their hind legs into the female flowers, where a ſufficient quantity of it has been left to impregnate them. For as the bees make their wax of the farina or male powder of flowers, they ſearch all the flowers indifferently to find it; and I have obſerved them come out of ſome flowers with their hind legs loaded with it, and going immediately into other flowers which have none, they have ſcattered a ſufficient quantity of this farina about the ſtyle of the female flowers, to impregnate and render them prolific. Theſe inſects have taught the gardeners a method to ſupply the want of free air, which is ſo neceſſary for the performance of this in the natural way. This is done by carefully gathering the male flowers, at the time when this farina is fully formed, and carrying them to the female flowers, turning them down over them, and with the nail of one finger, gently ſtriking the outſide of the male, ſo as to cauſe the powder on the ſummits to ſcatter into the female flowers, and this is found to be ſufficient to impregnate them; ſo that by practiſing this method, the gardeners have now arrived at a much greater certainty than formerly, to procure an early crop of Cucumbers and Melons; and by this method the floriſts have arrived to greater certainty of procuring new varieties of flowers from ſeeds, which is done by the mixing of the farina of different flowers into each other.

When the fruit of the Cucumbers are thus fairly ſet, if the bed is of a proper temperature of warmth, they will ſoon ſwell, and become fit for uſe; ſo all that is neceſſary to be obſerved, is to water the plants properly, which ſhould be done by ſprinkling the water all over the bed, for the roots of the plants will extend themſelves to the ſide of the bed; therefore thoſe who are inclined to continue theſe plants as long as poſſible in vigour, ſhould add a ſufficient thickneſs of dung and earth all round the ſides of the beds, ſo as to enlarge them to near double their firſt width; this will ſupply nouriſhment to the roots of the plants, whereby they may be continued fruitful great part of the ſummer; whereas, when this is not practiſed, the roots of the plants, when they have reached the ſide of the beds, are dried by the wind and ſun, ſo that the plants languiſh and decay long before their time.

Thoſe gardeners who are fond of producing early Cucumbers, generally leave two or three of their early fruit, which are ſituated upon the main ſtem of the plant near the root, for ſeed; which, when fully ripe, they carefully ſave to a proper age for ſowing, and by this method they find a great improvement is made of the ſeed; and this they always uſe for their early crops only, for the ſucceeding crops do not deſerve ſo much care and attention.

I have here only mentioned the method of raiſing the young Cucumber plants in ſtoves; for as theſe conveniencies are now pretty generally made in the curious kitchen-gardens in moſt parts of England, this method may be more univerſally practiſed; but in ſuch gardens where there are no ſtoves, the ſeeds ſhould be ſown upon a well prepared hot-bed: and here it will be the beſt way to ſow the ſeeds in ſmall halfpenny pots, becauſe theſe may be eaſily removed from one bed to another, if the heat ſhould decline; or, on the contrary, if the heat ſhould be too great, the pots may be raiſed up, which will prevent the ſeed or the young plants from being injured thereby.

When the plants are come up as was before directed, there ſhould be a freſh hot-bed prepared, with a ſufficient number of halfpenny pots plunged therein ready to receive the plants, which muſt be planted into them in the ſame manner as was before directed, and the after-management of the plants muſt be nearly the ſame; but as the ſteam of the hot-bed frequently occaſions great damps, there muſt be great care to turn and wipe the glaſſes frequently, to prevent the condenſed moiſture falling on the plants, which is very deſtructive to them. There muſt alſo be great attention to the admitting freſh air at all proper times, as alſo to be careful in keeping the bed to a proper temperature of heat; for as there is a want of fire to warm the air, that muſt be ſupplied by the heat of dung, afterward theſe plants muſt be ridged out in the ſame manner as before directed.

If the bed is of a good temper for heat, your plants will take root in leſs than twenty-four hours; after which time you muſt be careful to let in a little air at ſuch times when the weather will permit, as alſo to turn the glaſſes upſide down every day to dry; for the ſteam of the bed condenſing on the glaſſes, will fall down upon the plants, and be very injurious to them; therefore whenever the weather is ſo bad as not to permit the glaſſes to lie turned long, you ſhould at leaſt turn them once or twice a day, and wipe off the moiſture with a woollen cloth; but you muſt alſo be very careful how you let in too much cold air, which is equally deſtructive to the tender plants; therefore, to avoid this, it is a very good method to faſten before the upper ſide of the frame, where the air is ſuffered to enter the bed, a piece of coarſe cloth or mat, ſo that the air which enters may paſs through that, which will render it leſs injurious to your plants.

You muſt alſo be very cautious in giving water to the plants while young; and whenever this is done, it ſhould be ſparingly, and the water ſhould be placed either into a heap of dung, or in ſome other warm place, for ſome time before it is uſed, ſo as to be nearly of a temperature for warmth with the incloſed air of the hot-bed; and as the plants advance in height, you ſhould have a little dry ſifted earth always ready to earth up their ſhanks, which will greatly ſtrengthen them. You muſt alſo be very careful to keep up the heat of the bed, which, if you ſhould find decline, you muſt lay a little freſh litter round about the ſides of the bed, and alſo keep the glaſſes well covered in the nights, or in bad weather: but if, on the other hand, your bed ſhould prove too hot, you ſhould thruſt a large ſtake into the ſide of the dung in two or three places, almoſt to the middle of the bed, which will make large holes, through which the greateſt part of the ſteam will paſs off without aſcending to the top of the bed; and when you find it has anſwered your purpoſe by ſlacking the heat of your bed, you muſt ſtop them up again with dung.

Theſe directions, if carefully attended to, will be ſufficient for raiſing the plants in the firſt bed: you muſt therefore, when you perceive the third, or rough leaf begin to appear, prepare another heap of freſh dung, which ſhould be mixed with aſhes, as was before directed; this ſhould be in quantity according to the number of holes you intend to make. The common allowance for ridging out the earlieſt plants is, one load to each light or hole, ſo that the bed will be near three feet thick in dung; but for ſuch as are not ridged out till March, two loads of dung will be ſufficient for three holes, for I could never obſerve any advantage in making theſe beds ſo thick with dung as ſome people do; their crops are ſeldom better, if ſo good, as thoſe which are of a moderate ſubſtance; nor are they forwarder, and the fruit is rarely ſo fair, nor do the Vines continue ſo long in health.

In making theſe beds, you muſt carefully mix the dung, ſhaking it well with the fork, ſo as not to leave any clods of dung unſeparated, as alſo to beat it down pretty cloſe, to prevent the ſteam from riſing too haſtily; you muſt alſo be careful to lay it very even, and to beat or preſs down the dung equally in every part of the bed, otherwiſe it will ſettle in holes, which will be very hurtful. When you finiſh laying the dung, you muſt make a hole exactly in the middle of each light, about a foot deep, and eight or nine inches over; theſe holes muſt be filled with light freſh earth, which ſhould be ſcreened to take out all large ſtones, clods, &c. laying it up in a hill; and in the middle of each thruſt in a ſtick about eighteen inches long, which ſhould ſtand as a mark to find the exact place where the hole is; then earth the bed all over about three inches thick, levelling it ſmooth, and afterwards ſet the frame upon it, covering it with glaſſes; but if there is any apprehenſion of the dung heating too violently, the earth ſhould not be laid upon the bed until the heat is ſomewhat abated, which will be in a few days, and then the earth may be laid upon the bed by degrees, covering it at firſt two inches thick; and a week or ten days after another inch in thickneſs may be laid on, but there ſhould be the whole thickneſs of earth laid upon the bed before the Vines begin to run; and if this thickneſs of earth is at laſt ſix or ſeven inches, the Vines will grow the ſtronger for its being ſo thick; for if the roots are obſerved, they will be found to ſpread and cover the whole bed as much as the Vines extend above; and when the earth is very ſhallow, or too light, the Vines will hang their leaves every day for want of a ſufficient depth of earth to ſupport their roots; ſo that if they are not conſtantly and well watered, they will not have ſtrength to laſt long, nor to produce fair fruit; and the giving them too much water is not ſo proper, nor will it anſwer near ſo well, as the giving a depth of earth upon the dung.

In four or five days time your bed will be in fit order to receive your plants, of which you may eaſily judge by pulling out one of the ſticks which was put in the
middle

middle of the holes, and feeling the lower part of it, which will ſatisfy you what condition your bed is in; then you muſt ſtir up the earth in the middle of the hole with your hand, breaking all clods, and removing all large ſtones, making the earth hollow in form of a baſon; into each of theſe holes you muſt plant two plants, in doing of which, obſerve to make the holes for the plants a little ſlanting towards the middle of the baſon, eſpecially if your plants are long ſhanked; this is intended to place the roots of the plants as far as poſſible from the dung, to which if they approach too near, the lower part of their roots is ſubject to be burned off; then ſettle the earth gently to each plant, and, if the earth is dry, it will be proper to give them a little water (which ſhould be warmed to the temper of the bed, as was before directed;) and if the ſun ſhould appear in the middle of the day, they ſhould be ſhaded therefrom with mats until the plants have taken root, which will be in two or three days; after which, you muſt let them enjoy as much of the ſun as poſſible, obſerving to turn the lights in the day time to dry, as alſo to give a little air whenever the weather will permit.

You muſt alſo obſerve to keep the glaſſes covered every night, and in bad weather, but be very careful not to keep them covered too cloſe, eſpecially while the bed has a great ſteam in it, which will cauſe a damp to ſettle upon the plants, which, for want of air to keep the fluid in motion, will ſtagnate and rot them.

When your plants are grown to be four or five inches high, you muſt, with ſome ſlender-forked ſticks, incline them toward the earth, each one a ſeparate way; but this muſt be done gently at firſt, leſt by forcing them too much, you ſhould ſtrain or break the tender veſſels of the plants, which would be very hurtful to them. In this manner you ſhould, from time to time, obſerve to peg down the runners as they are produced, laying each in exact order, ſo as not to interfere or croſs each other; nor ſhould you ever after remove them from their places, or handle them too roughly, whereby the leaves may be broken or diſplaced, which is alſo equally injurious to them; but whenever you have occaſion to weed the bed between the plants, do it with great care, holding the leaves aſide with one hand, while with the other you pull out the weeds.

In about a month after they are ridged out, you may expect to ſee the beginnings of fruit, which very often are preceded by male flowers, which many people are ſo ignorant as to pull off, calling them falſe bloſſoms; but this I am fully convinced, by many experiments, is wrong; for theſe flowers are of abſolute ſervice to promote the welfare of the fruit, which, when theſe male flowers are entirely taken off, does very often fall away, and come to nothing: nor ſhould the Vines be pruned, as is too often the practice of unſkilful people, eſpecially when they are too luxuriant, which often happens when the ſeeds were freſh, or of the laſt year's ſaving, and the plants in good heart. If this ſhould happen to be the caſe, it would be very proper to pull up one of the plants, before they have run ſo far as to entangle with the other; for it often happens, that one or two plants are better than four or five, when they are vigorous; for when the frame is too much crouded with Vine, the fruit is ſeldom good, nor in ſuch plenty, as when there is a more moderate quantity of ſhoots; for the air being hereby excluded from the fruit, they often decay, and fall off very young.

You muſt alſo be very careful to cover the glaſſes every night when your fruit begins to appear, as alſo to lay a little freſh litter, or mowing of graſs round the ſides of the bed, to add a freſh heat thereto; for if the heat of the bed be ſpent, and the nights prove cold, the fruit will fall away and come to nothing; and when the ſun is extreme hot in the middle of the day, you muſt cover the glaſſes with mats to ſhade the Vines; for although they delight in heat, yet the direct rays of the ſun, when it has great force, are very injurious, by either ſcorching thoſe leaves which are near the glaſſes, or by cauſing too great a perſpiration, whereby the extreme part of the ſhoots and the large leaves are left deſtitute of nouriſhment, and the fruit will be at a ſtand, and often turn yellow before it arrives at half its growth; this is too often the caſe, when the beds have not a ſufficient depth of earth over the dung.

At this time, when your Vines are ſpread ſo as to cover the hot-bed, it will be of great ſervice when you water them, to ſprinkle them all over gently ſo as not to hurt the leaves; but obſerve to do this not at a time when the ſun is very hot, for hereby I have known a whole bed of Cucumbers ſpoiled; for the water remaining upon the ſurface of the leaves in drops, doth collect the rays of the ſun as it were to a focus, and ſo ſcorches the leaves, that in one day's time they have, from a bright green, become of the colour of brown paper. The watering of the beds all over will be of great ſervice, by giving nouriſhment to thoſe roots, which by this time will have extended themſelves all over the bed; and if the warmth of the bed ſhould now decline, it will be of great ſervice to add a lining of freſh dung round the ſides of the beds, to give a new heat to them; for as the nights are often cold at this ſeaſon, where the beds have not a kindly warmth left in them, the fruit will frequently drop off the Vines, when grown to the ſize of a little finger; and if upon this lining of dung there is a thickneſs of ſtrong earth laid for the roots of the plants to run into, it will greatly ſtrengthen them, and continue the plants in vigour a much longer time than they otherwiſe will do; for the roots of theſe plants extend to a great diſtance when they have room, which they cannot have in a bed not more than five feet wide; ſo that when they have no greater extent for their roots, the plants will not continue in vigour above five or ſix weeks, which, if they have a depth and extent of earth, will continue three months in bearing; ſo that where there are ſeveral beds made near each other, it will be the beſt way to fill up the bottom of the alleys between them with warm dung, and cover that with a proper thickneſs of earth, ſo as to raiſe them to the level of the beds.

Theſe directions, with diligent obſervation, will be ſufficient for the management of this crop of Cucumbers; and Vines thus treated will continue to ſupply you with fruit till the beginning of July, by which time the ſecond crop will come to bear; the ſowing and managing of which is what I ſhall next proceed to.

About the middle of March, or a little later, according to the earlineſs of the ſeaſon, you muſt put in your ſeeds, either under a bell-glaſs, or in the upper ſide of your early hot-bed; and when the plants are come up, they ſhould be pricked upon another moderate hot-bed, which ſhould be covered with bell or hand-glaſſes, placed as cloſe as poſſible to each other; the plants ſhould alſo be pricked at about two inches diſtance from each other, obſerving to water and ſhade them until they have taken new root, which will be in a very ſhort time. This is to be underſtood of ſuch places where a great quantity of plants are required, which is conſtantly the caſe in the kitchen-gardens near London; but where it is only for the ſupply of a family, there may be plants enough raiſed on the upper ſide of the beds where the firſt crop is growing; or if the Vines ſhould have extended themſelves ſo far as to cover the whole bed, whereby there will not be room to prick the plants, a ſingle light will contain a ſufficient number of plants, while young, to plant out in ridges, as will ſupply the largeſt family with Cucumbers during the latter ſeaſon. You muſt alſo cover the glaſſes with mats every night, or in very bad weather; but in the day time, when the weather is hot, you muſt raiſe the glaſſes with a ſtone on the oppoſite ſide from the wind, to give air to the plants, which will greatly ſtrengthen them; you muſt alſo water them as you ſhall find they require it, but this muſt be done ſparingly while the plants are young.

The middle of April the plants will be ſtrong enough to ridge out, you muſt therefore be provided with a heap of new dung, in proportion to the quantity of holes you intend to plant, allowing one load to ſix holes. When your dung is fit for uſe, you muſt dig a trench about two feet four inches wide, and in length juſt as you pleaſe, or the place will allow; and if the ſoil be dry, it ſhould be ten inches deep, but if wet, very little in the ground, levelling the earth in the bottom; then put in your dung, obſerving to ſtir and mix every part of it as was directed for the firſt hot-beds, laying it cloſe and even.

When this is done, you muſt make holes about eight inches over, and ſix inches deep, juſt in the middle of the ridge, and three feet and a half diſtance from each other; and if there be more than one ridge, the diſtance of thoſe ought to be eight feet and a half from each other; then fill the holes with good light earth, putting a ſtick into the middle of each for a mark, and afterwards cover the ridge over with earth about four inches thick, laying the earth the ſame thickneſs round the ſides. When the earth is levelled ſmooth, you muſt ſet the glaſſes on upon the holes, leaving them cloſe down about twenty-four hours, in which time the earth in the holes will be warmed ſufficiently to receive the plants; then with your hand ſtir up the earth in the holes, making it hollowin form of a baſon; into each of which you ſhould plant three or four plants, obſerving to water and ſhade them until they have taken root; after which time you muſt be careful to give them a little air by raiſing the glaſſes on the oppoſite ſide to the wind, in proportion to the heat of the weather, as alſo to water them as you ſhall ſee they require it; but you muſt only raiſe the glaſſes in the middle of the day, until the plants fill the glaſſes, at which time you ſhould raiſe the glaſſes with a forked ſtick on the ſouth ſide, in height proportionable to the growth of the plants, that they may not be ſcorched by the ſun; this alſo will harden and prepare the plants to endure the open air, but you ſhould not expoſe them too ſoon thereto; for it often happens, that there are morning froſts in May, which are many times deſtructive to theſe plants when expoſed thereto; it is therefore the ſureſt method to preſerve them under the glaſſes, as long as they can be kept in without prejudice to the plants; and if the glaſſes are raiſed with two bricks on the backſide, and the forked ſtick on the other ſide, they may be kept in a great while without danger.

Towards the latter end of May, when the weather appears ſettled and warm, you ſhould turn your plants down gently out of the glaſſes; but do not perform this in a very dry, hot, ſunny day, but rather when there is a cloudy ſky, and an appearance of rain; you muſt in doing of this raiſe the glaſſes either upon bricks, or forked ſticks, whereby they may ſtand ſecure at about four or five inches high from the ground, that the plants may lie under them without bruiſing; nor ſhould you take the glaſſes quite away till the latter end of June, or the beginning of July, for theſe will preſerve the moiſture much longer to their roots than if they were quite expoſed to the open air; about three weeks after you have turned the plants out of the glaſſes, they will have made a conſiderable progreſs, eſpecially if the weather has been favourable, at which time you ſhould dig up the ſpaces of ground between the ridges, laying it very even; then lay out the runners of the Vines in exact order, and be careful in this work not to diſturb the Vines too much, nor to bruiſe or break the leaves; this digging of the ground will looſen it, and thereby render it eaſy for the roots of the plants to ſtrike into it, as alſo render the ſurface of the earth more agreeable to the Vines that run upon it. After this there will be no farther care needful, but only to keep them clear from weeds, and to water them as often as they ſhall require, which they will ſoon ſhew, by the hanging of their greater leaves. The ridges, thus managed, will continue to produce large quantities of fruit from June until the latter end of Auguſt, after which time the coldneſs of the ſeaſon renders them unwholeſome, eſpecially if the autumn prove wet.

From theſe ridges people commonly preſerve their Cucumbers for ſeed, by making choice of two or three of the faireſt fruit upon each hole, never leaving above one upon a plant, and that ſituated near the root of it; for if you leave more, they will weaken the plant ſo much, that your other fruit will be ſmall, and fewer in number: but thoſe perſons who value themſelves upon producing Cucumbers very early, commonly leave three or four Cucumbers of the firſt produce of their earlieſt crop, when the fruit is fair; and the ſeeds of theſe early fruit, are generally preferred to any other for the firſt crop. Theſe ſhould remain upon the Vines until the middle or end of Auguſt, that the ſeeds may be perfectly ripe; and when you gather them from the Vines, it will be proper to ſet the fruit in a row upright againſt a hedge or wall, where they may remain until the outer cover begins to decay; at which time you ſhould cut them open, and ſcrape out the ſeeds, together with the pulp, into a tub, which ſhould be afterwards covered with a board, to prevent filth from getting amongſt the pulp. In this tub it ſhould be ſuffered to remain eight or ten days, obſerving to ſtir it well with a long ſtick to the bottom every day, in order to rot the pulp, that it may be eaſily ſeparated from the ſeeds; then pour ſome water into the tub, ſtirring it well about, which will raiſe the ſcum to the top, but the ſeeds will ſettle to the bottom; ſo that by two or three times pouring in water, and afterwards ſtraining it off from the ſeeds, they will be perfectly cleared from the pulp; then you ſhould ſpread the ſeeds upon a mat, which ſhould be expoſed to the open air three or four days until they are perfectly dry, when they may be put up in bags, and hung up in a dry place where vermin cannot come to them, where they will keep good for ſeveral years, but are generally preferred when three or four years old, as being apt to produce leſs vigorous, but more fruitful plants.

I ſhall, in the next place, proceed to give directions for managing Cucumbers for the laſt crop, or what are generally called picklers.

The ſeaſon for ſowing theſe is towards the latter end of May, when the weather is ſettled. The ground where theſe are commonly ſown, is between Cauliflowers, in the wide rows, between which are allowed four feet and a half ſpace when the Cauliflowers were planted. In theſe rows you ſhould dig up ſquare holes at about three feet and a half diſtance from each other, breaking the earth well with a ſpade, and afterwards ſmoothing and hollowing it in the form of a baſon with your hand; then put eight or nine ſeeds into the middle of each hole, covering them over with earth about half an inch thick; and if it ſhould be very dry weather, it will be proper to water the holes gently in a day or two after the ſeeds are ſown, in order to facilitate their vegetation.

In five or ſix days, if the weather be good, your plants will begin to thruſt their heads above ground; at which time you ſhould be very careful to keep off the ſparrows, which are very fond of the young tender ſeed-leaves of theſe plants; and, if they are not prevented, will deſtroy your whole crop: but as it is not above a week that the plants are in danger, it will be no great trouble to look after them during that time; for when the plants are come up, and have expanded their ſeed leaves, the ſparrows will not meddle with them.

You muſt alſo be careful to water them gently, as you find the drought of the ſeaſon may require; and when you perceive the third or rough leaf of the plants begin to appear, you muſt pull out all the weakeſt plants, leaving only three or four of the moſt promiſing and beſt ſituated in each hole, ſtirring the earth round about them with a ſmall hoe to deſtroy the weeds, and raiſe the earth about the ſhanks of the plants, putting a little earth between them, preſſing it gently down with your hand, that the plants may be thereby ſeparated from each other to a greater diſtance; then give them a little water (if the weather be dry) to ſettle the earth about them, which you muſt afterwards repeat as often as you ſhall find it neceſſary, ſtill being careful to keep the ground clear from weeds.

When your Cauliflowers are quite drawn off the ground from between the Cucumbers, you muſt hoe and clean the ground, drawing the earth up round each hole in form of a baſon, the better to contain the water when it is given them; you muſt alſo lay out the plants in exact order as they are to run and extend, ſo that they may not interfere with each other; then lay a little earth between the plants left, preſſing it down gently with your hand, the better to ſpread them each way, giving them a little water to ſettle the earth about them, repeating it as often as the ſeaſon ſhall require, and obſerving to keep the ground clean from weeds. The plants thus managed, will begin to produce fruit toward the latter end of July, when you may either gather them young for pickling, or ſuffer them to grow for large fruit.

The quantity of holes neceſſary for a family, is about fifty or ſixty; for if you have fewer, they will not produce enough at one gathering to make it worth the trouble and expence of pickling, without keeping them too long in the houſe, for you cannot expect to gather more than two hundred at each time from fifty holes; but this may be done twice a week during the whole ſeaſon, which commonly laſts five weeks; ſo that from fifty holes you may reaſonably expect to gather about two thouſand in the ſeaſon, which, if they are taken ſmall, will not be too many for a private family. And if ſo many are not wanted, they may be left to grow to a proper ſize for eating.

CUCUMIS AGRESTIS. See Momordica.

CUCURBITA. Lin. Gen. Plant. 968. Tourn Inſt. R. H. 107. [ſo called from Curvata, *Lat.* bended, becau ſethe fruit of this plant generally bends,] the Gourd.

The Characters are,

It hath male and female flowers in the ſame plant. The flowers have a bell-ſhaped empalement of one leaf, whoſe borders are terminated by five briſtles; the flowers are bell-ſhaped, adhering to the empalement, and are of one petal, which is veined and rough, divided at the top into five parts. The male flowers have three ſtamina, which are connected at their extremity, but are diſtinct at their baſe, where they adhere to the empalement; theſe are terminated by linear ſummits running up and down. The female flowers have a large germen, ſituated under the flower, ſupporting a conical trifid ſtyle, crowned by a large trifid ſtigma. The germen afterward becomes a large fleſhy fruit, having three ſoft membranaceous cells which are diſtinct, incloſing two rows of ſeeds which are bordered.

This genus of plants is ranged in the tenth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Syngeneſia, the plants having male and female flowers on the ſame plant, and the ſtamina of the male flowers being connected.

The Species are,

1. Cucurbita (*Lagenaria*) foliis cordatis denticulatis tomentoſis baſi ſubtus biglanduloſis; pomis lignoſis. Lin. Sp. 1434. *Gourd with heart-ſhaped, indented, woolly leaves, having two glands at their baſe, and a ligneous ſhell to the fruit.* Cucurbita longa, folio molli, flore albo. J. B. 2. 221. *Commonly called the Long Gourd.*
2. Cucurbita (*Pepo*) foliis lobatis, pomis lævibus. Lin. Sp. Plant. 1010. *Gourd with lobed leaves and a ſmooth fruit.* Cucurbita major rotunda, flore luteo, folio aſpero. C. B. P. 213. *Commonly called Pompion, or Pumpkin.*
3. Cucurbita (*Verrucoſa*) foliis lobatis, pomis nodoſo-verrucoſis. Lin. Sp. Plant. 1010. *Gourd with lobed leaves, and a warted knobby fruit.* Cucurbita verrucoſa. J. B. 2. 222. *Warted Gourd.*
4. Cucurbita (*Melopepo*) foliis lobatis, caule erecto, pomis depreſſo-nodoſis. Lin. Sp. Plant. 1010. *Gourd with lobed leaves, an erect ſtalk, and a depreſſed knotty fruit.* Melopepo clypeiformis. C. B. P. 312. *Commonly called Squaſh.*
5. Cucurbita (*Lignoſus*) foliis lobatis aſperis, flore luteo, pomis lignoſis. *Gourd with rough-lobed leaves, a yellow flower, aud fruit having a hard ſhell; commonly called Calabaſh.*

The firſt ſort is ſometimes propagated in the Engliſh gardens by way of curioſity, but the fruit is very rarely eaten here; though, if they are gathered when they are young, while their ſkins are tender, and boiled, they have an agreeable flavour. In the eaſtern countries theſe fruit are very commonly cultivated and ſold in the markets for the table, and are a great part of the food of the common people, from June to October. Theſe fruit are alſo eaten in both the Indies, where the plants are cultivated as culinary; and in thoſe countries, where the heat of their ſummers is too great for many of our common vegetables, theſe may be a very good ſubſtitute.

This ſort doth not vary like moſt of the others, but always produces the ſame ſhaped fruit; the plants of this extend to a great length, if the ſeaſon proves warm and favourable, and will then produce ripe fruit; but in cold ſummers, the fruit ſeldom grows to half its uſual ſize. I have meaſured ſome of theſe fruit when growing, which were ſix feet long, and a foot and a half round; the plants were near twenty feet in length: the ſtalks of this, and alſo the leaves, are covered with a fine ſoft hairy down; the flowers are large, white, and ſtand upon long foot-ſtalks, being reflexed at their brim; the fruit is generally incurved and crooked, and when ripe, is of a pale yellow colour. The rind of this fruit becomes hard, ſo that if the ſeeds and pulp are taken out, and the ſhell dried, it will contain water; and in thoſe countries where they are much cultivated, are uſed for many purpoſes.

The ſecond ſort, which is commonly known by the title of Pumpkin, is frequently cultivated by the country people in England, who plant them upon their dunghills, where the plants run over them, and ſpread to a great diſtance; when the ſeaſons are favourable, they will produce plenty of large fruit: theſe they uſually ſuffer to grow to maturity, then they cut open a hole on one ſide, and take the ſeeds out of the pulp as clean as poſſible, after which they fill the ſhell with Apples ſliced, which they mix with the pulp of the fruit, and ſome add a little ſugar and ſpice to it; then bake it in an oven, and eat it in the ſame manner as baked Apples; but this is a ſtrong food, and only fit for thoſe who labour hard, and can eaſily digeſt it.

Theſe may be propagated by ſowing their ſeeds in April, on a hot-bed; and when the plants come up, they ſhould be tranſplanted on another moderate bed, where they ſhould be brought up hardily, and have a great deal of air to ſtrengthen them; and when they have got four or five leaves, they ſhould be tranſplanted into holes made upon an old dunghill, or ſome ſuch place, allowing them a great deal of room to run, for ſome of the ſorts will ſpread to a great diſtance. I have meaſured a ſingle plant, which had run upwards of forty feet from the hole, and had produced a great number of ſide branches; ſo that if the plant had been encouraged, and all the ſide branches permitted to remain, I dare ſay it would have fairly overſpread twenty rods of ground; which, to ſome people, may ſeem like a romance, yet I can affirm it to be fact. But what is this to the account printed in the Tranſactions of the Royal Society, which was communicated to them by Paul Dudley, Eſq; from New England, wherein mention is made of a ſingle plant of this kind, which, without any culture, ſpread over a large ſpot of ground, and from which plant were gathered two hundred and ſixty fruits each, one with another, as big as a half peck.

There are ſeveral varieties of this fruit, which differ in their form and ſize; but as theſe are annually varying from ſeeds, ſo I have omitted the mentioning them, for they ſeldom continue to produce the ſame kinds of fruit three years together.

The third ſort is very common in moſt parts of America, where it is cultivated as a culinary fruit; of this ſort there are alſo ſeveral varieties, which differ in their form and ſize; ſome of theſe are flat, others round; ſome are ſhaped like a bottle, and others are oblong, their outer cover or rind being white when ripe, and covered with large protuberances or warts. The fruit are commonly gathered when they are half grown, and boiled by the inhabitants of America to eat as a ſauce with their meat; but in England they are only cultivated by way of curioſity, few perſons having a reliſh for them here, where they have a great variety of better eſculent plants at that ſeaſon, when theſe are fit for uſe. Theſe may be propagated in the ſame manner as the ſecond ſort.

The fourth ſort is alſo very common in North America, where it is cultivated for the ſame purpoſes as the third. This very often grows with a ſtrong, buſhy, erect ſtalk, without putting out runners from the ſide, as the other ſorts, but frequently varies; for after it has been cultivated a few years in the ſame garden, the plants will become trailing like the others, and extend their branches to as great diſtance; and yet I have known when part of the ſeeds, taken out from the ſame fruit have been ſown in another garden, at a conſiderable diſtance, the fruit have been the ſame, and the plants have grown erect, when thoſe which were ſown in the ſame garden, have produced trailing plants with larger fruit of a different ſhape.

The fruit of the fifth ſort hath a hard ſhell when ripe like the firſt, which may be dried and preſerved many years: theſe are of very different forms and ſize; ſome are ſhaped like a Pear, and are no bigger than a large Catherine Pear; ſome are as large as quart bottles, and almoſt of the ſame form; others are round and ſhaped like an Orange, and are of the ſame ſize and colour, but theſe are very variable; for I have cultivated moſt of the ſorts near forty years, and have not been able, with all poſſible care, to preſerve the varieties longer than two or three years in the ſame garden, without procuring freſh ſeeds from ſome diſtant place. Whether theſe changes are brought about by the admixture of the farina with each other, or from what cauſe I cannot ſay, becauſe I have frequently planted them at as great diſtance from each other as I poſſibly could in the ſame garden, and yet the effect has been the ſame as when near.

The firſt ſort requires to be treated more tenderly than the others, in order to procure ripe fruit; ſo the ſeeds ſhould be ſown upon a moderate hot-bed in April, and the plants afterward planted each into a penny pot, and plunged into a very moderate hot-bed to bring them forward; but they muſt not be tenderly treated, for if they have not a large ſhare of free air admitted to them every day, they will draw up weak. When the plants are grown too large to be continued in the pots, there ſhould be holes dug where they are deſigned to grow, and three or four barrows full of hot dung put into each; theſe ſhould be covered with earth, into which the plants muſt be planted, and covered with hand-glaſſes till they run out.

There are ſome people who plant theſe plants by the ſides of arbours, over which they train the vines; ſo that in a ſhort time they will cover the whole arbour, and afford a ſtrong ſhade, and upon ſome of theſe arbours I have ſeen the longeſt fruit. There are others who plant them near walls, pales, or hedges, to which they faſten the Vines, and train them to a great height: the Orange-ſhaped Gourd is the ſort which is moſt commonly ſo planted for the ornament of its fruit, which has a pretty effect, eſpecially when ſeen at ſome diſtance. All the ſorts require a large ſupply of water in dry weather.

Theſe plants requiring ſo much room to ſpread, and their fruit being very little valued in England, hath occaſioned their not being cultivated amongſt us; we having ſo many plants, roots, or fruits, which are greatly preferable to thoſe for kitchen uſes: but in ſome parts of America, where proviſions are not in ſo great plenty, or ſo great variety, theſe fruits may be very acceptable.

CUIETE See Crescentia.

CULMIFEROUS PLANTS [ſo called of Culmus, *Lat.* ſtraw or haulm,] are ſuch as have a ſmooth jointed ſtalk, uſually hollow, and at each joint wrapped about with ſingle, narrow, ſharp-pointed leaves; and their ſeeds are contained in chaffy huſks, as Wheat, Barley, &c.

CUMINOIDES. See Lagoecia.

CUMINUM. Lin. Gen. Plant. 313. Mor. Umb. Κύμινον, *Gr.* Cumin.

The Characters are,

It hath an umbelliferous flower; the general umbel is compoſed of ſmaller, which are divided into four parts; their involucrum is longer than the umbel. The great umbel is uniform; the flowers have five unequal petals, whoſe borders are inflexed, and five ſingle ſtamina, terminated by ſlender ſummits. It hath a large germen ſituated under the flower, ſupporting two ſmall ſtyles, crowned by ſingle ſtigmas. The germen afterward becomes an oval ſtriated fruit, compoſed of two oval ſeeds, which are convex and furrowed on one ſide, and plain on the other.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

We have but one Species of this genus, viz.

Cuminum (*Cyminum.*) Lin. Mat. Med. 139. Cumin. Cuminum ſemine longiore. C. B. P. 146. *Cumin with a longer ſeed.*

This plant is annual, periſhing ſoon after the ſeeds are ripe; it ſeldom riſes more than nine or ten inches high, in the warm countries where it is cultivated; but I have never ſeen it grow more than three or four inches high in England, where I have ſometimes had the plants come ſo far as to flower very well, but never to produce ſeeds. The leaves of this plant are divided into long narrow ſegments like thoſe of Fennel, but much ſmaller; they are of a deep green, and generally turn backward at their extremity; the flowers grow in ſmall umbels at the top of the ſtalks; theſe are compoſed of five unequal petals, which are of a pale bluſh colour, and are ſucceeded by long, channelled, aromatic ſeeds.

The ſeeds of this plant is the only part uſed in medicine; theſe are ranged among the greater hot ſeeds; they conſiſt of very warm diſſolving parts, and are eſteemed good to expel wind out of the ſtomach and bowels, ſo they are frequently put into clyſters for that purpoſe, and are ſometimes given in powder; and outwardly applied, they are of great ſervice to eaſe the pains of the breaſt or ſide.

This plant is propagated for ſale in the iſland of Malta, where it is called Cumino aigro, i. e. *hot Cumin.* But Aniſe, which they alſo propagate in no leſs quantity, they call Cumino dulce, i. e. *ſweet Cumin.* So that many of the old botaniſts were miſtaken, when they made two ſpecies of Cumin, viz. acre and dulce.

If the ſeeds of this plant are ſown in ſmall pots filled with light kitchen-garden earth, and plunged into a very moderate hot-bed to bring up the plants, and theſe after having been gradually inured to the open air, turned out of the pots, and planted in a warm border of good earth, preſerving the balls of earth to their roots, and afterward kept clean from weeds, the plants will flower pretty well, and by thus bringing of the plants forward in the ſpring, they may perfect their ſeeds in very warm ſeaſons.

CUNILA. See Sideritis.

CUNONIA. Buttn. Cun. tab. 1. Antholyza. Lin. Gen. Plant. 56.

The Characters are,

The flowers grow alternate in an imbricated ſpike, each having a ſpatha or ſheath, compoſed of two ſpear-ſhaped concave leaves; the flower hath one ringent petal, having a ſhort ſlender tube, which is dilated at the chaps, and compreſſed on the ſides; the upper lip is arched, and ſtretched

ſtretched out a conſiderable length beyond the alæ or wings, and is rounded at the top: it hath three long ſlender ſtamina, which are ſituated in the upper lip, terminated by oblong flat ſummits, which are faſtened in their middle and lie proſtrate. It hath a ſlender ſtyle, which is ſhorter than the ſtamina, crowned by three cylindrical ſtigmas which join the ſummits, and are included in the upper lip. The germen, which is ſituated below the flower, becomes an oblong capſule with three cells, filled with compreſſed ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, the flowers having three ſtamina and one ſtyle, but he has joined it to the Antholyza, making it only a ſpecies of that genus; whereas by the form and characters of the flower, it ſhould be ſeparated from that, there being full as great difference between the flowers of this and thoſe of the Antholyza, as is between thoſe and the Gladiolus; for the flowers of Cunonia have no carina or under lip, but thoſe of the Antholyza have, in which one of the ſtamina is included, which is ſeparated from the other two, which are ſituated in the upper lip; but in this all three are of equal length, and ſituated in the hollow of the upper lip. The two wings of this are ſhort, whereas thoſe of Antholyza are long, ſo that I think they ſhould be ſeparated.

We have but one Species of this genus at preſent in the Engliſh gardens, which is

Cunonia (*Antholyza*) floribus ſeſſilibus, ſpathis maximis. Buttn. Cun. 211. tab. 1. *Cunonia with flowers ſitting cloſe to the ſtalk, and very large ſpathæ or ſheaths.* Dr. Linnæus titles it Antholyza ſtaminibus omnibus adſcendentibus. Sp. Plant. 37. *Antholyza with all the ſtamina aſcending.*

There is a plant of this kind figured in Cornutus's book of Canada plants, under the title of Gladiolus Æthiopicus, flore Coccineo, p. 78. but by his figure and deſcription, it appears to be a different ſpecies from this, his flowers having much ſmaller ſpathæ or ſheaths, nor does the ſtalks of his riſe near ſo high as this; there are alſo ſome other differences between them.

The ſeeds of this plant I received from the Cape of Good Hope, where it grows naturally, which ſucceeded ſo well in the Chelſea garden, as to produce a great number of plants, which flowered well the third ſeaſon after they appeared, and have continued to produce flowers, and perfect their ſeeds every year ſince.

This hath a compreſſed bulbous root, ſomewhat like that of Corn Flag, covered with a brown ſkin; from this ariſe ſeveral narrow ſword-ſhaped leaves, about nine inches long, and a quarter of an inch broad in the middle, terminating in acute points; theſe have one longitudinal midrib which is prominent, and two longitudinal veins running parallel on each ſide; they are of a ſea-green colour, and appear in autumn, growing in length all the winter; in ſpring the ſtalk ariſes from between the leaves, which is round, ſtrong, and jointed; at each joint is ſituated a ſingle leaf, which almoſt embraces the ſtalk for near three inches from the baſe, then by the curvature of the ſtalk it is ſeparated, ſtanding erect: the ſtalks riſe near a foot and a half high, which is generally curved two oppoſite ways; the upper part of the ſtalk is terminated by a looſe ſpike of flowers, coming out of large ſpathæ or ſheaths, compoſed of two oblong concave leaves, terminating in acute points: theſe are at their firſt appearance placed imbricatim over each other, but as the ſtalk increaſes in length, ſo theſe are ſeparated; from between theſe two leaves comes out the flower, each having a ſlender Saffron-coloured tube near half an inch long, which is then enlarged where the petal is divided, and the upper ſegment is extended two inches in length, being arched over the ſtamina and ſtyle. This is narrow as far as to the extent of the wings, but above them is enlarged and ſpread open half an inch in length, and is concave, covering the ſummits and ſtigmas which are extended to that length; the two wings are alſo narrow at their baſe, but are enlarged upward in the ſame manner, ending in concave obtuſe points, which are compreſſed together, and cover the ſtamina and ſtyle. This flower is of a beautiful ſoft ſcarlet colour, ſo makes a fine appearance, about the latter end of April or beginning of May, which is the ſeaſon of its flowering. After the flowers decay, the germen becomes an oval ſmooth capſule, opening in three cells, which are filled with flat bordered ſeeds.

This plant is too tender to thrive in the open air in England, ſo the roots muſt be planted in pots filled with light earth, and may remain in the open air till October, when they muſt be removed into ſhelter, either into an airy glaſs-caſe, or placed under a hot-bed frame, where the leaves will keep growing all winter, and in the ſpring the ſtalks ariſe and flower. During the winter ſeaſon, the plants will require a little water when the weather is mild, once a week, but it muſt not be given in great quantities, eſpecially in cold weather; in the ſpring they ſhould be watered oftener; and when the flowers are paſt, the pots ſhould be removed into the open air to perfect their ſeeds, which will ripen the latter end of June, ſoon after which the ſtalks will decay to the root, which will remain inactive till September. When the ſtalks are decayed, the roots may be taken out of the ground, and kept in a dry room till the end of Auguſt, when they ſhould be planted again.

This plant is eaſily propagated by offsets, which it ſends out in great plenty, or by ſowing of the ſeeds, which ſhould be ſown in pots about the middle of Auguſt, and placed in a ſituation where they may enjoy the morning ſun, and in dry weather ſhould be gently watered; in September the pots may be removed to a warmer ſituation, and in October they muſt be placed under a frame, where they may be protected from froſt and hard rains, but in mild weather enjoy the free air. The plants will appear in October, and continue growing all the winter, and in June their leaves will decay; then they may be taken up, and four or five roots may be planted in each pot, till they have grown another year, when they may be each put into a ſeparate pot. Theſe ſeedling plants muſt be ſheltered in the ſame manner as the old roots in winter, and the third year they will flower.

CUPRESSUS. Lin. Gen. Plant. 958. Tourn. Inſt. R. H. 587. tab. 358. Cypreſs [takes its name either of κύω, to bring forth, and πάρισος, becauſe it produces equal branches on both ſides; or of Cypariſſus, a certain infant whom the poets feign to have been transformed into a Cypreſs-tree.] The Cypreſs-tree.

The Characters are,

It hath male and female flowers growing at diſtances on the ſame plant; the male flowers are formed into oval katkins, in which the flowers are placed thinly, among ſeveral roundiſh ſcales, each having a ſingle flower. Theſe have no petals nor ſtamina, but have four ſummits which adhere to the bottom of the ſcales. The female flowers are formed in a roundiſh cone, each containing eight or ten flowers; the ſcales of the cones are oppoſite, each having a ſingle flower, theſe have no petals; the germen is ſcarce viſible, but under each ſcale there are many punctures or ſpots, and a concave truncated apex inſtead of a ſtyle; this afterward becomes a globular cone, opening in angular target-ſhaped ſcales, under which are ſituated angular ſeeds.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Monadelphia; the plants of this ſection have male and female flowers on the ſame plant, and the male flowers are joined in one bdoy.

The Species are,

1. Cupressus (*Sempervirens*) foliis imbricatis, ramis erectioribus. *Cypreſs with imbricated leaves, and upright branches.* Cupreſſus metâ in faſtigium convolutâ qua fæmina. Plinii. Dod. Pempt. 856. *Female or common upright Cypreſs.*

2. Cupressus (*Horizontalibus*) foliis imbricatis acutis, ramis horizontalibus. *Cypreſs with imbricated acute leaves, and branches growing horizontally.* Cupreſſus ramos extra ſe ſpargens quæ Mas. Plinii. Tourn. Inſt. R. H. 587. *Male ſpreading Cypreſs.*

3. Cupressus (*Luſitanica*) foliis imbricatis, apicibus aculeatis, ramis dependentibus. *Cypreſs with imbricated leaves terminating in ſpines, and branches hanging downward.* Cupreſſus Luſitanica, patula, fructu minore. Inſt. R. H. 587. *Portugal ſpreading Cypreſs with a ſmaller fruit.*

4. Cupressus (*Diſticha*) foliis diſtichis patentibus. Hort. Cliff. 409. *Cypreſs with leaves on two ſides the branches.* Cupreſſus Virginiana foliis Acaciæ deciduis. Hort. Amſt. 1. p. 113. *Virginia Cypreſs which ſheds its leaves, commonly called Deciduous Cypreſs.*

5. Cupressus (*Thyoides*) foliis imbricatis, frondibus ancipitibus. Lin. Sp. Plant. 1003. *Cypreſs with imbricated leaves, and branches ſtanding two ways.* Cupreſſus nana Mariana, fructu cæruleo parvo. Pluk. Mant. 61. *Dwarf Maryland Cypreſs with a ſmall blue fruit.*

6. Cupressus (*Africana*) foliis linearibus ſimplicibus cruciatim poſitis. *Cypreſs with narrow ſingle leaves placed croſſways.* Cupreſſus Africana of Herman and Oldenburgh. *African Cypreſs-tree, called by the Dutch Cypreſs Boom.*

The firſt of theſe trees is very common in moſt of the old gardens in England, but at preſent is not ſo much in requeſt as formerly, though it is not without its advantages; nor ſhould it be entirely rejected, although many perſons are of that opinion; for it ſerves to add to the beauty of wilderneſſes, or clumps of Evergreens, and where they are properly diſpoſed, they have their beauties. It was formerly planted in borders of pleaſure-gardens, and kept ſhorn into a pyramidal or conic form; and ſome people, believing them ſubject to be killed if they cut them, tied them up with cords into a pyramidal figure, which form they are naturally diſpoſed to grow in; but this winding them about, prevented the air from entering the inward parts of the branches, ſo that the leaves decayed, and became unſightly, and greatly retarded their growth. And thoſe which are ſheared, if the operation is not performed in the ſpring, or early in the ſummer, are very ſubject to be injured by ſharp winds and cuttings froſts in winter. Wherefore, upon the whole, I think it much better to ſuffer them to grow wild as they are naturally diſpoſed, planting them only amongſt other Evergreen Trees, where, by the darkneſs of their green leaves, together with their waving heads, they will greatly add to the variety.

The ſecond ſort is by far the largeſt growing tree, and is the moſt common timber in ſome parts of the Levant. This, if planted upon a warm, ſandy, gravelly ſoil, will proſper wonderfully; and though the plants of this ſort are not ſo finely ſhaped as thoſe of the firſt, yet they greatly recompenſe for that defect, by its vigorous growth and ſtrength, in reſiſting all weathers. This tree is very proper to intermix with Evergreens of a ſecond ſize next to Pines and Firs, to form clumps; in which claſs it will keep pace with the trees of the ſame line, and be very handſome. Beſides, the wood of this tree is very valuable, when grown to a ſize fit for planks, which I am convinced it will do in as ſhort a ſpace as Oaks; therefore, why ſhould not this be cultivated for that purpoſe, ſince there are many places in England where the ſoil is of a ſandy or gravelly nature, and ſeldom produces any thing worth cultivating? Now, in ſuch places theſe trees will thrive wonderfully, and greatly add to the pleaſure of the owner, while growing, and afterwards render as much profit to his ſucceſſors, as perhaps the beſt plantation of Oaks; eſpecially ſhould the timber prove as good here, as in the iſlands of the Archipelago, which I ſee no reaſon to doubt of; for we find it was ſo gainful a commodity to the iſland of Candia, that the plantations were called Dos Filiæ, the felling of one of them being reckoned a daughter's portion. The timber of this tree is ſaid to reſiſt the worm, moth, and all putrefaction, and is ſaid to laſt many hundred years. The doors of St. Peter's church at Rome were framed of this material, which laſted from the great Conſtantine to Pope Eugenius IVth's time, which was eleven hundred years, and were then ſound and entire, when the Pope would needs change them for gates of braſs. The coffins were made of this material, in which Thucydides tells us the Athenians uſed to bury their heroes; and the mummy cheſts, brought with thoſe condited bodies out of Egypt, are many of them of this material.

This tree is by many learned authors recommended for the improvement of the air, and a ſpecific for the lungs, as ſending forth great quantities of aromatic and balſamic ſcents; wherefore many of the antient phyſicians of the Eaſtern countries uſed to ſend their patients, who were troubled with weak lungs, to the iſland of Candia, which at that time abounded with theſe trees, where, from the effects of the air alone, very few failed of a perfect cure.

The fourth ſort is a native of America, where it grows in watery places, and riſes to a prodigious height, and is of a wonderful bulk. I have been informed, that there are trees of this kind in America which are upwards of ſeventy feet high, and ſeveral fathoms in circumference, which trees grow conſtantly in the water; therefore they may probably be of ſingular advantage to plant in ſuch ſwampy or wet ſoils, where few other trees will grow, eſpecially of the reſinous kind. That they are very hardy in reſpect to cold, is evident, from ſome few trees of this kind which were formerly planted in England; particularly one in the gardens of John Tradeſcant, at South Lambeth, near Vaux-Hall, which is upwards of thirty feet high, and of a conſiderable bulk, which, though in a common yard at preſent, where no care is taken of it, but, on the contrary, many hooks are driven into the trunk, to faſten cords thereto for drying of cloaths, yet the tree is in great health and vigour, but hath not produced any fruit as yet, which may be occaſioned for want of moiſture: for we often ſee many aquatic plants will grow upon a drier ſoil, but yet are ſeldom ſo productive of either flowers or fruit, as thoſe which remain growing in the water.

There is alſo a pretty large tree of this kind now growing in the gardens of the late Sir Abraham Janſſen, Bart. at Wimbleton in Surry, which has produced great quantities of cones for ſome years paſt, which, in favourable ſeaſons come to maturity, and the ſeeds have been as good as thoſe which have been brought from America. This tree was tranſplanted when it was very large, which has ſtinted its growth; which, together with its being planted upon a dry ſoil, may have occaſioned its fruitfulneſs, for it has made very little progreſs in its growth ſince it was removed.

Theſe trees are all propagated from ſeeds, which ſhould be ſown early in the ſpring on a bed of warm, dry, ſandy earth, which muſt be levelled very ſmooth; then ſow the ſeeds thereon pretty thick, ſifting the ſame light earth over them half an inch thick. If the weather ſhould prove very warm and dry, it will be proper to ſhade the bed from the ſun in the daytime, and water the bed, which muſt be done very carefully, obſerving not to waſh the ſeeds out of the ground. In about two months time (if your ſeeds are good) the young plants will appear above ground, which muſt be conſtantly kept clean from weeds, and in very dry weather ſhould be often refreſhed with water; but this ſhould be done with great caution, leſt you beat theſe tender rooted plants out of the ground. If the ſeeds are ſown upon a moderate hot-bed, and the bed covered with mats, they will come up much ſooner, and with greater certainty, than when they are ſown in the cold ground.

In this bed the young plants may remain two years, by which time they will have ſtrength enough to be tranſplanted into a nurſery; but while the plants are young, they are tender, ſo ſhould be covered in ſevere froſt with mats to prevent their being injured thereby. The beſt ſeaſon for removing them is in the beginning of April, when the drying eaſterly winds of March are over, and, if poſſible, chooſe a cloudy day, when it is inclinable to rain; and in taking them out of the ſeed-bed, preſerve the roots as entire as poſſible, and, if you can, a ball of earth to each plant. The ſoil in which theſe trees ſhould be planted (as I before ſaid) ſhould be, for the two firſt ſorts, a warm ſand or gravel, which, when you have prepared, by carefully digging and cleanſing from all noxious weeds, you muſt lay level. Then draw the lines where the trees are to be planted at three feet aſunder, and plant the trees at eighteen inches diſtance in the rows, obſerving to cloſe the earth well to their roots, as alſo to lay a little mulch upon the ſurface of the ground about their ſtems; and water them well to ſettle the earth to their roots, which ſhould be repeated twice a week, until the plants have taken freſh root.

Theſe plants may remain in the nurſery three or four years, according to the progreſs they make, or till your ground is ready where they are to be planted: but if you intend to let them remain longer, you ſhould take up every other tree in the rows, and tranſplant out; for otherwiſe their roots will be matted together, ſo that it will render it difficult to tranſplant them, as alſo endanger the future growth of the trees. The plants ſhould by no means be let ſtand too long in the nurſery before they are tranſplanted out for good, becauſe the roots do not mat together ſo cloſely as thoſe of many other ſorts of Evergreen Trees, whereby they may be taken up with good balls of earth to their roots; but the roots of the Cypreſs are apt to extend out in length, ſo it is one of the moſt difficult trees to remove when grown large; therefore moſt curious perſons chooſe to plant the young plants into ſmall pots, when they firſt take them out of the ſeed-bed, and ſo train them up in pots two or three years, until they are fit to plant out where they are to ſtand for good, and, by this management, they are ſecure of all the plants; for theſe may be ſhaken out of the pots at any time of the year without danger, and planted with their whole ball of earth, which is likewiſe a great advantage. When they are planted out for good (if they are deſigned for timber) they ſhould be planted about twelve or fourteen feet diſtance every way, and be very careful in removing thoſe in the full ground, not to ſhake the earth from their roots; to prevent which, you ſhould open the ground about each tree, cutting off all long roots, then working under the ball of earth, cut the downright roots off; and after having pared off all the earth from the upper part of the ball, as alſo reduced the bulk of it, ſo that its weight may not be too great for the fibres to ſupport, they may be carried upon a handbarrow by two perſons to the place where they are to be planted; but if they are to be carried to a diſtant place, they ſhould either be put into baſkets, or their roots cloſely matted up. When they are planted, you muſt ſettle the earth cloſe to their roots as before, laying a little mulch upon the ſurface of the ground about their ſtems, to prevent the ſun and wind from entering the earth to dry their fibres; and water them well, to ſettle the ground to their roots, which muſt alſo be repeated, if the weather proves dry, until they have taken root, after which time they will require little more care than to keep them clear from weeds.

The firſt, which is the moſt common ſort in England, ſeldom produces good ſeeds in this country; it is therefore the beſt way to have the cones brought over entire from the ſouth parts of France and Italy, where they ripen perfectly well, and take the ſeeds out juſt before you ſow them, for they will keep much better in the cones than if they are taken out. The method to get the ſeeds out is to expoſe the cones to a gentle heat, which will cauſe them to open, and eaſily emit their ſeeds.

The ſecond ſort grows naturally in the Levant, and from thence it has been formerly brought to Italy, but at preſent this is pretty rare in England; for what has paſſed under this title here, is only a variety of the common ſort, whoſe branches grow much looſer, and not ſo upright as the firſt; but the cones taken from theſe trees, and the ſeeds ſown, have frequently produced plants of both varieties; but the true ſpreading Cypreſs extends its branches horizontally from the firſt year, and continues to extend them to a great length as the plants advance, and the plants raiſed from the ſeeds do not vary, ſo that it is certainly a diſtinct ſpecies. This grows to be a large timber tree in the Levant, and in Italy there are ſome of a conſiderable ſize.

The Virginian kind may alſo be propagated in as great plenty, for the cones of this may be eaſily procured from Carolina or Virginia, in both which places they grow in great abundance; and the ſeeds will riſe as eaſily as any of the other ſorts, and the plants are equally as hardy: theſe have been formerly kept in pots, and houſed in winter, with which management they have not ſucceeded ſo well as they have done in England, ſince people have planted them into the full ground; and where they have had a moiſt ſoil, I have obſerved them to thrive beſt, which is ſince confirmed by Mr. Cateſby, in his Natural Hiſtory of Carolina; where he ſays, that this tree grows in places where the water commonly covers the ſurface of the ground three or four feet, ſo that it may be a very great improvement to our boggy ſoils. This tree, caſting its leaves in winter, does not ſo well ſuit with plantations of Evergreens at that ſeaſon; though, in ſummer, when there is the greateſt pleaſure in walking among plantations of trees, it hath ſo much the appearance of an Evergreen, as to paſs for ſuch. It may alſo be propagated by cuttings, which ſhould be planted in a bed of moiſt earth in the ſpring before they begin to ſhoot.

The third ſort is at preſent pretty rare in the Engliſh gardens, though of late years there have been many plants raiſed here; but this ſort is not quite ſo hardy, I fear, as the common Cypreſs, for the plants are frequently killed, or greatly injured in ſevere winters; and in the hard froſt in 1740, there was a large tree of this kind entirely killed in the gardens of his Grace the Duke of Richmond, at Goodwood in Suſſex, which had been growing there ſeveral years; and in the year 1762, many large trees were killed. There are great plenty of theſe trees growing at a place called Buſaco, near Cœmbra in Portugal, where this tree is called the Cedar of Buſaco; and there it grows to be a timber tree, ſo that from thence the ſeeds may be eaſily procured.

This tree grows naturally at Goa, from whence it was firſt brought to Portugal, where it has ſucceeded, and been propagated; formerly there were ſome trees of this ſort growing in the Biſhop of London's garden at Fulham, where it paſſed under the title of Cedar of Goa, by which it was ſent from thence to the Leyden garden with that name.

The fifth ſort is a native of North America, where it grows to a conſiderable height, and affords an uſeful timber to the inhabitants for many purpoſes. This ſort is extremely worth cultivating in England; for as it grows in a much colder country, there is no danger of its thriving well in the open air in England; and being an Evergreen of regular growth, will add to the variety of wilderneſs quarters, or other plantations of Evergreen Trees.

This ſort is propagated by ſeeds, which ſhould be ſown in the ſpring in boxes or tubs filled with light freſh earth, and placed where they may enjoy the morning ſun till eleven or twelve o'clock. In dry weather they ſhould be duly watered, and conſtantly kept clear from weeds. In this ſituation they may remain till Michaelmas, when they ſhould be removed to a warmer place; for the plants ſeldom appear till the following ſpring, ſo that it will be proper to place the boxes or tubs near a ſouth wall, pale, or hedge, during the winter ſeaſon; leſt, by being too much ſhaded, the wet of the winter ſeaſon ſhould rot the ſeeds. In the ſpring following, if theſe tubs or boxes are placed on a moderate hot-bed, it will bring up the plants very ſoon, and greatly forward their growth; but as the ſpring advances, they ſhould be inured to bear the open air by degrees; and in May they muſt be taken out of the hot-bed, and placed in a ſheltered ſituation, where they may enjoy the morning ſun, being careful to keep them clear from weeds, as alſo to water them duly in dry weather. The following winter it will be proper to remove the tubs near a ſouth wall or pale, for the plants being very young, are ſometimes tenderer than they will be afterward. Toward the latter end of March, or the beginning of April, juſt before the plants begin to ſhoot, they ſhould be carefully taken up out of the boxes; and having prepared a bed or two (according to the quantity of plants raiſed) of freſh earth in a ſheltered ſituation, the plants ſhould be planted therein in rows about eighteen inches aſunder, and about a foot diſtance plant from plant in the rows. This work ſhould be done in cloudy weather, when there is rain; for in dry weather, when eaſterly winds commonly blow at this ſeaſon, it will be very dangerous to tranſplant theſe plants; ſo that it had better be deferred a fortnight longer, till there is an alteration of the weather, than hazard the plants. When the plants are planted, they ſhould be watered to ſettle the earth to their roots; and then the ſurface of the ground ſhould be covered with mulch, to prevent the ſun and wind from penetrating to the roots of the plants; for nothing is more injurious to theſe plants, than to have their fibres dried when they are tranſplanted; therefore the plants ſhould not be taken out of the tubs till you are ready to place them in the ground, for they will not bear to lie out of the ground any time without great danger.

The branches of this tree are garniſhed with flat evergreen leaves, reſembling thoſe of the Arbor Vitæ; and the cones are no larger than the berries of the Juniper, from which they are not eaſily diſtinguiſhed at a little diſtance; but upon cloſely viewing, they are perfect cones, having many cells like thoſe of the common Cypreſs. If theſe trees are planted in a moiſt ſtrong ſoil, they make very great progreſs, and may, in ſuch ſituations, become profitable for timber; but however this tree may ſucceed for timber, yet it will be a great ornament to large plantations of evergreen trees, eſpecially in ſuch places where there is naturally a proper ſoil for them; becauſe, in ſuch ſituations, there are not many ſorts of Evergreen Trees which thrive well, eſpecially in cold places, and by increaſing the number of ſorts of theſe Evergreens, we add to the beauty of our gardens and plantations.

The third ſort ſends forth its branches almoſt horizontally, ſo that they extend to a great diſtance every way, and the trees are generally furniſhed with branches from the ground upward; but as theſe grow without much order, the trees have a very different appearance from all the other ſorts. This grows to be a large timber tree in Portugal, but the largeſt tree which I have ſeen in England, has not been above fifteen feet high, and the ſide branches of this were extended more than eight feet on every ſide from the ſtem. This ſort may be propagated from ſeeds in the ſame manner as the common Cypreſs, and the plants ſhould be treated in the ſame manner as hath been directed for them, with this difference only, that it will be proper to cover theſe plants during the two firſt winters after they are come up, eſpecially if the froſt ſhould be ſevere, which might deſtroy them, if they are expoſed to it while they are young. This ſort may alſo be propagated by cuttings, which, if planted in autumn, and ſcreened in winter, they will take root; but it is generally two years before they will be rooted enough to tranſplant, nor will the plants ſo raiſed thrive ſo faſt as the ſeedlings; therefore, when the ſeeds can be obtained, that is the beſt method to propagate this tree. The American deciduous Cypreſs may alſo be propagated by cuttings, as I have ſeveral times tried; ſo that when ſeeds cannot be had, this method may be practiſed ſucceſsfully. I ſuppoſe the common ſort will alſo take from cuttings; but this I have not experienced, ſo cannot recommend it to practice.

Theſe trees are ſo very ornamental to gardens, that no large garden can be compleat without many of them; and it is to theſe trees that the Italian villas owe a great ſhare of their beauty, for there is no tree ſo proper to place near buildings; the pyramidal upright growth of their branches affords a pictureſque appearance, and obſtructs not the view of the building, and the dark green of their leaves make a fine contraſt with the white of the building; ſo that, wherever there are temples or other buildings erected in gardens, there is no ſort of tree ſo proper to place near them as theſe. In all the landſchapes of Italian villas, we ſee many Cypreſs-trees repreſented; which have a very agreeable effect in the picture; and the trees, when rightly diſpoſed in a garden, afford a no leſs agreeable proſpect.

The ſeeds of the ſixth ſort were ſent me from the Cape of Good Hope, where the trees grow naturally, and by the account which I received with the ſeeds, the cones of the tree are black when ripe. The young plants which I have raiſed from theſe ſeeds have looſe ſpreading branches, which are cloſely garniſhed with narrow ſtrait leaves, which come out oppoſite, and are alternately croſſing each other; theſe are near one inch long, and of a light green colour; they continue in verdure all the year. Theſe plants being young, are too tender to thrive in the open air in England as yet; but when they have obtained more ſtrength, it is very probable they may do well in warm ſituations. I had two of theſe plants growing in the full ground, which were killed in the winter 1756. But thoſe which were placed under a frame, where there were no covering of glaſs, and only wooden ſhutters, were not injured by the cold, though the earth of the pots was frequently hard frozen.

CURCUMA. Lin. Gen. Plant. 6. Cannacorus. Tourn. Inſt. R. H. 367. Turmerick.

The CHARACTERS are,

The flowers have each ſeveral ſpathæ, which are ſingle and drop off; the flower hath one petal with a narrow tube, which is cut at the brim into three ſegments; it hath an oval-pointed nectarium of one leaf, which is inſerted in the ſinus of the largeſt ſegment of the petal; it hath five ſtamina, four of which are barren, and one fruitful, which is ſituated within the nectarium, and hath the appearance of a petal, having a bifid point, to which the ſummit adheres. It hath a roundiſh germen ſituated under the flower, ſupporting a ſtyle the length of the ſtamina, crowned by a ſingle ſtigma. The germen afterward becomes a roundiſh capſule, having three cells, which are filled with roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's firſt claſs, intitled Monandria Monogynia, the flower having one ſtamina and one ſtyle.

The SPECIES are,

1. CURCUMA (*Rotunda*) foliis lanceolato-ovatis, nervis lateralibus rariſſimis. Lin. Sp. Plant. 2. *Curcuma with ſpear-ſhaped oval leaves, having very few nerves on the ſides.* Curcuma radice rotundâ. C. B. *Turmerick with a round root.*
2. CURCUMA (*Longa*) foliis lanceolatis nervis lateralibus numeroſiſſimis. Lin. Sp. Plant. 2. *Curcuma with ſpear-ſhaped leaves, having many lateral veins.* Curcuma radice longâ. H. L. 288. *Turmerick with a long root.*

The firſt ſort hath a fleſhy jointed root ſomewhat like that of Ginger, but rounder, which ſends up ſeveral ſpear-ſhaped oval leaves, that riſe upwards of a foot high; theſe have one longitudinal midrib, and a few tranſverſe nerves running from the midrib to the ſides; they are of a ſea-green colour; from between theſe ariſe the flower-ſtalk, ſupporting a looſe ſpike of flowers of a pale yellowiſh colour, incloſed in ſeveral different ſpathæ or ſheaths, which drop off. Theſe flowers are never ſucceeded by ſeeds in the gardens here.

The ſecond ſort hath long fleſhy roots, of a deep yellow colour, which ſpread under the ſurface of the ground like thoſe of Ginger; they are about the thickneſs of a man's finger, having many round knotty circles, from which ariſe four or five large ſpear-ſhaped leaves, ſtanding upon long foot-ſtalks; they have a thick longitudinal midrib, from which a numerous quantity of veins are extended to the ſides; theſe leaves are of a glaucous or ſea-green colour. The flowers grow in looſe ſcaly ſpikes on the top of the foot-ſtalks, which ariſe from the larger knobs of the roots, and grow about a foot high; they are of a yellowiſh red colour, and ſhaped ſomewhat like thoſe of the Indian Reed.

Theſe plants grow naturally in India, from whence the roots are brought to Europe for uſe. They are very tender, ſo will not live in this country, unleſs they are placed in a warm ſtove. As they do not produce ſeeds in England, they are only propagated by parting their roots: the beſt time for removing and parting theſe roots is in the ſpring, before they put out new leaves; for the leaves of theſe plants decay in autumn, and the roots remain inactive till the ſpring, when they put out freſh leaves. The roots ſhould be planted in rich kitchen-garden earth, and the pots ſhould be conſtantly kept plunged in a bark-bed in the ſtove. In the ſummer ſeaſon, when the plants are in a growing ſtate, they will require to be frequently refreſhed with water, but it ſhould not be given to them in large quantities; they ſhould alſo have a large ſhare of air admitted to them in warm weather. When the leaves are decayed, they ſhould have very little wet, and muſt be kept in a warm temperature of air, otherwiſe they will periſh. Theſe plants uſually flower in Auguſt, but it is only the ſtrong roots which flower, ſo they muſt not be parted into ſmall roots, where the flowers are deſired.

CURRAN-TREE. See Ribes.

CURURU. See Paullinia.

CUSPIDATED PLANTS [ſo called, of cuſpis, *Lat.* the point of a ſpear] are ſuch plants, the leaves of which are pointed like a ſpear.

CUSTARD-APPLE. See Annona.

CYANELLA. Royen.

The Characters are,

The flower has no empalement; it hath ſix oblong, concave, ſpreading petals, which join at their baſe, the three lower hanging downward, with ſix ſhort ſpreading ſtamina, terminated by oblong erect ſummits, and a three-cornered obtuſe germen, ſupporting a ſlender ſtyle the length of the ſtamina, having an acute ſtigma. The germen afterward becomes a roundiſh capſule, having three furrows, with three cells, incloſing many oblong ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, the flower having ſix ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Cyanella (*Capenſis*). Lin. Sp. 443. Cape Cyanella.

This plant grows naturally at the Cape of Good Hope. The root is ſhaped like thoſe of the Spring Crocus; the leaves are long, narrow, and have a ſulcus on their upper ſide; the foot-ſtalk of the flower ariſes immediately from the root, ſupporting one flower with ſix petals, of a fine blue colour, which appears in May, but the flowers have not been ſucceeded by ſeeds as yet in England.

It is too tender to thrive in the full ground in this country, therefore the roots ſhould be planted in pots filled with light earth; and in winter muſt be placed in a frame, and treated in the ſame manner as is directed for Ixia, with which the plant will thrive and produce flowers annually.

CYANUS. See Centauria.

CYCAS, the Sago-tree.

There are ſeveral ſmall plants of this ſort in the Engliſh gardens, but from theſe no characters of the tree can be drawn; nor are there any juſt accounts of theſe to be met with in the ſeveral authors who have figured and deſcribed the tree.

We know but one Species of it at preſent, viz.

Cycas (*Circinalis*) frondibus pinnatis circinalibus, foliolis linearibus planis. Lin. Sp. 1658. *Sago-tree with full branches, whoſe wings are placed circularly, and the ſmall leaves are plain.* Arbor Zagoe Amboinenſis. Seb. Theſ. 1. p. 39.

This tree has been ranged in the tribe of Palms, to which it has great affinity, eſpecially by its outer appearance the branches and trunk having the ſame ſtructure.

This tree requires to be plunged into tanners bark in a ſtove, which ſhould be kept up full to temperate heat in winter; but in ſummer ſhould be much warmer, when it ſhould be frequently refreſhed with water during hot weather, but in autumn and winter it ſhould be given ſparingly.

Moſt of the plants of this kind now in the Engliſh gardens, have been communicated to the poſſeſſors by Richard Warner, Eſq; of Woodford, in Eſſex, who received a tree of this ſort, which was brought from India by the late Captain Hutchenſon; but his ſhip being attacked by the French near home, the head of the tree was ſhot off, but the ſtem being preſerved, put out ſeveral heads, which being taken off, produced ſo many plants.

CYCLAMEN. Lin. Gen. Plant. 184. Tourn. Inſt. R. H. 154. tab. 68. Cyclamen; in French, *Pain de Pourceau.* [Κυκλάμινος, of Κύκλος, *Gr.* a circle, becauſe the root of this plant is orbicular; it is called Sowbread, becauſe the root is round like a loaf, and the ſows eat it]. Sowbread.

The Characters are,

The flower hath a roundiſh permanent empalement of one leaf, divided into five parts at the top. It hath one petal with a globular tube, which is much larger than the empalement; the upper part is divided into five large ſegments, which are reflexed; it hath five ſmall ſtamina ſituated within the tube of the petal, terminated by acute ſummits, which are connected in the neck of the tube. It hath a roundiſh germen, ſupporting a ſlender ſtyle, which is longer than the ſtamina, and crowned by an acute ſtigma. The germen afterward becomes a globular fruit with one cell, opening in five parts at the top, incloſing many oval angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Cyclamen (*Europæum*) foliis haſtato-cordatis angulatis. *Cyclamen with ſpear-pointed heart-ſhaped leaves, which are angular.* Cyclamen hederæ folio. C. B. P. 306. *Sowbread with an Ivy leaf.*
2. Cyclamen (*Purpuraſcens*) foliis orbiculato-cordatis, infernè purpuraſcentibus. *Cyclamen with round heart-ſhaped leaves, purple on their under ſide.* Cyclamen orbiculato folio infernè purpuraſcente. C. B. P. 308. *Round-leaved Sowbread with a purple under ſide.*
3. Cyclamen (*Perſicum*) foliis cordatis ſerratis. *Cyclamen with ſawed heart-ſhaped leaves; or Perſian Cyclamen.*
4. Cyclamen (*Vernale*) foliis cordatis anguloſis integris. *Cyclamen with heart-ſhaped angular leaves which are entire.* Cyclamen hyeme & vere florens folio anguloſo amplo, flore albo, baſi purpurea, Perſicum dictum. H. R. Par.
5. Cyclamen (*Orbiculatum*) radice inæquali, foliis orbiculatis. *Cyclamen with an unequal root and round leaves.* Cyclamen radice caſtaneæ magnitudinis. C. B. P. 308.
6. Cyclamen (*Coum*) foliis orbiculatis planis, pediculis brevibus floribus minoribus. *Sowbread with orbicular plain leaves, ſhorter foot-ſtalks and ſmaller flowers.* Cyclamen Hyemale, orbiculatis foliis infernè rubentibus, purpuraſcente flore Coum Herbariorum. H. R. Par.

The firſt ſort is the moſt common in the Engliſh gardens. This grows naturally in Auſtria, Italy, and other parts of Europe, ſo will thrive in the open air in England, and is never killed by the froſt. It hath a large, orbicular, compreſſed root, from which ariſe a great number of angular heart-ſhaped leaves, upon ſingle foot-ſtalks, which are ſix or ſeven inches long; theſe leaves are marked with black in their middle; the flowers appear before the leaves, riſing immediately from the root, with long fleſhy foot-ſtalks; they appear in Auguſt and September, and ſoon after the leaves come out, continue growing all the winter and ſpring till May, when they begin to decay, and in June they are entirely dried up. After the flowers are fallen, the foot-ſtalks twiſt up like a ſcrew, incloſing the germen in the center, and lay down cloſe to the ſurface of the ground between the leaves, which ſerve as a protection to the ſeed. This germen becomes a round fleſhy ſeed-veſſel with one cell, incloſing ſeveral angular ſeeds. The ſeeds ripen in June, and ſhould be ſown in Auguſt. There are two varieties of this, one with a white and the other with a purpliſh flower, which appear at the ſame time.

The ſecond ſort flowers in autumn: this is at preſent very rare in England; the leaves of this ſort are large, orbicular, and heart-ſhaped at their baſe, and of a purple colour on their under ſide; the leaves and flowers of this come up from the root at the ſame time; the flowers are of a purpliſh colour, and their bottoms are of a deep red. It flowers late in the autumn, and requires protection from the froſt in winter.

The third ſort hath ſtiff heart-ſhaped leaves which are ſawed on their edges; theſe have ſtrong fleſhy foot-ſtalks near ſix inches long, of a purple colour, as are alſo the veins of the leaves on their under ſide, but the upper ſide is veined and marbled with white. The flowers riſe with ſingle foot-ſtalks from the root; theſe are pure white with a bright purple bottom; the petal is divided into nine ſegments to the bottom, which are twiſted and reflexed backward like the other ſorts. This flowers in March and April, and the ſeeds ripen in Auguſt.

The fourth ſort is commonly called the Perſian Cyclamen. This hath large, angular, heart-ſhaped leaves, whoſe edges are entire; they are veined and marbled with white on the upper ſide, and ſtand upon pretty long foot-ſtalks; the flowers are large, of a pale purple colour, with a bright red or purple bottom. Theſe appear in March and April, and the ſeeds ripen in Auguſt.

The fifth ſort hath a ſmall irregular root not larger than a Nutmeg; the leaves are orbicular and ſmall; the flowers are of a fleſh colour, ſmall, and have purple bottoms. They appear in the autumn, but rarely produce ſeeds in England.

The ſixth ſort is not ſo tender as the four laſt mentioned, ſo may be planted in warm borders, where, if they are covered in hard froſt, they will thrive and flower very well. This hath plain orbicular leaves, which have ſhorter and weaker foot-ſtalks than either of the other; their under ſides are very red in the beginning of winter, but that colour goes off in the ſpring; their upper ſides are ſmooth, of a lucid green, and ſpread open flat; whereas the other ſorts are hollowed, and reflexed at their baſe. The flowers are of a very bright purple colour, and appear in the middle of winter, at a time when there are few other flowers, which renders the plants more valuable. The ſeeds of this ſort ripen in the end of June.

There are ſeveral other varieties of this plant, which chiefly differ in the colour of their flowers, particularly among the Perſian kind, of which there is one with an entire white flower, which ſmells very ſweet; but as theſe are accidental variations, I have not enumerated them here, thoſe which are here mentioned being undoubtedly diſtinct ſpecies; for I have many years propagated them from ſeeds, and have not found them vary, nor have I heard that any other perſon has obſerved either of them alter farther than varying of their colours. Though Dr. Linnæus ſuppoſes them but one ſpecies, it is well known that the firſt ſort will endure the greateſt froſt in the open air, whereas all the Perſian ſorts are tender, and require ſhelter in winter.

All the ſorts are propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, in boxes or pots filled with light kitchen-garden earth, mixed with a little ſand, and covered about half an inch deep, placing them where they may have only the morning ſun till the beginning of September, when they may be removed to a warmer expoſure. Thoſe of the firſt ſort may be plunged into the ground cloſe to a ſouth wall, a pale, or Reed hedge, in October, where, if it ſhould be very ſevere froſt, it will be proper to cover them either with mats or Peaſe-haulm, but in common winters they will not require any covering. The pots or tubs in which the Perſian kinds are ſown, ſhould then be placed under a common hot-bed frame, where they may be protected from froſt and hard rains, but in mild weather the glaſſes may be taken off every day to admit freſh air to them. The firſt ſort will come up about Chriſtmas, if the ſeeds were ſown in Auguſt, and their leaves will continue green till May; and thoſe of the Perſian kinds will come up early in the ſpring, and continue green till June, when they will begin to decay; then they ſhould be removed to an eaſt aſpect, where they will have only the morning ſun, in which ſituation they may remain till the middle of Auguſt; during which time they ſhould have very little water, for then the roots are in an inactive ſtate, when much wet will rot them. The pots and tubs in which they are ſown, muſt be conſtantly kept clean from weeds; for if the weeds are permitted to grow, their roots will cloſely entangle with thoſe of the Cyclamen; ſo that in pulling out the weeds, the other roots will be drawn out with them. In the beginning of October, there ſhould be ſome freſh earth ſpread over the tubs or pots, which ſhould be removed again into ſhelter, in the ſame manner as before; and the following ſummer they muſt be managed alſo in the ſame way till their leaves decay, when they ſhould be carefully taken up, and thoſe of the firſt ſort placed in a warm border at three or four inches diſtance, but the other ſorts muſt be planted in pots to be ſheltered in winter.

The third, fourth, and fifth ſorts, are more impatient of cold and wet than the other three; theſe muſt conſtantly be preſerved in pots filled with ſandy light earth, and houſed in winter, but ſhould be placed near the glaſſes, where they may enjoy as much free open air as poſſible, when the weather will permit; for if they are crowded under other plants, and are kept too cloſe, they are very ſubject to mould and rot; nor ſhould they have much water in winter, which is alſo very injurious to them, but whenever they want water, it ſhould be given them ſparingly. In ſummer theſe plants may be expoſed to the open air, when their green leaves will decay; at which time you ſhould remove them to a place, where they may have the morning ſun until eleven o'clock; but during the time that the roots are deſtitute of leaves, they ſhould have very little water given them, becauſe at that ſeaſon they are not capable of diſcharging the moiſture. This is alſo the proper ſeaſon to tranſplant the roots, or to freſh earth them; and as the autumn comes on, that the heat decreaſes, they may be removed into places more expoſed to the ſun, where they may remain until October before they need be houſed.

Toward Chriſtmas, if the roots are in good health, the ſixth ſort will begin to flower, and continue producing freſh flowers till the middle of February, and theſe will be ſucceeded by the Perſian ſorts, which continue till May; but if you intend to have any ſeeds, you muſt let the pots be placed ſo as to receive a great ſhare of freſh air, for if their flowers are drawn up in the houſe, they ſeldom produce any ſeeds. Theſe ſeeds are ripe about July, when they ſhould be immediately ſown in pots or caſes of good light undunged earth, which ſhould be ſheltered in winter under a frame, and expoſed in ſummer in the ſame manner as is directed for the older roots, obſerving to remove them into pots at a wider diſtance when they are two years old; and ſo from time to time, as their roots increaſe in bulk, you muſt give them more room; and in about four or five years time they will begin to flower, when you ſhould let each root have a ſeparate pot, which at firſt may be ſmall, but when the roots are grown large, they muſt be put into larger pots.

Theſe ſorts have been planted under warm walls in the full ground, where, in mild winters they have done very well, but in ſevere froſt all thoſe roots have been deſtroyed; therefore, whenever theſe roots are planted in an open border, there ſhould be common hot-bed frames placed over them in winter, that in bad weather they may be covered to protect them from froſt: and where they are thus managed, the plants will produce more flowers, which will be much fairer than what are produced from the roots in the pots, and from theſe there may always be good ſeeds expected: therefore ſuch perſons who are curious in flowers, ſhould have a border framed over on purpoſe for theſe, the Guernſey and Belladonna Lilies, with ſome other of the curious bulbous-rooted flowers; in which border there may be many of theſe curious flowers cultivated, to more advantage than in any other method now practiſed.

CYDONIA. Tourn. Inſt. R. H. 632. tab. 405. Pyrus. Lin. Gen. Plant. 550. [ſo called from Cydon, a town of Crete, famous for this fruit.] The Quince-tree.

The CHARACTERS are,

The flower is compoſed of five large, roundiſh, concave petals, which are inſerted in the permanent empalement of one leaf. The germen is ſituated under the flower, and ſupports five ſlender ſtyles, crowned by ſingle ſtigmas; theſe are attended by near twenty ſtamina, which are inſerted in the empalement, but are not ſo long as the petals; the germen afterward becomes a pyramidal or roundiſh fruit, which is fleſhy, and divided into five cells, in which are lodged ſeveral hard kernels or ſeeds.

This genus of plants is ranged in the eighth ſection of Tournefort's twenty-firſt claſs, which includes the trees and ſhrubs with a Roſe flower, whoſe empalement becomes a fruit pregnant with hard ſeeds. Dr. Linnæus has joined this genus, and alſo the Apple to the Pear, making them only ſpecies of the ſame genus, to which the Quince is nearly allied by its characters, which the Apple is not. However, though the joining of the Quince to the Pear may be allowed in a ſyſtem of botany, yet in a book of gardening, it may not be quite ſo proper, therefore I have choſen to continue them under their former well known titles.

The SPECIES are,

1. CYDONIA (*Oblonga*) foliis oblongo-ovatis ſubtus tomentoſis, pomis oblongis baſi productis. *Quince-tree with oblong oval leaves, woolly on their under ſide, and an oblong fruit lengthened at the baſe.* Cydonia fructu oblongo læviori. Tourn. Inſt. R. H. 632.
2. CYDONIA (*Maliforma*) foliis ovatis, ſubtus tomentoſis, pomis rotundioribus. *Quince-tree with oval leaves, woolly on their under ſide, and a rounder fruit.* Cydonia fructu breviore & rotundiore. Tourn. Inſt. R. H. 633. *Commonly called the Apple Quince.*
3. CYDONIA (*Luſitanica*) foliis obverſè-ovatis ſubtus tomentoſis. *Quince-tree with obverſe oval leaves, woolly on their under ſide.* Cydonia latifolia Luſitanica. Tourn. Inſt. 633. *Broad-leaved Portugal Quince.*

There are ſome other varieties of this fruit which are propagated in fruit-gardens, and in the nurſeries for ſale, one of which is a ſoft eatable fruit; there is another with a very aſtringent fruit, and a third with a very ſmall fruit, cottony all over, and is ſcarce worth keeping: theſe I ſuppoſe to be ſeminal variations, but the three ſorts before enumerated, I take to be diſtinct ſpecies, having propagated them by ſeeds, and have not found them to vary.

The Portugal Quince is the moſt valuable, the pulp of it turning to a fine purple when ſtewed or baked, and becomes much ſofter and leſs auſtere than the others, ſo is much better for making of marmalade.

They are all eaſily propagated either by layers, ſuckers, or cuttings, which muſt be planted in a moiſt ſoil. Thoſe raiſed from ſuckers are ſeldom ſo well rooted as thoſe which are obtained from cuttings or layers, and are ſubject to produce ſuckers again in greater plenty, which is not ſo proper for fruit-bearing trees. The cuttings ſhould be planted early in the autumn, and in very dry weather muſt be often watered to encourage their rooting. The ſecond year after they ſhould be removed into a nurſery at three feet diſtance row from row, and one foot aſunder in the rows, where they muſt be managed as was directed for Apples. In two or three years time theſe trees will be fit to tranſplant, where they are to remain for good, which ſhould be either by the ſide of a ditch, river, or in ſome other moiſt place, where they will produce a greater plenty, and much larger fruit than in a dry ſoil; though thoſe in a dry ſoil will be better taſted, and earlier ripe. Theſe trees require very little pruning; the chief thing to be obſerved is, to keep their ſtems clear from ſuckers, and cut off ſuch branches as croſs each other; likewiſe all upright luxuriant ſhoots from the middle of the tree ſhould be taken entirely out, that the head may not be too much crowded with wood, which is of ill conſequence to all ſorts of fruit-trees. Theſe ſorts may alſo be propagated by budding or grafting upon ſtocks raiſed by cuttings, ſo that the beſt ſorts may be cultivated in greater plenty this way, than by any other method; and theſe trees will bear fruit much ſooner, and be more fruitful than thoſe which come from ſuckers or layers.

Theſe are alſo in great eſteem for ſtocks to graft and bud Pears on, which for ſummer and autumn fruits are a great improvement to them, eſpecially thoſe deſigned for walls and eſpaliers; for the trees upon theſe ſtocks do not ſhoot ſo vigorouſly as thoſe upon free ſtocks, and therefore may be kept in leſs compaſs, and are ſooner diſpoſed to bear fruit: but hard winter fruits do not ſucceed ſo well upon theſe ſtocks, their fruit being very ſubject to crack, and are commonly ſtony, eſpecially all the breaking Pears; therefore theſe ſtocks are only proper for the melting Pears, and for a moiſt ſoil. The beſt ſtocks are thoſe which are raiſed from cuttings or layers.

As the Pear will take upon the Quince by grafting or budding, and ſo vice verſâ, we may conclude there is a near alliance between them; but as neither of theſe will take upon the Apple, nor that upon either of theſe, ſo we ſhould ſeparate them under different genera, as will be further mentioned under the article MALUS.

CYNANCHUM. Lin. Gen. Plant. 268. Apocynum. Tourn. Inſt. R. H. 91. Periploca. Tourn. Inſt. 93. tab. 22.

The CHARACTERS are,

The flower hath one petal; it hath ſcarce any tube, but is ſpread open, plain, and divided into five parts; this hath a ſmall, erect, permanent empalement of one leaf, divided into five parts; the nectarium, which is ſituated in the center of the flower, is erect, cylindrical, and the length of the petal. It hath five ſtamina which are parallel to the nectarium, and of the ſame length, terminated by ſummits which reach to the mouth of the petal. It hath an oblong bifid germen, with ſcarce any ſtyle, crowned by two obtuſe ſtigmas; the empalement becomes a capſule with two oblong pointed leaves, having a cell which opens longitudinally, and is filled with ſeeds lying over each other imbricatim, and are crowned with long down.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The SPECIES are,

1. CYNANCHUM (*Acutum*) caule volubili herbaceo, foliis cordato-oblongis glabris. Hort. Cliff. 79. *Cynanchum with a twining herbaceous ſtalk, and oblong, ſmooth, heart-ſhaped leaves.* Periploca Monſpeliaca foliis acutioribus. Tourn. Inſt. 93. *Commonly called Montpelier Scammony.*
2. CYNANCHUM (*Monſpeliacum*) caule volubili herbaceo, foliis reniformi-cordatis acutis. Hort. Cliff. 79. *Cynanchum with a twining herbaceous ſtalk, and kidney, heart-ſhaped, pointed leaves.* Periploca Monſpeliaca

foliis rotundioribus. Tourn. Inſt. R. H. 93. *Round-leaved Montpelier Scammony.*

3. Cynanchum (*Suberoſum*) caule volubili infernè ſuberoſo fiſſo, foliis cordatis acuminatis. Hort. Cliff. 79. *Cynanchum with a twining fungous ſtalk, having fiſſures on the under ſide, and heart-ſhaped pointed leaves.* Periploca Caroliniensis, flore minore ſtellato. Hort. Elth. 300.
4. Cynanchum (*Hirtum*) caule volubili fruticoſo, infernè ſuberoſo fiſſo, foliis ovato-cordatis. Hort. Cliff. 79. *Cynanchum with a ſhrubby twining ſtalk, whoſe lower part is fungous, having fiſſures, and oval heart-ſhaped leaves.* Periploca ſcandens, folio citri, fructu maximo. Plum. Cat. 2.
5. Cynanchum (*Erectum*) caule erecto divaricato, foliis cordatis glabris. Hort. Cliff. 79. *Cynanchum with an upright divaricated ſtalk, and heart-ſhaped ſmooth leaves.* Apocynum folio ſubrotundo. C. B. P. 302.
6. Cynanchum (*Aſperum*) caule volubili fruticoſo, foliis cordatis acutis aſperis, floribus lateralibus. *Cynanchum with a twining ſhrubby ſtalk, heart-ſhaped, pointed, rough leaves, and flowers growing from the ſides of the ſtalks.* Apocynum ſcandens foliis cordatis aſperis, floribus amplis patulis luteis. Houſt. MSS.

The firſt and ſecond ſorts grow naturally about Montpelier; theſe have perennial creeping roots, but annual ſtalks, which decay to the root every autumn, and riſe afreſh in the ſpring; theſe ſtalks twiſt themſelves like Hops, round whatever plants are near them, and riſe to the height of ſix or eight feet; the firſt of theſe is garniſhed with oblong, heart-ſhaped, ſmooth leaves, ending in acute points, and are placed by pairs oppoſite on long foot-ſtalks; the flowers come out in ſmall bunches from the wings of the leaves; they are of a dirty white colour, and divided into five acute ſegments, which ſpread open in form of a ſtar. Theſe appear in June and July, but are not ſucceeded by any ſeed-veſſels in England, which may be occaſioned by their roots creeping ſo far under ground; for moſt of thoſe plants which propagate themſelves ſo much by their roots, become barren of ſeeds, eſpecially if their roots have full liberty to extend.

The ſecond ſort differs from the firſt in the ſhape of its leaves, which are broader and rounder at their baſe. The roots of this ſort are very thick, running deep into the ground, and extend themſelves far on every ſide; ſo that where this plant hath got poſſeſſion of the ground it is not eaſily extirpated, for every piece of the root will ſhoot, which may happen to be left in the ground. Both theſe plants abound with a milky juice like the Spurge, which iſſues out wherever they are broken; and this milky juice when concreted, has been frequently ſold for ſcammony.

Theſe plants propagate too faſt by their creeping roots when they are admitted into gardens, ſo few people care to have them: the roots may be tranſplanted any time after their ſtalks decay, till they begin to ſhoot in the ſpring.

The third ſort grows naturally in Carolina, from whence the ſeeds were brought to England; this is a perennial plant with twining hairy ſtalks, which, if ſupported, will riſe ſix or ſeven feet high; the lower part of the ſtalks are covered with a thick fungous bark, ſomewhat like cork, which is full of fiſſures; theſe ſtalks are ſlender, and garniſhed at each joint with two oblong, heart-ſhaped, pointed leaves, ſtanding on long hairy foot-ſtalks. The flowers are produced in ſmall bunches at the wings of the leaves, theſe are ſtar-ſhaped and green when they firſt appear, but afterward fade to a worn-out purple colour. They appear in July and Auguſt, but are not ſucceeded by ſeeds in England.

This plant will live in the open air in England, if it is planted in a dry ſoil and warm ſituation. It may be propagated by laying down ſome of the young ſhoots about Midſummer, which, if they are now and then refreſhed with water, will put out roots, ſo may be tranſplanted in the autumn, where they are deſigned to remain. The roots of this plant ſhould be covered in winter with ſome rotten tan to keep out the froſt, otherwiſe in ſevere winters they are liable to be deſtroyed.

The fourth ſort grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. Houſtoun; this riſes with a twining ſtalk to the height of twenty feet or upward, provided it hath ſupport; the lower part of the ſtalks are covered with a thick fungous bark, full of fiſſures, which gape open; the leaves are oblong and ſmooth, and placed by pairs oppoſite, ſtanding on long foot-ſtalks: the flowers are produced from the wings of the leaves in ſmall bunches, they are ſtar-ſhaped, and are of a yellowiſh green colour, but are not ſucceeded by pods in England.

This ſort is tender, ſo will not thrive in this country unleſs it is placed in a warm ſtove, and requires the ſame treatment as other tender plants from the ſame country; and as it abounds with a milky juice, ſo the plants muſt have little water in winter. This may be propagated by laying down of the young ſhoots, which in three or four months will put out roots, and may then be tranſplanted into pots filled with light ſandy earth, and plunged into the tan-bed in the bark-ſtove, where the plants ſhould continue all the year.

The fifth ſort grows naturally in Syria; this is a perennial plant, which riſes with ſlender upright ſtalks about three feet high, garniſhed with broad, ſmooth, heart-ſhaped leaves ending in points, placed oppoſite; the flowers come out from the wings of the leaves in ſmall bunches, ſtanding on branching foot-ſtalks; theſe are ſmall and white, greatly reſembling thoſe of the common white Aſclepias, or Swallow-wort, and are ſucceeded by oblong taper pods, filled with flat ſeeds crowned with down, but theſe rarely ripen in this country.

It is propagated by parting of the root; the beſt time for doing of this or tranſplanting of the roots, is in the ſpring, before they ſhoot: this requires a warm ſituation, otherwiſe it will not live abroad in England.

The ſixth ſort grows naturally at La Vera Cruz in New Spain, from whence the ſeeds were ſent me by the late Dr. Houſtoun; this hath a ſhrubby twining ſtalk, which twiſts about whatever prop is near it, and riſes to the height of twenty feet or upward; the ſtalks are very ſlender, and are armed with ſmall ſtinging hairs, and garniſhed with broad heart-ſhaped leaves, which end in acute points; theſe are placed by pairs at each joint, which are far diſtant, and have ſlender foot-ſtalks; they are covered with rough hairs on their under ſide; the flowers are produced in ſmall cluſters, ſitting cloſe to the ſide of the ſtalks; they are pretty large, yellow, and ſtar-ſhaped, ſpreading open to the bottom; they are ſucceeded by long ſwelling pods, filled with flat ſeeds lying imbricatim, which are crowned with long down.

This ſort is tender, ſo requires the ſame treatment as the fourth, and is propagated the ſame way.

CYNARA. Lin. Gen. Plant. 835. Cinara. Tourn. Inſt. R. H. 442. tab. 254. Artichoke, in French *Artichaut.*

The Characters are,

It hath a compound flower, made up of many hermaphrodite florets, which are included in one common ſcaly empalement, which is ſwollen in the bottom. The florets are tubulous, equal, and uniform, divided at the top into five narrow ſegments. Theſe have five ſhort hairy ſtamina, terminated by cylindrical ſummits, which have five indentures; at the bottom of each is ſituated an oval germen, ſupporting an oblong ſtyle, crowned by an oblong indented ſtigma. The germen afterward becomes a ſingle, oblong, compreſſed, four-cornered ſeed, crowned with long hairy down.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis; the plants of this claſs and ſection have only hermaphrodite florets which are fruitful.

The Species are,

1. Cynara (*Scolymus*) foliis ſubſpinoſis, pinnatis indiviſiſque, calycinis ſquamis ovatis. Lin. Sp. Plant. 827. *Artichoke with ſpiny leaves which are winged and undivided, and an oval ſcaly empalement.* Cynara hortenſis aculeata. C. B. P. 383. *The green or French Artichoke.*
2. Cynara (*Hortenſis*) foliis pinnatis inermibus, calycinis ſquamis obtuſis emarginatis. *Artichoke with winged leaves having no ſpines, and obtuſe indented ſcales to the empalement.* Cynara hortenſis foliis non aculeatis. C. B. P. 383. *The Globe Artichoke.*
3. Cynara (*Cardunculus*) foliis ſpinoſis, omnibus pinnatifidis, calycinis ſquamis ovatis. Lin. Sp. Plant. 827. *Cynara with prickly leaves which all end in winged points, and oval ſcales to the empalement.* Cynara ſpinoſa, cujus pediculi eſitantur. C. B. P. 383. *The Cardoon, in French* Chardon.
4. Cynara (*Humilis*) foliis ſpinoſis, pinnatifidis, ſubtus tomentoſis, calycibus ſquamis ſubulatis. Lin. Sp. Plant. 828. *Cynara with winged prickly leaves, woolly on their under ſide, and awl-ſhaped ſcales to the empalement.* Cynara ſylveſtris Bœtica. Cluſ. Cur. Poſt. 15. *Wild Artichoke of Spain.*

The firſt ſort is commonly known here by the title of French Artichoke, being the ſort which is moſt commonly cultivated in France, and is the only kind in Guernſey and Jerſey; the leaves of this ſort are terminated by ſhort ſpines, the head is oval, and the ſcales do not turn inward at the top like thoſe of the Globe Artichoke, the heads are alſo of a green colour; the bottoms of theſe are not near ſo thick of fleſh as thoſe of the Globe, and they have a perfumed taſte, which to many perſons is very diſagreeable; ſo that it is ſeldom cultivated in the gardens near London, where the Globe or red Artichoke is the only ſort in eſteem. The leaves of this are not prickly, the head is globular, a little compreſſed at the top, the ſcales lie cloſe over each other, and their ends turn inward, ſo as to cloſely cover the middle.

The culture of theſe having been fully treated under the article Artichoke, the reader is deſired to turn to that, to avoid repetition.

The Chardon, or Cardoon, is propagated in the kitchen gardens to ſupply the markets; this is annually raiſed from ſeeds, which ſhould be ſown upon a bed of light earth in March; and when the plants come up, they ſhould be thinned where they are too cloſe; and if the plants are wanted, thoſe which are drawn out may be tranſplanted into a bed at about three or four inches diſtance, where they ſhould remain till they are tranſplanted out for good. Theſe young plants muſt be kept clean from weeds, and in the beginning of June they muſt be tranſplanted out, on a moiſt rich ſpot of ground at about four feet aſunder every way; the ground ſhould be well dug before they are planted, and the plants ſhould be well watered until they have taken new root, after which the ground muſt be kept very clean from weeds, to encourage the growth of the plants; and as they advance in height, there ſhould be ſome earth drawn up about each plant; and when they are fully grown, their leaves ſhould be cloſely tied up with a hay-band, and the earth drawn up in hills about each plant, almoſt to their tops, being careful to keep the earth from falling between the leaves, which may occaſion the rotting of the plants. The earth ſhould be ſmoothed over the ſurface that the wet may run off, and not fall into the center of the plants, which will alſo cauſe them to rot; in about eight or ten weeks after the plants have been thus earthed, they will be blanched enough for uſe; ſo that if a ſucceſſion of them are wanted for the table, there ſhould be but few plants earthed up at the ſame time; but once in a fortnight there may be a part of them earthed, in proportion to the quantity deſired.

Toward the middle, or latter end of November, if the froſt ſhould be ſevere, it will be proper to cover the tops of thoſe plants which remain with Peaſehaulm or ſtraw, to prevent the froſt from penetrating to the tender leaves, which frequently pinches them where there is not this covering, but this ſhould be taken off again in mild weather; if this care is taken, the plants may be preſerved for uſe moſt part of the winter.

If a few of the plants are planted out in a warm ſituation to ſtand for ſeed, they ſhould not be blanched, but only in very hard froſt ſome light litter, or Peaſehaulm, may be laid round them to keep out froſt, which ſhould be removed in the ſpring, and the ground gently dug between the plants, which will not only deſtroy the weeds, but alſo encourage the roots of the plants to ſhoot out on every ſide, whereby their ſtems will be ſtronger; theſe will flower about the beginning of July, and if the ſeaſon proves dry, their ſeeds will ripen in September; but in cold wet ſeaſons, theſe ſeeds will not come to maturity in England.

The fourth ſort grows naturally in Spain, and alſo on the African ſhore, and is preſerved in gardens for the ſake of variety; this is very like the third ſort, but the ſtems of the leaves are much ſmaller, and do not grow more than half ſo high. The heads of this have ſome reſemblance to thoſe of the French Artichoke, but have no meat, or fleſhy ſubſtance in their bottoms: this may be planted in the ſame manner as the third ſort, at about three or four feet apart, and will require no other treatment, than the keeping them clean from weeds; the ſecond year they will flower, and, if the ſeaſon proves dry, they will ripen their ſeeds in September, and the plants generally decay the following winter, eſpecially if the winter proves ſevere, unleſs they are covered.

CYNOGLOSSUM. Lin. Gen. Plant. 168. Tourn. Inſt. R. H. 139. tab. 57. Omphalodes. Tourn. 140. tab. 59. [Κυνόγλωσσον, of Κυνός, a dog, and Γλῶσσα, *Gr.* the tongue, ſo called becauſe the leaves of this plant reſemble a dog's tongue.] Hounds Tongue, in French, *Langue de Chien.*

The Characters are,

It hath a funnel-ſhaped flower of one leaf, with a long tube, and a ſhort brim, which is ſlightly cut into five parts, and is ſhut up at the chaps; this hath an oblong permanent empalement, cut into five acute ſegments. The flower hath five ſhort ſtamina in the chaps of the petal, terminated by roundiſh ſummits, and at the bottom of the tube are ſituated four germen, between which ariſes a permanent ſtyle the length of the ſtamina, crowned by an indented ſtigma; the empalement afterward becomes four capſules, incloſing four oval ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Cynoglossum (*Officinale*) ſtaminibus corollâ brevioribus, foliis lato-lanceolatis tomentoſis ſeſſilibus. Lin. Sp. Plant. 134. *Hounds Tongue with ſtamina ſhorter than the petal, and broad ſpear-ſhaped leaves, which are woolly, ſitting cloſe to the ſtalk.* Cynogloſſum majus vulgare. C. B. P. 257. *Common greater Hounds Tongue.*
2. Cynoglossum (*Appeninum*) ſtaminibus corollam æquantibus. Hort. Upſal. 33. *Hounds Tongue with ſtamina equalling the petal.* Cynogloſſum montanum maximum. Tourn. Inſt. R. H. 139.
3. Cynoglossum (*Creticum*) foliis oblongis tomentoſis, amplexicaulibus, caule ramoſo, ſpicis florum longiſſimis ſparſis. *Hounds Tongue with oblong woolly leaves embracing the ſtalks, a branching ſtalk, and very long looſe ſpikes to the flowers.* Cynogloſſum Creticum latifolium fœtidum. C. B. P. 257.
4. Cynoglossum (*Cheirifolium*) corollis calyce duplo longioribus, foliis lanceolatis. Prod. Leyd. 406. *Hounds Tongue having a petal twice the length of the empalement, and ſpear-ſhaped leaves.* Cynogloſſum Creticum, argenteo anguſto folio. C. B. P. 257.
5. Cynoglossum (*Virginianum*) foliis amplexicaulibus ovatis. Lin. Sp. 193. *Hounds Tongue with oval leaves which embrace the ſtalk.* Cynogloſſum Virginianum flore minimo albo. Baniſter. Cat.

6. Cynoglossum (*Luſitanicum*) foliis lineari lanceolatis ſcabris. Lin. Sp. 193. *Hounds Tongue with linear, ſpear-ſhaped, rough leaves.* Omphalodes Luſitanica elatior Cynogloſſi folio. Tourn. Inſt. R. H. 140.
7. Cynoglossum (*Linifolium*) foliis lineari-lanceolatis glabris. Hort. Cliff. 47. *Hounds Tongue with ſmooth, narrow, ſpear-ſhaped leaves.* Omphalodes Luſitanica lini folio. Tourn. Inſt. 140. *Commonly called Venus Navelwort.*
8. Cynoglossum (*Omphalodes*) repens, foliis radicalibus cordatis. Hort. Cliff. 47. *Creeping Hounds Tongue, whoſe lower leaves are heart-ſhaped.* Omphalodes pumila verna ſymphyti folio. Tourn. Inſt. 140.

The firſt ſort grows naturally by the ſide of hedges and foot-ways in many parts of England, ſo is ſeldom admitted into gardens; the roots of this ſort are uſed in medicine, which are gathered by the herb-folks in the fields. The leaves of this plant have a ſtrong odour, like that of mice in a trap. It flowers in June, and the ſeeds ripen in autumn.

The ſecond ſort grows naturally on the Apennine mountains; the leaves of this ſort are much larger, the petal of the flower is ſhorter, and the plants grow taller than thoſe of the firſt, and come earlier to flower in the ſpring; this is equally hardy as the common ſort, and where the ſeeds are permitted to ſcatter, there will be plenty of the plants ariſe without care.

The third ſort grows naturally in Andaluſia, I received the ſeeds of this from Gibraltar; this hath a tall branching ſtalk, garniſhed with oblong woolly leaves, which embrace the ſtalk with their baſe. The flowers are produced in looſe ſpikes, which come out from the ſide of the ſtalk, and are from ſix to eight inches long, the flowers are thinly placed on one ſide; theſe are blue, ſtriped with red, and appear in June. The ſeeds ripen in autumn, ſoon after which the root decays.

The fourth ſort grows naturally in Spain, and alſo in the iſland of Crete; I received this from Gibraltar, with thoſe of the former; this riſes with an upright ſtalk little more than a foot high, garniſhed with long, narrow, ſilvery leaves, having no foot-ſtalks. The flowers are produced from the ſide, and at the top of the ſtalks, which are but thinly diſperſed on the ſide, but at the top of the ſtalk are in ſmall cluſters; they are of a deep purple colour, and much longer than the empalement; theſe are ſucceeded by four broad buckler-ſhaped ſeeds, which are rough. It flowers in June, and the ſeeds ripen in autumn, ſoon after which the roots generally periſh.

The fifth ſort grows naturally in Virginia, and in other northern parts of America; this riſes with an upright branching ſtalk near four feet high. The ſtalks and leaves are covered with rough hairs, the branches are ſpread out on every ſide, and are but thinly garniſhed with leaves, from three to near four inches in length, and little more than one inch broad in the middle, gradually leſſening to both ends; they embrace the ſtalks with their baſe, and are placed alternate; the flowers grow ſcatteringly toward the end of the branches; theſe are ſmall and white; they appear in June, and are ſucceeded by four ſmall ſeeds, which ripen in autumn, and then the plants decay.

The ſixth ſort grows naturally in Portugal, where it was firſt diſtinguiſhed from the ſeventh by Dr. Tournefort. The ſeventh ſort had been long before that cultivated in the gardens for ornament, by the title of Venus Navelwort, but of late years that has been almoſt loſt; and the ſixth ſort is now generally preſerved in the Engliſh gardens, and the ſeeds are ſold by the ſeedſmen under that title, and is a much larger plant than the other, ſo makes a better appearance. The leaves of the ſixth ſort are broad at their baſe, and are gradually narrowed to the end; they are ſlightly covered with hairs. The ſtalks grow nine or ten inches high, and divide into many branches, each being terminated by a long looſe ſpike of white flowers, ſtanding on ſeparate foot-ſtalks, which are ſucceeded by four umbilicated ſeeds, from whence it had the title of Navelwort.

The ſeventh ſort ſeldom riſes more than five or ſix inches high; the ſtalks do not branch near ſo much as thoſe of the ſixth. The leaves are very narrow and long, of a grayiſh colour, and ſmooth. The flowers grow in ſhort looſe panicles at the end of the branches; theſe are white, but ſmaller than thoſe of the other ſort, and are ſucceeded by ſeeds of the ſame form. This plant was formerly titled Linum Umbillicatim, i. e. *umbilicated Flax*, from the leaves having ſome appearance of Flax, and the ſeeds having a hollow like a navel.

Theſe are both annual plants, and have been commonly ſown in gardens, with other low annual flowers, to adorn the borders of the flower-garden; but theſe ſhould be ſown in autumn, for thoſe which are ſown in the ſpring often fail, eſpecially in dry ſeaſons; and the autumnal plants always grow much larger than thoſe which ariſe from the ſpring ſowing, and come to flower earlier in the year. The ſeeds ſhould be ſown where the plants are deſigned to remain, for they do not bear tranſplanting, unleſs it is performed while they are young. The plants require no other culture but to be thinned where they are too cloſe, and kept clean from weeds. They flower in June and July, and the autumnal plants come a month earlier; their ſeeds ripen in autumn.

The eighth ſort is a low perennial plant, which grows naturally in the woods of Spain and Portugal, where it uſually flowers about Chriſtmas; this hath trailing branches, which put out roots from their joints, whereby it propagates very faſt. The leaves are heart-ſhaped, of a bright green colour, and ſtand upon long ſlender foot-ſtalks. The flowers grow in looſe panicles, which ariſe from the diviſions of the ſtalk; they are ſhaped like thoſe of Borage, but are ſmaller, and of a lively blue colour; they appear in March and April, and in a cool ſhady ſituation continue great part of May, but are rarely ſucceeded by ſeeds; but the plants propagate themſelves ſo faſt by their trailing branches, as to render the cultivation of them by ſeeds unneceſſary. It delights in a moiſt cool ſituation.

CYPERUS, Cypreſs Graſs.

There are about twenty ſpecies of this genus known, ſome of which grow naturally in England, but the far greateſt number are natives of America, where they grow in moiſt ſqualid places; and as there are not above two or three ſpecies which are preſerved in gardens, ſo it will be to little purpoſe to enumerate the others.

The Species are,

1. Cyperus (*Longus*) culmo triquetro folioſo, umbella folioſo ſupra decompoſita, pedunculis nudis, ſpicis alternis. Prod. Leyd. 50. *Cypreſs with a three-cornered ſtalk, an umbel with many leaves, alternate ſpikes on naked foot-ſtalks. Long-rooted Cypreſs of the ſhops.*
2. Cyperus (*Rotundus*) culmo triquetro ſubnudo, umbella decompoſita, ſpicis alternis linearibus. Flor. Zeyl. 36. *Cypreſs with a three-cornered naked ſtalk, a decompounded umbel, and linear ſpikes placed alternate. Round-rooted Cypreſs of the ſhops.*

The firſt ſort grows naturally in France and Italy, from whence the plant was brought for medicinal uſe, but at preſent it is very ſeldom uſed in England. The roots of this ſort are compoſed of many ſtrong fleſhy fibres which root deep in the ground, ſending up every ſpring a great number of graſſy three-cornered leaves near two feet long; the flower-ſtalks are triangular, nearly of the ſame length, ſupporting an umbel at the top, having many narrow triangular leaves under it; the ſpikes of the umbel are like thoſe of ſome ſorts of graſs, but the ſeeds rarely ripen in England; ſo the plant is here propagated by dividing the root in the ſpring, and if planted in a warm ſituation, will thrive here in the open air.

The ſecond ſort is tenderer than the firſt, ſo the round compreſſed roots ſhould be planted in pots, and ſheltered in winter.

CYPRIPEDIUM. Lin. Gen. Plant. 906. Calceolus. Tourn. Inſt. R. H. 436. tab. 249. Ladies Slipper, in French, *Sabot*.

The CHARACTERS are,

It hath a ſimple ſpadix. The germen ſits under the flower, which is covered with a ſpatha or ſheath. The flowers have four or five narrow ſpear-ſhaped petals, which expand. The nectarium, which is ſituated between the petals, is ſwollen and hollow, in ſhape of a ſhoe, or ſlipper. It hath two ſhort ſtamina which ſit upon the pointal, and are terminated by erect ſummits, which join to the upper lip of the nectarium; below the flower is fixed a ſlender contorted germen, ſupporting a ſhort ſtyle, adhering to the upper lip of the nectarium, crowned by an obſolete ſtigma. The germen afterward becomes an oval blunt capſule with three corners, having three furrows, three valves, and one cell, which is filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's twentieth claſs, intitled Gynandria Diandria, the plants of this claſs and ſection have two ſtamina fixed to the ſtyle.

The SPECIES are,

1. CYPRIPEDIUM (*Calceolus*) radicibus fibroſis, foliis ovato-lanceolatis caulinis. Act. Upſal. 1740. *Ladies Slipper with fibrous roots, the leaves on the ſtalks oval and ſpear-ſhaped.* Calceolus Mariæ. Ger. 359. *Our Lady's Slipper.*
2. CYPRIPEDIUM (*Bulboſum*) ſcapo unifloro, foliis oblongis glabris petalis anguſtis acuminatis. *Ladies Slipper with one flower in a ſheath, oblong ſmooth leaves, and very narrow pointed petals.* Calceolus Mariæ luteus. Mor. H. R. Bloſs. *Yellow Ladies Slipper.*
3. CYPRIPEDIUM (*Hirſutum*) foliis oblongo-ovatis venoſis hirſutis, flore maximo. *Ladies Slipper with oblong, oval, veined leaves, which are hairy, and a very large flower.* Calceolus flore majore. Tourn. Inſt. R. H. 437. *Ladies Slipper with a larger flower.*

The firſt ſort grows naturally in ſome ſhady woods in the north of England. I found it in the park of Borough-Hall, in Lancaſhire, the ſeat of the late Robert Fenwick, Eſq; It hath a root compoſed of many fleſhy fibres, from which ariſe, in the ſpring, two, three, or more ſtalks, in proportion to the ſtrength of the root; theſe grow nine or ten inches high, and are garniſhed with oval ſpear-ſhaped leaves, having a few longitudinal veins; in the boſom of one of the upper leaves is incloſed the flower-bud, which is ſupported by a ſlender foot-ſtalk, which generally turns a little bud on one ſide. The flower hath four dark purple petals, placed in form of a croſs, which ſpread wide open. In the center is ſituated the large hollow nectarium, almoſt as large as a bird's egg, ſhaped like a wooden ſhoe, of a pale yellowiſh colour, with a few broken ſtreaks; the opening is covered with two ears; the upper one is tender, white, and ſpotted with purple; the lower is thick, and of an herbaceous colour. The flowers appear about the end of May, and the ſtalks decay early in autumn.

The ſecond ſort grows naturally in Virginia, and other parts of North America; this hath longer and ſmoother leaves than the former. The two ſide petals of the flower are long, narrow, and terminate in acute points, and are wreathed, or undulated on their ſides. The nectarium is oblong, and narrower than in the firſt ſort, and is yellow, ſpotted with browniſh red. The ſtalks riſe near a foot and a half high.

The third ſort grows naturally in America, where the inhabitants call it Moccaſin Flower; this riſes a foot and a half high. The leaves are of an oblong oval form, and are deeply veined. The flower is large, of a reddiſh brown colour, marked with a few purple veins. This ſort flowers in the end of May.

All theſe ſorts are with difficulty preſerved in gardens; they muſt be planted in a loamy ſoil, and in a ſituation where they may have the morning ſun only. They muſt be procured from the places where they naturally grow, for they cannot be propagated in gardens. The roots ſhould be ſeldom removed, for tranſplanting them prevents their flowering.

CYSTICAPNOS. See FUMARIA.

CYTISO-GENISTA. See SPARTIUM.

CYTISUS. Lin. Gen. Plant. 785. Tourn. Inſt. R. H. 647. tab. 416. [ſo called from Cythos, an iſland in the Archipelago, where it grew in great plenty.] Baſe-tree Trefoil, in French, *Citiſe*.

The CHARACTERS are,

It hath a butterfly flower, with a ſhort bell-ſhaped empalement of one leaf, divided in two lips, the upper being bifid and acute, the under indented in three parts. The ſtandard of the flower is riſing, oval, and reflexed on the ſides. The wings are obtuſe, erect, and the length of the ſtandard. The keel is bellied and acute. It hath ten ſtamina, nine joined, and one ſtanding ſeparate, terminated by riſing ſummits. It hath an oblong germen, ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes an oblong blunt pod, narrow at their baſe, filled with kidney-ſhaped flatted ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, from the flowers having ten ſtamina divided into two bodies.

The SPECIES are,

1. CYTISUS (*Laburnum*) foliis oblongo-ovatis, racemis brevioribus pendulis, caule arboreo. *Cytiſus with oblong oval leaves, ſhort ſpikes of flowers hanging downward, and a tree-like ſtalk.* Cytiſus Alpinus latifolius, flore racemoſo pendulo. Tourn. Inſt. R. H. 648. *Commonly called Laburnum.*
2. CYTISUS (*Alpinus*) foliis ovato-lanceolatis, racemis longioribus pendulis, caule fruticoſo. *Cytiſus with oval ſpear-ſhaped leaves, long pendulous bunches of flowers, and a ſhrubby ſtalk.* Cytiſus Alpinus anguſtifolius, flore racemoſo pendulo longiore. Tourn. Inſt. R. H. 648. *Commonly called long-ſpiked Laburnum.*
3. CYTISUS (*Nigricans*) racemis ſimplicibus erectis, foliolis ovato-oblongis. Hort. Cliff. 354. *Cytiſus with ſingle erect bunches of flowers, and oval oblong leaves.* Cytiſus glaber nigricans. C. B. P. 390. *Black ſmooth Cytiſus.*
4. CYTISUS (*Seſſilibus*) racemis erectis, calycibus bracteâ triplici auctis, foliis floralibus ſeſſilibus. Lin. Sp. Plant. 739. *Cytiſus with erect bunches of flowers, three laminæ under the empalement, and the leaves on the flower branches ſitting cloſe.* Cytiſus glabris, foliis ſubrotundis, pediculis breviſſimis. C. B. P. 390. *Commonly called by the gardeners,* Cytiſus ſecundus Cluſii.
5. CYTISUS (*Hirſutis*) pedunculis ſimplicibus lateralibus, calycibus hirſutis trifidis ventricoſo-oblongis. Hort. Upſal. 211. *Cytiſus with ſingle foot-ſtalks on the ſide of the branches, trifid hairy empalements, oblong and bellied.* Cytiſus incanus ſiliqua longiore. C. B. P. 390. *Commonly called hairy, or Evergreen Cytiſus of Naples.*
6. CYTISUS (*Argenteus*) floribus ſeſſilibus, foliis tomentoſis, caulibus herbaceis. Lin. Sp. Plant. 740. *Cytiſus with flowers ſitting cloſe to the branches, woolly leaves, and an herbaceous ſtalk.* Cytiſus humilis argenteus anguſtifolius. Tourn. Inſt. 648.
7. CYTISUS (*Supinus*) floribus umbellatis terminalibus, ramis decumbentibus, foliolis ovatis. Lin. Sp. 1042. *Low Cytiſus with umbellated flowers terminating the branches, which are trailing, and oval leaves.* Cytiſus ſupinus foliis infra & ſiliquis molli lanugine pubeſcentibus. C. B. P. 390.
8. CYTISUS (*Auſtriacus*) floribus umbellatis terminalibus, caulibus erectis foliolis lanceolatis. Lin. Sp. 1042. *Cytiſus with umbellated flowers terminating the branches, erect ſtalks and ſpear-ſhaped leaves.* Cytiſus floribus capitatis, foliolis ovato-oblongis, caule fruticoſo. Dict. Hort. *Commonly called Siberian Cytiſus.*
9. CYTISUS (*Æthiopicus*) racemis lateralibus ſtrictis, ramis angulatis, foliolis cuneiformibus. Lin. Sp. 1042. *Cytiſus with narrow bunches of flowers proceeding from the ſide of the branches, which are angular, and wedge-ſhaped leaves.* Cytiſus Æthiopicus, ſubrotundis incanis minoribus foliis, floribus parvis luteis. Pluk. Alm. 128.
10. CYTISUS (*Græcus*) foliis ſimplicibus lanceolato-linearibus, ramis angulatis. Lin. Sp. 1043. *Cytiſus with ſingle, linear, ſpear-ſhaped leaves, and angular branches.* Barba Jovis linariæ folio, flore luteo parvo. Tourn. Cor. 44.

11. Cytiſus (*Cayan*) racemis axillaribus erectis, foliolis ſublanceolatis tomentoſis, intermedio longiùs petiolato. Flor. Zeyl. 357. *Cytiſus with erect ſpikes of flowers proceeding from the ſides of the branches, and ſpear-ſhaped leaves which are woolly, the foot-ſtalk of the middle one being the longeſt.* Cytiſus arboreſcens, fructu eduli albo. Plum. Cat. 19. *Commonly called Pidgeon Pea in America.*

The firſt ſort is the common broad-leaved Laburnum, which was formerly in greater plenty in the Engliſh gardens than at preſent; for ſince the ſecond ſort hath been introduced, it has almoſt turned this out; the ſpikes of flowers being much longer, they make a finer appearance when they are in flower, which has occaſioned their being more generally cultivated; but the firſt grows to be the largeſt tree, and the wood of it is very hard, of a fine colour, and will poliſh very well; it approaches near to green Ebony, ſo is by the French titled Ebony of the Alps, and is there uſed for many kinds of furniture; but in England there are few of theſe trees which have been ſuffered to ſtand long enough to arrive to any conſiderable ſize, for as they have been only conſidered as an ornamental tree, the frequent alterations which moſt of the gardens in England have undergone, have occaſioned their being rooted out wherever they were growing; but in ſome of the old gardens in Scotland, where they have been permitted to ſtand, there are large trees of this kind, which are fit to cut down for the uſe of the timber. I have ſeen two old trees of it in gardens, which were more than a yard in girt, at ſix feet from the ground, and theſe had been broken and abuſed, otherwiſe might have been much larger: they grow very faſt, and are extremely hardy, ſo may be well worth propagating upon poor ſhallow ſoils, and in expoſed ſituations. His Grace the Duke of Queenſberry ſowed a great quantity of the ſeeds of this tree, upon the ſide of the downs, at his ſeat near Ameſbury, in Wiltſhire, where the ſituation was very much expoſed, and the ſoil ſo ſhallow, as that few trees would grow there; yet in this place the young trees were twelve feet high in four years growth, ſo became a ſhelter to the other plantations, for which purpoſe they were deſigned; but the hares and rabbits are great enemies to theſe trees, by barking them in winter, ſo that where theſe trees are cultivated, they ſhould be fenced from theſe animals.

Both theſe ſorts are eaſily propagated by ſeeds, which the trees produce in great plenty. If theſe are ſown upon a common bed in March, the plants will appear by the middle or end of April, and will require no other care but to be kept clean from weeds during the following ſummer; and if the plants are too cloſe together, they may be tranſplanted the autumn following, either into a nurſery, where they may grow a year or two to get ſtrength, or into the places where they are deſigned to remain: where people would cultivate them for their wood, it will be the beſt way to ſow the ſeeds upon the ſpot where they are intended to grow, becauſe theſe trees ſend out long, thick, fleſhy roots to a great diſtance, which will penetrate gravel or rocks; and if theſe roots are cut or broken, it greatly retards their growth; therefore when they are not ſown upon the intended ſpot, they ſhould be tranſplanted thither young, otherwiſe they will not grow to near the ſize; though where they are only deſigned for ornament, the removing the plants twice will ſtop their growth, and cauſe them to be more productive of flowers; but all trees intended for timber, are much better ſown on the ground where they are deſigned to ſtand, than if they are tranſplanted.

If the ſeeds of theſe trees are permitted to ſcatter in winter, the plants will riſe in great plenty the following ſpring, ſo that a few trees will ſoon ſupply any perſon with a ſufficient number of the plants.

Theſe trees flower in May, at which time they make a fine appearance, their branches being generally loaded with long ſtrings of yellow flowers, which hang down from every part. The ſeeds grow in long pods, which ripen in autumn. There is a variety of both theſe trees with variegated leaves, which ſome perſons are fond of cultivating; but this is only to be done by cuttings or layers, for the ſeeds of theſe will produce plants with green leaves: the cuttings ſhould be planted in autumn, when the leaves begin to fall, and the plants muſt have a poor ſoil, for in good ground they are apt to become plain.

If the firſt ſort comes to be conſidered as a uſeful wood, which there is no reaſon to doubt it may be, it may be planted in large clumps in parks, where they will be very ornamental; and I am certain, from long experience, that this tree will thrive upon many ſoils, and in ſuch ſituations as few other trees will make any progreſs; the objection to fencing is the ſame here, as for any other trees, for wherever plantations are made, if they are not well ſecured from animals, they will not anſwer the deſign of the planters.

The ſecond ſort differs from the firſt, in having narrower leaves, longer bunches of flowers, and the trees do not grow ſo large and ſtrong; this difference I find is conſtant from ſeed. There is another ſort mentioned by Tournefort, with ſhorter bunches of flowers than either of theſe, one tree of which kind I thought I had found in a garden; the bunches of the flowers upon this tree were cloſe and almoſt round, but I ſowed the ſeeds of it, and the plants proved to be only the common ſort.

The third ſort grows naturally in Auſtria, in Italy and Spain, and at preſent is pretty rare in the Engliſh gardens; it was formerly in ſome of the curious gardens here, but had been long loſt, till a few years ago, when I procured the ſeeds from abroad, which ſucceeded in the Chelſea gardens, where the plants have flowered and produced ripe ſeeds, which have been communicated to ſeveral curious perſons.

This ſhrub ſeldom riſes more than three or four feet high in England; it naturally puts out many lateral branches near the ground, which ſpread out on every ſide, ſo as to form a low ſhrubby buſh, ſo is with difficulty raiſed to a ſtem: the branches are very ſlender, and their ends are frequently killed if the winter is ſevere; theſe are garniſhed with oblong oval leaves, growing by threes on each foot-ſtalk; they are equal in ſize, and of a dark green colour; the branches grow erect, and are terminated by ſpikes of yellow flowers, about four or five inches in length, ſtanding upright; and as all the branches are thus terminated, ſo when the ſhrubs are in flower, they make a fine appearance; it flowers in July, after moſt of the other ſorts are paſt, and the ſeeds ripen in autumn. This is propagated by ſeeds, which ſhould be ſown upon a bed of light earth in March, covering them about one third of an inch with fine ſcreened mould; in the beginning of May the plants will appear, when they muſt be carefully weeded, and during the following ſummer they muſt conſtantly be kept clean, which is all the culture they require till autumn, when it will be very proper to arch the bed over with hoops, that in froſty weather the plants may be covered with mats, to prevent their tender ſhoots from being killed; for as theſe young plants are apt to continue growing later in the autumn than thoſe which are become woody, ſo they are much more ſuſceptible of cold; therefore where there is not ſome care taken to cover them, if the winter ſhould prove ſevere, many of them may be entirely deſtroyed, and the others killed to the ground. The ſpring following, after the danger of hard froſt is over, the plants ſhould be carefully taken up, and planted out at the diſtance of one foot, row from row, and ſix inches aſunder in the rows; this ſhould be in a ſheltered ſituation, and as theſe plants do not ſhoot till late in the ſpring, ſo they need not be tranſplanted before the end of March, or the beginning of April; and if the ſeaſon ſhould then prove warm and dry, it will be proper to give the plants ſome water to ſettle the earth to their roots; and if the drought continue, and the waterings are three times repeated at a week's interval from each, it will be of ſervice to the plants. After they have taken new root, they will require no farther care, but to keep them conſtantly clean from weeds; in this nurſery the plants may remain two years, in which time they will have acquired ſtrength enough to be tranſplanted where they are to remain. There is a figure of this ſhrub exhibited in the 117th plate of my figures of plants.

The fourth ſort grows naturally in the ſouth of France, in Spain and Italy, but has been long cultivated in the nurſery gardens, as an ornamental flowering ſhrub, by the title of Cytiſus ſecundus Cluſii. This riſes with a woody ſtalk, putting out many branches which are covered with a browniſh bark, and garniſhed by obverſe, oval, ſmall leaves, growing by threes on very ſhort foot-ſtalks. The flowers are produced in cloſe ſhort ſpikes at the end of the branches, ſtanding erect; they are of a bright yellow colour, and appear in June; theſe are ſucceeded by ſhort broad pods, which contain one row of kidney-ſhaped ſeeds, which ripen in Auguſt. Theſe ſhrubs will riſe to the height of ſeven or eight feet, and become very buſhy; they are very hardy, ſo will thrive in any ſituation, and upon almoſt any ſoil, which is not too wet. They are propagated by ſeeds, which may be ſown upon a common bed of light earth in the ſpring, and kept clean from weeds the following ſummer; and in autumn the plants may be tranſplanted into a nurſery in rows, one foot apart, and at ſix inches diſtance in the rows, where they may remain two years to acquire ſtrength, and ſhould then be removed to the places where they are deſigned to grow.

The fifth ſort hath a ſoft ſhrubby ſtalk, dividing into many branches, which grow erect, and frequently riſe to the height of eight or ten feet; the ſtalks and leaves of this are very hairy; the leaves are oval, growing three upon each foot-ſtalk, and are placed cloſely on the branches; the flowers come out from the ſide of the ſtalk, in ſhort bunches; they are of a pale yellow, and appear in June; theſe are ſucceeded by long, narrow, hairy pods, with one row of kidney-ſhaped ſeeds, which ripen in September.

This ſort, of late years, has been much cultivated in the nurſery gardens near London, by the title of Evergreen Cytiſus of Naples; but as in ſevere froſt theſe ſhrubs are ſometimes killed, ſo they are not proper for every ſituation, therefore ſhould only be planted on a dry ſoil, and in warm ſituations; they are alſo very difficult to remove, when grown to any ſize, for they ſhoot long roots deep into the ground, and when theſe are broken or cut, the plants ſeldom ſurvive it. This may be propagated in the ſame manner as hath been directed for the third ſort. It grows naturally in the ſouth of France, in Spain and Italy.

The ſixth ſort hath herbaceous ſtalks, garniſhed with woolly leaves; the flowers are produced ſometimes ſingle, at other times two, three, or more grow together at the end of the branches; theſe appear in June, and are ſucceeded by hairy pods.

This plant is propagated by ſeeds, which may be ſown at the ſame time, and the plants ſhould be afterward treated in the ſame way, as is directed for the third ſort.

The ſeventh ſort grows naturally in Sicily, Italy, and Spain; this is a perennial plant, from whoſe downright root proceed ſeveral weak branches which trail upon the ground, and extend to the length of eight or ten inches; theſe are garniſhed with oblong leaves, placed by threes upon pretty long foot-ſtalks; they are hoary on their under ſide, but ſmooth above; the flowers are collected in heads at the end of the ſtalks, having a cluſter of leaves under them; they are of a deep yellow colour, and appear the latter end of June, and in warm ſeaſons theſe are ſucceeded by flat woolly pods, containing one row of ſmall kidney-ſhaped ſeeds, which ripen in September. This plant is propagated by ſeeds, which ſhould be ſown where the plants are to remain, and ſhould be treated in the ſame manner as the ſixth ſort.

The eighth ſort grows naturally in Tartary, from whence the eeds were ſent to the Imperial garden at Peterſburgh, and hath ſince been ſent to many of the curious gardens in Europe, which have been furniſhed with the ſeeds. This hath a ſhrubby ſtalk, which riſes near four feet high, dividing into many branches, which when young are covered with a green bark, cloſely garniſhed by oblong, oval, ſmooth leaves, which are of a hoary green colour; the flowers are produced in cloſe heads at the end of the branches, having a cluſter of leaves under them; they are of a bright yellow colour, and appear in the beginning of May; theſe are ſometimes ſucceeded by ſhort woolly pods, containing three or four ſmall kidney-ſhaped ſeeds in each. This is propagated by ſeeds, which ſhould be ſown early in April, on a border of ſtrong ground expoſed to the eaſt; for if they are ſown where they have full ſun, the plants will not thrive. This requires a cold ſituation and a pretty ſtrong ſoil, otherwiſe it will not thrive.

The ninth ſort grows naturally about Algiers, from whence the Rev. Dr. Shaw brought the ſeeds, which ſucceeded in the Chelſea garden. This riſes with a ſoft ſhrubby ſtalk to the height of eight or ten feet, putting out many ſlender branches on every ſide, garniſhed with ſmall wedge-ſhaped leaves, which are indented at the top, of a dark green colour and ſmooth; the flowers come out frequently ſingle from the ſide of the branches, theſe are large and of a bright yellow; they appear in June, and are ſometimes ſucceeded by pods containing three or four kidney-ſhaped ſeeds, which ripen in autumn. This ſort is too tender to live in the open air through the winter in England, therefore the plants muſt be treated in the ſame way as thoſe which are natives of the ſame country.

The tenth ſort grows naturally in the iſlands of the Archipelago; it riſes with a ligneous ſtalk ſix or ſeven feet high, ſending out many angular lateral branches, garniſhed with ſingle, narrow, ſpear-ſhaped leaves; the flowers are produced in ſhort bunches from the ſide of the branches; they are ſmall, yellow, and appear in July and Auguſt, but are not ſucceeded by ſeeds in England.

This is propagated by cuttings, which if planted on a bed of light earth the beginning of July, and are cloſely covered with a bell or hand-glaſs, which ſhould be ſhaded from the ſun in the middle of the day, they will put out roots by the middle or end of September; when they ſhould be carefully taken up, planting each in a ſeparate ſmall pot, carefully watering and ſhading them until they have taken new root; after which they may be expoſed in a ſheltered ſituation till the end of October, when they muſt be removed into ſhelter, for this plant is too tender to live in the open air in England.

The eleventh ſort grows naturally in the iſlands of America, and alſo at the Cape of Good Hope. This riſes with a weak ſhrubby ſtalk eight or ten feet high, ſending out many erect ſide branches, which grow erect, and are garniſhed with ſpear-ſhaped woolly leaves, placed by threes, the middle lobe having a longer diſtinct foot-ſtalk, than the two on each ſide which grow cloſe to the principal foot-ſtalk. The flowers come out from the ſide of the branches, ſometimes ſingle, at other times in cluſters; they are of a deep yellow colour, and about the ſize of thoſe of the common Laburnum; theſe are ſucceeded by hairy pods about three inches long, which are ſickle-ſhaped, ending with a long acute point, ſwelling at the place where each ſeed is lodged; the ſeeds are roundiſh, a little inclined to a kidney-ſhape. Theſe ſeeds are eſteemed an excellent food for pigeons in America, from whence it had the title of Pigeon Pea.

This plant grows only in very warm countries, ſo cannot be preſerved in England, unleſs it is placed in a warm ſtove. It riſes eaſily from ſeeds in a hot-bed, and will grow three or four feet high the firſt year, provided they have a proper heat, and the ſecond year they will produce flowers and ſeeds. The plants muſt be placed in the bark-bed in the ſtove, and treated in the ſame manner as other tender plants from the ſame countries: they ſhould have but little water in winter, and in the ſummer ſhould have a large ſhare of free air admitted to them in warm weather.

D.

DAFFODIL. See NARCISSUS.

DAISIES. See BELLIS.

DALECHAMPIA. Lin. Gen. Plant. 1022. Plum. Nov. Gen. 17. tab. 38.

This plant was ſo named by father Plumier, in honour of the memory of Jacobus Dalechamp, who was a curious botaniſt.

The CHARACTERS are,

It hath male and female flowers on the ſame plant; the male flowers are ſituated between two bractea; they have a common involucrum cut into four erect ſegments; the empalement is compoſed of ſix obtuſe oval leaves, reflexed at their points. They have no petals, but have a broad nectarium, having many plain folds lying over each other, and many ſtamina joined in a long column, terminated by roundiſh ſummits having four furrows; the female flowers are alſo ſituated in the ſame manner as the male; theſe have a permanent three-leaved involucrum, and each have a permanent ten-leaved empalement; they have no petals, but a roundiſh germen ſhorter than the empalement, having three furrows ſupporting a long ſlender ſtyle, bending toward the male flowers, crowned by a beaded ſtigma; the germen afterward becomes a roundiſh capſule with three cells, incloſing one roundiſh ſeed in each.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Monadelphia, the plants having male and female flowers on the ſame root, and the ſtamina of the male flowers are joined in one body to the ſtyle.

We have but one SPECIES of this in England, viz.

DALECHAMPIA (*Scandens*) foliis trilobis glabris, floribus axillaribus caule volubili. *Dalechampia with ſmooth leaves having three lobes, flowers growing from the ſides of the branches, and a twining ſtalk.* Dalechampia ſcandens, lupuli foliis, fructu tricocco glabro, calyce hiſpido. Houſt. MSS.

This plant grows naturally in Jamaica, from whence the late Dr. Houſtoun ſent me the ſeeds, which ſucceeded in the Chelſea garden, where the plants have flowered and perfected their ſeeds. This muſt be a different plant from that which Plumier found growing in Martinico, or he has taken the involucrum for the ſeed-veſſel by his title of it; for he calls it fructu tricocco hiſpido, whereas this hath a ſmooth fruit with a hiſpid empalement.

It hath a root compoſed of many fibres, which extend to a great diſtance, from which ariſe ſeveral weak twining ſtalks, that faſten themſelves to the neighbouring plants, and mount up to a conſiderable height; theſe are garniſhed at each joint by one leaf, having three lobes; they are ſmooth, the two ſide lobes are oblique to the midrib, but the middle one is equal. The flowers are produced from the ſide of the ſtalks, three or four growing upon each footſtalk; ſome of theſe are male, and others female; they are of an herbaceous colour, and ſmall, ſo make no appearance; they have each a double involucrum, made up of two orders of leaves, which are narrow, and armed with ſmall briſtly hairs, which ſting the hands of thoſe who unwarily touch them; the flowers are ſucceeded by roundiſh capſules, having three prominent lobes which are ſmooth, each incloſing a ſingle ſeed.

This plant is propagated by ſeeds, which muſt be ſown early in the ſpring on a hot-bed; and when the plants are come up three inches high, they ſhould be carefully tranſplanted, each into a ſeparate ſmall pot, filled with light rich earth, and then plunged into a hot-bed of tanners bark, being careful to ſcreen them from the ſun until they have taken new root; after which time the glaſſes of the hot-bed ſhould be raiſed every day, in proportion to the heat of the weather, to admit freſh air to the plants; they muſt alſo be frequently watered, for they naturally grow in moiſt places. When the plants have grown ſo large as to fill theſe pots with their roots, they ſhould be removed into larger pots, and placed in the bark-bed in the ſtove, where they muſt be ſupported either with ſtakes or a trellis, round which they will twine, and riſe to the height of eight or ten feet.

Theſe plants muſt be kept conſtantly in the ſtove, for they are too tender to bear the open air in this country, even in the ſummer ſeaſon; therefore they ſhould be placed with Convolvuluſes, and other twining plants, near the back of the ſtove, where ſhould be made an eſpalier to ſupport them; in which ſituation they will thrive, and produce their flowers, and ſometimes will perfect their ſeeds in this country; but, in order to this, they ſhould have a large ſhare of freſh air in warm weather, by drawing down the upper glaſſes of the ſtove; but in winter the ſtove ſhould be kept to a temperate heat, or rather higher. In ſummer they will require a large ſhare of water, but in winter it ſhould be given to them in leſs quantities, but muſt be frequently repeated. Theſe plants do not continue above two years, ſo that young plants ſhould be raiſed in order to preſerve the kind.

DAMASONIUM, Star-headed Water Plantain.

The CHARACTERS are,

It hath a flower compoſed of three leaves, which are placed orbicularly, and expand in form of a Roſe: out of the flower-cup riſes the pointal, which afterward becomes a ſtar-ſhaped fruit, with many cells, which are full of oblong ſeeds.

The SPECIES are,

1. DAMASONIUM (*Aliſma*) ſtellatum. Lugd. *Star-headed Water Plantain.*
2. DAMASONIUM (*Flava*) Americanum maximum, plantaginis folio, flore flaveſcente, fructu globoſo. Plum. *Greateſt American Water Plantain, with a Plantain leaf, a yellowiſh flower, and a globular fruit.*

The firſt of theſe plants is a native of England; it grows commonly in ſtanding waters, which are not very deep. It is ſometimes uſed in medicine, but never cultivated in gardens, ſo muſt be gathered for uſe in the places of its growth.

The ſecond ſort grows in Jamaica, Barbadoes, and ſeveral other places in the warm parts of America, where it is generally found in ſtagnating waters, and other ſwampy places; ſo that it would be difficult to preſerve this plant in England, for it will not live in the open air, and requires a bog to make it thrive; but as it is a plant of no great beauty or uſe, it is not worth the trouble of cultivating in this country.

DANDELION. See LEONTODON.

DAPHNE. Lin. Gen. Plant. 436. Thymelæa. Tourn. Inſt. R. H. 594. tab. 366. Spurge Laurel, or Mezereon.

The Characters are,

The flower hath no empalement; it is cylindrical, of one petal, which is cut into four parts at the top, where it ſpreads open; it hath eight ſhort ſtamina inſerted in the tube, which are alternately lower, terminated by erect bilocular ſummits. The oval germen is ſituated at the bottom of the tube, and is crowned by a headed depreſſed ſtigma; the germen afterward becomes a roundiſh berry with one cell, incloſing one roundiſh fleſhy ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's eighth claſs, intitled Octandria Monogynia, from the flower having eight ſtamina and one germen.

The Species are,

1. Daphne (*Laureola*) racemis axillaribus, foliis lanceolatis glabris. Lin. Sp. Plant. 357. *Daphne with bunches of flowers proceeding from the ſides of the branches, and ſmooth ſpear-ſhaped leaves.* Thymelæa lauri folio ſempervirens, ſeu laureola mas. Tourn. Inſt. 595. *Commonly called Spurge Laurel.*
2. Daphne (*Mezereon*) floribus ſeſſilibus ternis caulinis, foliis lanceolatis deciduis. Lin. Sp. Plant. 357. *Daphne with three flowers together ſitting cloſe to the ſtalk, and ſpear-ſhaped leaves, which fall off in autumn.* Thymelæa lauri folio deciduo, ſive laureola fœmina. Tourn. Inſt. 595. *Commonly called Mezereon.*
3. Daphne (*Thymelæa*) floribus ſeſſilibus axillaribus, foliis lanceolatis, caulibus ſimpliciſſimis. Lin. Sp. Plant. 356. *Daphne with flowers ſitting cloſe to the ſides of the branches, ſpear-ſhaped leaves, and ſingle ſtalks.* Thymelæa foliis polygalæ glabris. C. B. P. 463.
4. Daphne (*Tarton-raire*) floribus ſeſſilibus aggregatis axillaribus, foliis ovatis utrinque pubeſcentibus nervoſis. Lin. Sp. Plant. 356. *Daphne with flowers in cluſters ſitting cloſe to the ſides of the branches, and oval nervous leaves covered with ſilky hairs on both ſides.* Thymelæa foliis candicantibus ſerici inſtar mollibus. C. B. P. 463. *Commonly called Tarton-raire.*
5. Daphne (*Alpina*) floribus ſeſſilibus aggregatis lateralibus, foliis lanceolatis obtuſiuſculis ſubtus tomentoſis. Lin. Sp. Plant. 356. *Daphne with cluſters of flowers growing cloſe to the ſides of the branches, and ſpear-ſhaped blunt leaves woolly on their under ſide.* Chamelæa Alpina, folio infernè incano. C. B. P. 462.
6. Daphne (*Cneorum*) floribus congeſtis terminalibus ſeſſilibus, foliis lanceolatis nudis. Lin. Sp. Plant. 357. *Daphne with cluſters of flowers ſitting cloſe on the tops of the branches, and naked ſpear-ſhaped leaves.* Cneorum. Matth. Hiſt. 46.
7. Daphne (*Gnidium*) paniculâ terminali, foliis lineari-lanceolatis acuminatis. Lin. Sp. Plant. 357. *Daphne with a panicle of flowers terminating the branches, and narrow, ſpear-ſhaped, pointed leaves.* Thymelæa foliis lini. C. B. P. 463.
8. Daphne (*Squarroſa*) floribus terminalibus pedunculatis, foliis ſparſis linearibus patentibus mucronatis. Lin. Sp. Plant. 358. *Daphne with flowers terminating the branches, having foot-ſtalks, and narrow, ſpreading, acute-pointed leaves, placed ſcatteringly on the branches.* Thymelæa capitata lanuginoſa, foliis creberrimis minimis aculeatis. Burm. Afr. 134. tab. 49. fol 1.
9. Daphne (*Americana*) foliis linearibus acutis, floribus racemoſis axillaribus. *Daphne with very narrow acute leaves, and flowers growing in bunches from the ſides of the branches.* Thymelæa fruteſcens roriſmarini folio, flore albo. Plum. Cat.

The firſt ſort grows common in the woods in many parts of England, and is commonly known by the title of Spurge Laurel; of late years there are poor people, who get the young plants out of the woods, and carry them about the town to ſell in the winter and ſpring. This is a low evergreen ſhrub, which riſes with ſeveral ſtalks from the root to the height of two or three feet, dividing upward into ſeveral branches, garniſhed with thick ſpear-ſhaped leaves, which come out irregularly on every ſide, ſitting pretty cloſe to the branches, they are ſmooth and of a lucid green; between theſe, toward the upper part of the ſtalks, come out the flowers in ſmall cluſters; they are of a yellowiſh green, and appear ſoon after Chriſtmas, if the ſeaſon is not very ſevere; theſe are ſucceeded by oval berries, which are green till June, when they ripen and turn black, ſoon after which they fall off. The whole plant is of a hot cauſtic taſte, burning and inflaming the mouth and throat. The leaves continue green all the year, ſo theſe plants are ornamental in winter; and as they will thrive under tall trees, they are very proper to fill up the ſpaces in plantations.

The ſecond ſort grows naturally in Germany, and there hath been a diſcovery made of its growing in ſome woods near Andover in Hampſhire, from whence a great number of plants have been taken of late years. This has been long cultivated in the nurſery-gardens as a flowering ſhrub, and is a very ornamental plant in gardens, very early in the ſpring, before others make their appearance. There are two diſtinct ſorts of this, one with a white flower which is ſucceeded by yellow berries, the other with Peach-coloured flowers and red fruit. Theſe are by ſome ſuppoſed to be accidental varieties ariſing from the ſame ſeeds, but I have ſeveral times raiſed theſe plants from ſeeds, and always found the plants come up the ſame, as thoſe from which the ſeeds were taken, ſo they do not vary, therefore may be called different ſpecies. There is a variety of the Peach-coloured Mezereon, with flowers of a much deeper colour than the common, but theſe I have always found to vary in their colours when raiſed from ſeeds. This ſhrub grows to the height of five or ſix feet, with a ſtrong woody ſtalk, putting out many woody branches on every ſide, ſo as to form a regular head; the flowers come out very early in the ſpring, before the leaves appear, growing in cluſters all round the ſhoots of the former year; there are commonly three flowers produced from each knot or joint, ſtanding on the ſame ſhort foot-ſtalk; theſe have ſhort ſwelling tubes, which are divided into four parts at the top, which ſpread open; they have a very fragrant odour, ſo that where there are plenty of the ſhrubs growing together, they perfume the air to a conſiderable diſtance round them: after the flowers are paſt, the leaves come out, which are ſmooth, ſpear-ſhaped, and placed without order; they are about two inches long, and three quarters broad in the middle, gradually leſſening to both ends; the flowers are ſucceeded by oval berries, which ripen in June; thoſe of the Peach-coloured flowers are red, and thoſe of the white yellow. The flowers appear in February and March, and ſometimes in mild winters they appear in January. This plant was formerly uſed in medicine, but as every part of it has a hot cauſtic taſte, ſo few preſcribe the uſe of it at preſent.

This is propagated by ſeeds, which ſhould be ſown on a border expoſed to the eaſt, ſoon after the berries are ripe; for if they are not ſown till the ſpring following they often miſcarry, and always remain a year in the ground before the plants appear; whereas thoſe which are ſown in Auguſt, will grow the following ſpring, ſo that a year is ſaved, and theſe never fail. When the plants come up, they will require no other care but to keep them clean from weeds, and if the plants are not too cloſe together, they may continue in the ſeed-bed, to have the growth of two ſummers, eſpecially if they do not make great progreſs the firſt year; then at Michaelmas, when the leaves are ſhedding, they ſhould be carefully taken up ſo as not to break or tear their roots, and planted into a nurſery at about ſixteen inches row from row, and eight or nine inches aſunder in the rows; in this nurſery they may remain two years, by which time they will be fit to remove to the places where they are deſigned to remain for good: the beſt ſeaſon to tranſplant theſe trees is in autumn, for as theſe plants begin to vegetate very early in the ſpring, ſo it is not proper to tranſplant them at that ſeaſon. Theſe plants grow beſt in a light ſandy earth which is dry, for in cold wet land they become moſſy, and make little progreſs; ſo that upon ſuch ſoils they never grow to any ſize, and produce few flowers.

Although the berries of this tree are ſo very acrid, as to burn the mouth and throat of thoſe who may incautiouſly taſte them, yet the birds greedily devour them, as ſoon as they begin to ripen; ſo that unleſs the ſhrubs are covered with nets to preſerve the berries, they will all be deſtroyed before they are fit to gather. There is of this and the former ſort, ſome plants with variegated leaves, which ſome perſons are fond to have in their gardens, but the plain are much more beautiful.

The third ſort grows naturally in Spain, Italy, and the ſouth of France, where it riſes to the height of three or four feet, with a ſingle ſtalk covered with a light-coloured bark; the flowers come out in cluſters on the ſides of the ſtalks, which are of an herbaceous colour, ſo make but little appearance; they appear early in the ſpring, and are ſucceeded by ſmall berries which are yellowiſh when ripe.

The fourth ſort grows naturally in the ſouth of France, from whence I received the ſeeds. This is a low ſhrubby plant, which ſends out ſeveral weak ſtalks from the root, which grow about a foot long, and ſpread about irregularly; theſe ſeldom become woody in England, but are tough and ſtringy, covered with a light bark; the leaves are ſmall, of an oval form, and are very ſoft, white, and ſhining like ſattin; theſe ſit pretty cloſe to the ſtalks; between theſe the flowers come out in thick cluſters from the ſide of the ſtalks; they are white, and are ſucceeded by roundiſh berries having one hard ſeed. This flowers here in June, but doth not produce ripe ſeeds.

The fifth ſort grows on the mountains near Geneva, and in other parts of Italy, where it riſes about three feet high; the flowers of this come out in cluſters from the ſide of the branches, early in the ſpring. The leaves are ſpear-ſhaped, ending in blunt points, and are hoary on their under ſide. The flowers are ſucceeded by ſmall roundiſh berries, which turn red when ripe.

The ſixth ſort grows naturally on the Alps, as alſo upon the mountains near Verona, from whence it was ſent me; this is a very humble ſhrub, ſeldom growing more than one foot high, with ligneous ſtalks, which put out ſeveral ſide branches; theſe are garniſhed with narrow ſpear-ſhaped leaves, which are placed round the ſtalks without order; the branches are terminated by ſmall cluſters of purple flowers which ſtand erect, having no foot-ſtalks; the tubes of theſe flowers are longer and narrower than thoſe of the Mezereon, and the mouth is cut into four acute parts which are erect. Theſe flowers emit a pleaſant odour; they appear early in the ſpring, but do not produce ſeeds here.

The ſeventh ſort grows naturally about Montpelier; this riſes with a ſhrubby ſtalk about two feet high, dividing into many ſmall branches, which are cloſely garniſhed with narrow ſpear-ſhaped leaves growing erect, ending in acute points; the ends of the branches are terminated by panicles of flowers, which are much ſmaller than thoſe of the Mezereon, having ſwelling tubes, which are contracted at the mouth. Theſe appear in June, but are not ſucceeded by ſeeds here.

The eighth ſort grows naturally at the Cape of Good Hope; this ſhrub riſes to the height of five or ſix feet, dividing upward into ſeveral branches which grow erect, and are covered with a white bark, and cloſely garniſhed with ſmall narrow leaves, which come out on every ſide of the branches without order, ſpreading open; the tops of the branches are terminated by woolly heads, out of which the flowers come in ſmall cluſters; they are white, having oblong tubes, which are divided into four obtuſe ſegments at the mouth, which ſpread open. Theſe plants do not produce ſeeds in Europe.

The ninth ſort grows naturally in many iſlands in the Weſt-Indies, it was ſent me from Antigua. This ſhrub riſes to the height of four or five feet, with a woody ſtalk, covered with a rugged bark of an Aſh colour; the upper part of the branches are garniſhed with leaves about the ſize, and the ſame form as thoſe of Roſemary; between the leaves the flowers come out in ſmall bunches, upon foot-ſtalks an inch long; they have ſhort tubes cut into four parts at the top, and are white; theſe are ſucceeded by ſmall round berries, of a brown colour when they are ripe.

The third, fourth, and ſeventh ſorts are hardy, ſo will live through the winters in England in the open air, provided they are in a dry ſoil and a warm ſituation. The fifth and ſixth ſorts are as hardy as the common Mezereon, ſo are not in danger of being hurt by froſt in England; but they are all very difficult to keep in gardens, becauſe neither of them will bear to be tranſplanted. I have ſeveral times raiſed the plants from ſeeds, which have ſucceeded well in the places where they were ſown, but whenever they were removed, they certainly died, though performed at different ſeaſons, and with the greateſt care, and the ſame has happened to every other perſon who has raiſed any of theſe plants; and ſome of my correſpondents have aſſured me, they have frequently attempted to remove theſe plants from their natural places of growth, into their gardens, and have choſen plants of all ſizes, from the youngeſt ſeedlings to the oldeſt plants, yet have never ſucceeded in it; though they have uſed their utmoſt care, and have performed it at different ſeaſons. Therefore thoſe who are deſirous to have theſe plants in their gardens, muſt procure their ſeeds from the countries where they naturally grow; and when they arrive, they ſhould be immediately ſown where they are deſigned to remain, which for the third, fourth, and ſeventh ſorts, ſhould be on a very warm dry border, where, if there is a foundation of lime, rubbiſh, or chalk, under the upper ſurface of the ground, the plants will thrive better and continue much longer, than in better ground; and all the culture they require, is to keep the place clean from weeds, for the leſs the ground is ſtirred near their roots, the better the plants will thrive; for they naturally grow on poor ſhallow land, and out of crevices in rocks; ſo the nearer the ſoil approaches to this, the more likely the plants will be to ſucceed.

The fifth and ſixth ſorts may have a cooler ſituation; if theſe are ſown where they may have only the morning ſun, they will thrive better than in a warmer ſituation, and the ground near the roots of theſe ſhould not be diſturbed; therefore in the choice of the ſituation, there ſhould be regard had to this, not to ſow them near other plants, which may require tranſplanting, or to have the ground dug and looſened. The ſeeds of theſe plants coming from diſtant countries, rarely arrive here time enough to ſow in autumn, ſo that when they are ſown in the ſpring, the plants do not appear till the ſucceeding ſpring; and I have ſometimes had the ſeeds remain till the ſecond ſpring in the ground, before the plants have appeared; but as this may be too long for many people to leave the ground undiſturbed, ſo they had better put the ſeeds into ſmall pots of earth, and bury them in the ground the firſt ſummer, and in autumn take them up, and ſow them where they are to ſtand; by this method, the ſeeds will be forwarded to vegetate the following ſpring.

The fifth ſort is a beautiful ſweet ſhrub, ſo deſerves a place in gardens, as much as any of thoſe we cultivate for ornament. The firſt and ſecond ſorts are ſometimes uſed in medicine as was before obſerved, but being of a very cauſtic nature, are ſeldom preſcribed; but if proper trials were with caution made, it is not doubted but they may be found very efficacious in many ſtubborn diſorders, for ſome very ignorant quacks have performed great cures with theſe plants. The ſeventh ſort produces the Grana gnitida of the ſhops.

The eighth ſort grows naturally at the Cape of Good Hope, ſo will not live abroad in winter in England, but requires a good green-houſe to preſerve it. This plant is very difficult to keep or propagate in gardens.

The ninth ſort will not thrive in England, unleſs it is preſerved in the bark-ſtove; this plant will not bear tranſplanting, for I raiſed ſeveral from ſeeds which throve pretty well while they continued in the pot where they were ſown, but when they were tranſplanted, they all decayed.

DATISCA. Lin. Gen. Plant. 1003. Cannabina. Tourn. Cor. 52. Baſtard Hemp.

The Characters are,

It is male and female in different plants; the male flowers have an empalement compoſed of five narrow acute leaves; theſe have no petals, and ſcarce any viſible ſtamina, but have ten ſummits which are much longer than the empalement. The female flowers have no petals, but the empalements are the ſame as the male, having an oblong pervious germen, ſupporting three ſtyles, crowned by ſingle ſtigmas; the empalement afterward becomes an oblong triangular capſule, opening with three valves, having one cell filled with ſmall ſeeds, adhering to the three ſides of the capſule.

This genus of plants is ranged in the tenth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Dodecandria, from the male and female flowers growing in ſeparate plants, and the male flowers having ten ſtamina.

The Species are,

1. Datisca (*Cannabina*) caule lævi. Lin. Sp. Plant. 1037. *Datiſca with a ſmooth ſtalk.* Cannabina Cretica florifera & fructifera. Tourn. Cor. 52.
2. Datisca (*Hirta*) caule hirſuto. Lin. Sp. Plant. 1037. *Datiſca with a rough ſtalk.*

The firſt ſort grows naturally in Crete, and ſome other eaſtern countries. This hath a perennial root, from which ariſe ſeveral herbaceous ſtalks, about four feet high, garniſhed with winged leaves placed alternately, each being compoſed of three pair of lobes, terminated by an odd one; theſe are two inches long and half an inch broad, ending in acute points, and are deeply ſawed on their edges, of a light green. The flowers come out in long looſe ſpikes from the upper part of the ſtalks at the wings of the leaves, but having no petals, make but a poor appearance. The ſummits of the male flowers being pretty long, and of a bright yellow colour, are the only viſible parts of the flowers to be diſcerned at any diſtance.

The flowers on the female plants are ſucceeded by oblong three-cornered capſules, filled with ſmall ſeeds, which adhere to the three valves. The plants flower in June, and the ſeeds ripen in September. The ſtalks decay in autumn and new ariſe in ſpring.

This ſort may be propagated by parting the roots, which ſhould be performed in autumn when the ſtalks decay, (which is the beſt time to tranſplant the roots), but they muſt not be parted too ſmall; they may be planted in any open beds, where they are not under the drip of trees, and will require no other culture but to keep them clean from weeds.

It may alſo be propagated by ſeeds, but theſe ſhould be taken from ſuch plants as grew in the neighbourhood of male plants, otherwiſe they will not ſucceed; and if the ſeeds are not ſown in autumn, they ſeldom grow the firſt year. The ſeedling plants when they riſe, will require no other care but to keep them clean from weeds till autumn, when they may be tranſplanted where they are to grow.

The ſecond ſort grows naturally in Canada, and other parts of North America. This differs from the former, in having hairy ſtalks, which grow taller; the leaves are larger, and do not ſtand ſo near each other upon the ſtalks. It is equally hardy with the firſt ſort, and may be propagated in the ſame manner, but ſhould have a more ſhady ſituation and a moiſter ſoil.

DATURA. Lin. Gen. Plant. 218. Stramonium. Tourn. Inſt. R. H. 118. Thorn Apple.

The Characters are,

The flower is of one petal which is funnel-ſhaped, having a long cylindrical tube, ſpreading open at the top, which in ſome ſpecies is pentangular, each angle being pointed; the empalement of the flower is permanent, ſwelling in the middle, five-cornered, and tubulous; the flower hath five ſtamina, which are as long as the empalement, terminated by oblong compreſſed ſummits; it hath an oval germen, ſupporting an upright ſtyle, crowned by a thick obtuſe ſtigma. The germen afterward becomes an oval capſule, divided into four cells by a croſs intermediate partition, which are filled with kidney-ſhaped ſeeds adhering to the partition.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Datura (*Stramonium*) pericarpiis ſpinoſis erectis ovatis, foliis ovatis glabris. Hort. Cliff. 55. *Datura with an oval erect fruit having a prickly cover.* Stramonium fructu ſpinoſo rotundo, flore albo ſimplici. Tourn. Inſt. R. H. 118. *Thorn Apple with a round prickly fruit, and a ſingle white flower.*
2. Datura (*Tatula*) pericarpiis ſpinoſis erectis ovatis, foliis cordatis glabris dentatis. Lin. Sp. 256. *Datura with an erect oval fruit with a prickly cover, and ſmooth, heart-ſhaped, indented leaves.* Stramonium fructu ſpinoſo oblongo, flore violaceo. Tourn. Inſt. R. H. 119. *Thorn Apple with an oblong prickly fruit, and a Violet-coloured flower.*
3. Datura (*Metel*) pericarpiis ſpinoſis nutantibus globoſis, foliis cordatis ſubintegris pubeſcentibus. Hort. Cliff. 55. *Datura with a globular nodding fruit having a prickly cover, and heart-ſhaped, entire, hairy leaves.* Datura alba. Rump. 5. p. 242.
4. Datura (*Ferox*) pericarpiis ſpinoſis erectis ovatis, ſpinis ſupremis maximis convergentibus. Amœn. Acad. 3. p. 403. *Datura with an oval erect fruit, whoſe upper ſpines are largeſt, and converge together.* Stramomonium ferox. Bocc. 50. *Rough Thorn Apple.*
5. Datura (*Inoxia*) pericarpiis ſpinoſis inoxiis ovatis propendentibus, foliis cordatis pubeſcentibus. *Datura with an oval hanging fruit, whoſe cover is beſet with harmleſs ſpines, and heart-ſhaped hairy leaves.* Stramonium folio hyoſcyami, flore toto candido, fructu propendente rotundo, ſpinis inoxiis ornato. Boerh. Ind. alt. 1.
6. Datura (*Faſtuoſa*) pericarpiis tuberculoſis nutantibus globoſis, foliis lævibus. Lin. Sp. 256. *Datura with a globular nodding fruit, whoſe cover is ſet with tubercles and ſoft leaves.* Stramonium Ægyptiacum flore pleno, intus albo, foris violaceo. Tourn. Inſt. 119. *Egyptian Thorn Apple with a double flower, white on the inſide, and Violet-coloured on the outſide.*
7. Datura (*Arborea*) pericarpiis inermibus nutantibus, caule arboreo. Lin. Sp. Plant. 179. *Datura with a nodding fruit having an unarmed cover, and a tree-like ſtalk.* Stramonioides arboreum, oblongo & integro folio, fructu lævi, vulgò. Flori pondio. Feuil. tab. 46.

The firſt ſort here enumerated is the moſt common Thorn Apple in Europe, and was probably firſt introduced from Italy or Spain, where it naturally grows; but it is now become ſo common about London, and near other great towns in England, as to appear like a native plant; for there are few gardens or dunghills without this plant in ſummer, though it is only near ſuch places, where the plants may have been cultivated firſt in the gardens; and wherever any of theſe plants are permitted to ſeed, they will furniſh a ſupply of the plants for ſome years to come, as they produce a vaſt quantity of ſeeds, ſome of which will lie years in the ground, and when they are turned up to the air will vegetate.

This ſort ſeldom grows much more than two feet high, dividing into many ſtrong irregular branches which are hollow, garniſhed with large ſmooth leaves divided into irregular angles, and emit a fœtid odour. The flowers come out firſt from the forks or diviſions of the branches, and afterward near the extremities of the branches; they have long ſwelling tubes, which are dilated at the top into large pentagonal brims, each angle ending in a long point or ligula; theſe ſtand in long, green, five-cornered empalements, and are ſucceeded by large roundiſh ſeed-veſſels, covered with ſtrong thorns, divided by four furrows, to which adhere the partitions, which ſeparate the four cells, filled with black kidney-ſhaped ſeeds. It flowers in July, Auguſt, and September, and the ſeeds ripen in autumn, which, if permitted to ſcatter, will fill the ground about them with plants the following years. There was formerly a cooling ointment made with the leaves of this plant and hogs lard, which was greatly eſteemed for burns and ſcalds.

There is a variety (if not a diſtinct ſpecies of this) which grows naturally in North America; the plants of this grow more than twice the ſize of the former; the leaves are ſmoother, and of a lucid green, but the flowers and fruit are of the ſame form as thoſe of the other, ſo may be deemed a diſtinct ſpecies, eſpecially as the difference continues in the plants propagated in England.

The ſecond ſort grows naturally in moſt parts of America, for I have frequently received the ſeeds of it from the iſlands in the Weſt-Indies, and alſo from all the northern parts of America. This riſes with a purple ſtrong ſtalk to the height of four or five feet, dividing into many ſtrong branches, garniſhed with leaves ſhaped ſomewhat like thoſe of the former ſort, but larger, and have a greater number of angles and laciniæ on their edges; the flowers have longer and narrower tubes, and are of a purple colour; the fruit is alſo longer, and theſe differences are permanent. This is equally hardy with the former, and if the ſeeds are permitted to ſcatter, the plants will become troubleſome weeds. The third ſort hath a ſtrong ſtem, which riſes three feet high, and divides into many woolly branches; the leaves of this ſort are almoſt entire, having only two or three ſlight indentures on their edges; the flowers have long tubes, which extend beyond the bifid empalement, then they ſpread out very broad, where the brim is divided into ten obtuſe angles; they are of a pure white above, but the tubes have a tincture of green within. Theſe are ſucceeded by roundiſh fruit, cloſely covered with thorns, and are divided into four cells as the other, but the ſeeds of this are of a light brown colour when ripe.

This plant is not ſo hardy as the others, ſo the ſeeds muſt be ſown upon a gentle hot-bed in the ſpring, and the plants muſt be afterward treated in the ſame manner as the Marvel of Peru, and other of the hardier kinds of annual plants, and may be tranſplanted into the full ground the latter end of May. They will flower in July, and the ſeeds will ripen in autumn.

There is a variety of this with double flowers, but unleſs the plants of this are placed in a glaſs-caſe, they will not produce ſeeds in this country.

The fourth ſort is of humbler growth, ſeldom riſing more than a foot and a half high, ſpreading out into many branches, which are garniſhed with leaves ſomewhat like thoſe of the firſt ſort, but are ſmaller, and ſtand upon longer foot-ſtalks; the flowers are like thoſe of the firſt ſort, but ſmaller; the fruit is round, and armed with very ſtrong ſharp thorns, the upper being large, and converge toward each other. The ſeeds of this are black when ripe.

This ſort is too tender to be ſown in the full ground in England, ſo the plants ſhould be raiſed on a hot-bed, and afterward tranſplanted into borders as the former ſort.

The fifth ſort grows naturally at La Vera Cruz, from whence I received the ſeeds. This riſes with a purpliſh ſtem three or four feet high, dividing into ſeveral ſtrong branches, garniſhed with oblong heart-ſhaped leaves. The ſtalks, branches, and leaves of this ſort are covered with ſoft hairs; the flowers come out at the diviſion of the ſtalks and branches, ſtanding erect; they are large, white, and are ſucceeded by oval fruit, covered with long, ſoft, innocent ſpines, opening in four cells, which are full of brown ſeeds.

This plant is annual, and ſhould be firſt raiſed on a moderate hot-bed, then may be tranſplanted into open borders, where it will flower and perfect its ſeeds in the autumn. If theſe ſeeds are permitted to ſcatter, the plants will riſe the following ſpring, and if the ſummer proves warm, they will flower and often perfect their ſeeds.

The ſixth ſort grows naturally in Egypt, and alſo in India. This riſes with a fine poliſhed purple ſtalk four feet high, dividing into ſeveral branches, which are garniſhed with large, ſmooth, ſinuated leaves, ſtanding upon pretty long foot-ſtalks. The flowers are produced at the diviſions of the branches; theſe have large ſwelling tubes, which expand very broad at the top, their brims being divided into ten angles, each ending with a long ſlender point. The flowers are of a beautiful purple on their outſide, and a ſattiny white within; ſome of theſe are ſingle, others have two or three flowers ſtanding one within another, and ſome are double, having four or five petals within each other of equal length, ſo as to appear a full flower at the brim; they have an agreeable odour at firſt, but if long ſmelt to, become leſs agreeable, and are narcotic. If theſe plants are brought forward upon a hot-bed in the ſpring, and in June planted out on a warm border of rich earth, they will flower very finely in July and Auguſt; but unleſs they are covered with glaſſes, the ſeeds ſeldom ripen well in England. The fruit of this ſort is round, and grows nodding downward; the ſeed-veſſel is thick and fleſhy, as are alſo the intermediate partitions which divide the cells. The outſide of the fruit is covered with blunt protuberances, and the ſeeds are of a bright brown colour when ripe.

The ſeventh ſort was ſent me from La Vera Cruz by the late Dr. Houſtoun, who found it growing there naturally. This riſes with a woody ſtalk to the height of twelve or fourteen feet, dividing into ſeveral branches, which are garniſhed with oblique leaves ſix inches long, and two inches and a half broad in their broadeſt part, growing narrower at each end; they are oblique to the foot-ſtalk, which ſtands nearer to one ſide than the other; they are downy, and ſtand upon long foot-ſtalks. The flowers come out at the diviſion of the branches; theſe have a looſe tubular empalement near four inches long, which opens at the top on one ſide like a ſpatha or ſheath, within the empalement; the tube of the flower is narrow, but immediately above it ſwells very large for near ſix inches in length, then ſpreads open at the brim, where it is divided into five angles, which terminate in very long points; they are white, with ſome longitudinal ſtripes, of a pale yellow on their outſide; theſe are ſucceeded by round ſmooth capſules, filled with kidney-ſhaped ſeeds.

This tree is one of the greateſt ornaments to the gardens in Chili, where the inhabitants propagate it with great care. When the flowers are fully blown, they make a fine appearance, and a ſingle tree will perfume the air of a large garden.

This plant is tender, ſo requires to be kept in a ſtove in England. The ſeeds of this muſt be procured from the places where the trees naturally grow; they ſhould be perfectly ripe when gathered, and carefully put up, ſo as that the vermin cannot get to them, for they will deſtroy them. Moſt of the ſeeds which were ſent over by Dr. Houſtoun, were devoured in their paſſage by inſects, ſo that but few plants were raiſed. There were two or three of them raiſed in the gardens of the late Lord Petre, and two in the Chelſea garden; one of which came ſo far as to flower, but periſhed without producing ſeeds, ſo that at preſent I believe there is not any of the plants in England.

DAUCUS. Lin. Gen. Plant. 296. Tourn. Inſt. R. H. 307. tab. 161. [δαῦκος, which ſome derive of δαίω, *Gr.* to burn, of its ſharp and fiery power, or fervent taſte.] The Carrot.

The Characters are,

It hath an umbelliferous flower; the principal umbel is compoſed of a great number of ſmall ones called rays, which are ſhort, and in cluſters. The involucrum of the principal umbel is compoſed of many narrow leaves, having winged points; theſe are ſcarce ſo long as the umbel; thoſe of the rays are ſhorter and ſimple. The flowers have five heart-ſhaped petals which turn inward; thoſe which compoſe the rays are unequal in ſize, but thoſe of the diſk are nearly ſo; theſe have each five hairy ſtamina, terminated by roundiſh ſummits. The germen ſits under the flower, *ſupporting two reflexed ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes a ſmall, roundiſh, ſtriated fruit, dividing in two parts, each having a ſingle ſeed, convex and furrowed on one ſide, and plain on the other.*

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The Species are,

1. Daucus (*Sylveſtris*) ſeminibus hiſpidis, radice tenuiore fervido. *Carrot with a prickly ſeed, and a ſlender hot root.* Daucus vulgaris. Cluſ. Hiſt. 2. p. 198. *Common wild Carrot.*
2. Daucus (*Carota*) ſeminibus hiſpidis, radice carnoſo eſculento. *Carrot with a prickly ſeed, and a fleſhy eatable root.* Daucus ſativus, radice aurantii coloris. Tourn. Inſt. R. H. 307.
3. Daucus (*Gingidium*) radiis involucri planis, laciniis recurvis. Prod. Leyd. 97. *Carrot with plain rays to the involucrum, and recurved jags.* Daucus montanus lucidus. Tourn. Inſt. 307. *Shining maritime Carrot.*
4. Daucus (*Hiſpidus*) caule hiſpido, ſegmentis foliorum latioribus. *Carrot with a prickly ſtalk, and broader ſegments to the leaves.* Paſtinaca Oenanthes folio. Bocc. Rar. Pl. 75. *Parſnep with a Water Dropwort leaf.*
5. Daucus (*Creticus*) radiis involucri pinnatifidis, umbellis duplo longioribus, foliolis acutis. *Carrot with wing-pointed rays to the involucrum, which are twice the length of the umbel, and acute leaves.* Daucus tenuifolius Creticus, radiis umbellæ longioribus. Tourn. Inſt. R. H. 308. *Narrow-leaved Carrot of Crete, with rays longer than the umbel.*
6. Daucus (*Mauritanicus*) ſeminibus hiſpidis, floſculo centrali ſterili carnoſo, receptaculo communi hemiſphærico. Lin. Sp. 348. *Carrot with hiſpid ſeeds, the central flower barren, and the common receptacle hemiſpherical.* Daucus Hiſpanicus, umbella magna. Tourn. Inſt. 308.
7. Daucus (*Viſnaga*) ſeminibus nudis. Hort. Cliff. 89. *Carrot having naked ſeeds.* Gingidium umbella oblongâ. C. B. P. 151. *Gingidium with an oblong umbel.*
8. Daucus (*Muricatus*) ſeminibus aculeatus. Lin. Sp. 349. *Carrot with prickly ſeeds.* Caucalis major Daucoides Tingitana. Mor. Hiſt. 3. p. 308.

The firſt ſort is the common wild Carrot, which grows by the ſide of fields, and in paſture grounds in many parts of England. The plants of this ſort do not differ greatly in appearance from the Garden Carrot, which has led ſome perſons into an opinion of their being the ſame plant; but thoſe who have attempted to cultivate the wild ſort, are fully convinced of their being diſtinct plants. I have tried to cultivate the wild ſort for many years, but could never get the ſeeds which were ſown in the ſpring to grow, upon which I ſowed the ſeeds in autumn, part of which have come up well; theſe plants I cultivated in the ſame manner as the Garden Carrot, but could not improve the roots in the leaſt, for they continued to be ſmall, ſticky, and of a hot biting taſte; and this has been always the caſe, wherever the plants have been ſown, therefore there can be no doubt of their being different plants. The ſeeds of this ſort are uſed in medicine, and are eſteemed good to bring away gravel; it is an excellent diuretic, but inſtead of theſe ſeeds, the ſhops are uſually ſupplied with old ſeeds of the Garden Carrot, when they have loſt their vegetative quality, then the ſeedſmen ſell them to the druggiſts for medicinal uſe; but certainly all ſeeds which are too old to grow, can have little virtue remaining in them.

There are ſeveral varieties of the Garden Carrots, which differ in the colour of their roots, and theſe variations may be continued, where there is proper care taken not to mix the different ſorts together in the ſame garden; but the Orange Carrot is generally eſteemed in London, where the yellow and the white Carrots are ſeldom cultivated.

The dark red, or purple Carrot, I take to be a diſtinct ſort from either of theſe; but as it is much tenderer, I have not had an opportunity of ſeeing it in the flower, for the roots were all deſtroyed by the firſt froſts in autumn. The ſeeds of this ſort were ſent me from Aleppo, which ſucceeded very well; the roots were not ſo large as thoſe of the other ſorts of Carrots, and were of a purple colour, very like that of a deep-coloured Radiſh; they were very tender and ſweet; the leaves were finer cut than thoſe of the common Carrot, and were leſs hairy.

The ſecond ſort is commonly cultivated in gardens for the kitchen, and the different varieties of it are, in ſome places, eſteemed, though in London, the Orange Carrot is preferred to all the other.

They are propagated at two or three different ſeaſons, or ſometimes oftener, where people are fond of young Carrots, whenever they can be procured. The firſt ſeaſon for ſowing the ſeeds is ſoon after Chriſtmas, if the weather is open, which ſhould be in warm borders, near walls, pales, or hedges, but they ſhould not be ſown immediately cloſe thereto; but a border of Lettuce, or other young ſallad herbs, of about a foot wide, ſhould be next the wall, &c. for if the Carrots were ſown cloſe to the wall, they would draw up weak, without making any tolerable roots.

Theſe delight in a warm ſandy ſoil which is light, and ſhould be dug pretty deep, that the roots may the better run down; for if they meet with any obſtruction, they are very apt to grow forked, and ſhoot out lateral roots, eſpecially where the ground is too much dunged the ſame year that the ſeeds are ſown, which will alſo occaſion their being worm-eaten; it is therefore the better method to dung the ground intended for Carrots the year before they are ſown, that it may be conſumed, and mixed with the earth; but in ſuch places where there has not been ground ſo prepared the year before, and there may be a neceſſity for dunging it the ſame year as the Carrots are ſown, the dung ſhould be well rotted which is laid upon it, and ſhould be thinly ſpread over the ground; and in the digging of it into the ground, great care ſhould be taken to diſperſe it all through the ground, and not to bury it in heaps, for that will ſtop the roots of the Carrots in their downright growth, and cauſe them to be ſhort and forky. Where the ground is inclinable to bind, there cannot be too much care taken to break and divide the parts; therefore in digging the land for Carrots, there ſhould never be large ſpits taken, but they muſt be very thin, and the clods well broken; which, if not attended to by the maſter, is ſeldom properly performed by workmen, who are too apt to hurry over their work, if they are not well obſerved.

The ground when dug ſhould be laid level and even, otherwiſe when the ſeeds are ſown and the ground is raked over, part of the ſeeds will be buried too deep, and others will be in danger of being drawn up into heaps; ſo the plants will come up in bunches, and other parts of the ground be naked, which ſhould always be carefully avoided.

The ſeeds have a great quantity of ſmall forked hairs upon their borders, by which they cloſely adhere, ſo that they are difficult to ſow even, ſo as not to come up in patches; you ſhould therefore rub it well through both hands, whereby the ſeed will be ſeparated before it is ſown; then you ſhould chooſe a calm day to ſow it in, for if the wind blows, it will be impoſſible to ſow it equal, for the ſeeds being very light, will be blown into heaps. When the ſeed is ſown, you ſhould tread the ground pretty cloſe with your feet, that it may be buried, and then rake the ground level.

When the plants are come up and have got four leaves, you ſhould hoe the ground with a ſmall hoe about three inches wide, cutting down all young weeds, and ſeparating the plants to four inches diſtance each way, that they may get ſtrength; and in about a month or five weeks after, when the weeds begin to grow again, you ſhould hoe the ground over a ſecond time, in which you ſhould be careful not to leave two Carrots cloſe to each other, as alſo to ſeparate them to a greater diſtance, cutting down all weeds, and ſlightly ſtirring the ſurface of the ground in every place, the better to prevent young weeds from ſpringing, as alſo to facilitate the growth of the young Carrots.

In about a month or five weeks after, you muſt hoe them a third time, when you muſt clear the weeds as before; and now you ſhould cut out the Carrots to the diſtance they are to remain, which muſt be proportioned to the ſize you intend to have them grow. If they are to be drawn while young, five or ſix inches aſunder will be ſufficient, but if they are to grow large before they are pulled up, they ſhould be left eight or ten inches diſtant every way; you muſt alſo keep them clear from weeds, which, if ſuffered to grow amongſt the Carrots, will greatly prejudice them.

The ſecond ſeaſon for ſowing theſe ſeeds is in February, on warm banks, ſituated near the ſhelter of a wall, pale, or hedge; but thoſe which are intended for the open large quarters, ſhould not be ſown before the beginning of March, nor ſhould you ſow any later than the end of the ſame month; for thoſe which are ſown in April or May, will run up to ſeed before their roots have any bulk, eſpecially if the weather ſhould prove hot and dry.

In July you may ſow again for an autumnal crop, and at the end of Auguſt you may ſow ſome to ſtand the winter; by which method you will have early Carrots in March, before the ſpring ſowing will be fit to draw; but theſe are ſeldom ſo well taſted, and are often very tough and ſticky. However, as young Carrots are generally expected early in the ſpring, moſt people ſow ſome at this ſeaſon; but theſe ſhould be ſown upon warm borders and dry land, otherwiſe they are ſeldom good. If the winter ſhould prove very ſevere, it will be proper to cover the young Carrots with Peaſe-haulm, the haulm of Aſparagus, or ſome ſuch light covering, to prevent the froſt from penetrating into the ground, which often deſtroys the Carrots, where this care is wanting: but if in very hard winters the Carrots ſhould be all deſtroyed which were ſown in autumn, there ſhould be a hot-bed made early in the ſpring to ſow ſome, which will be fit for uſe long before any that are ſown in the full ground; but theſe beds ſhould be earthed fifteen or ſixteen inches deep, that the roots may have a proper depth of ſoil to run down. If theſe beds are lined with hot dung twice, at ſuch times when the heat of the beds decline, it will greatly forward the growth of the Carrots, but there ſhould be great care taken not to draw the plants up too weak; theſe may be allowed to grow cloſer together than thoſe ſown in the full ground, becauſe they will be drawn for uſe very young. Many people mix ſeveral other ſorts of ſeeds, as Leek, Onion, Parſnep, Radiſh, &c. amongſt their Carrots; and others plant Beans, &c. but, in my opinion, neither of theſe methods are good; for, if there is a full crop of any one of theſe plants, there can be no room for any thing elſe amongſt them, ſo that what is got by one is loſt by another; and beſides, it is not only more ſightly, but better, for the plants of each kind to be ſown ſeparate; and alſo by this means your ground will be clear, when the crop is gone, to ſow or plant any thing elſe; but when three or four kinds are mixed together, the ground is ſeldom at liberty before the ſucceeding ſpring: beſides, where Beans, or any other tall-growing plants are planted amongſt the Carrots, they are apt to make them grow more in top than root; ſo that they will not be half ſo large as if ſown ſingly, without any other plants amongſt them.

The covetouſneſs of ſome gardeners will not permit them to cut out their Carrots to a proper diſtance when they hoe them, ſo that by leaving them cloſe, they draw each other up weak: and if they are drawn while young, they never recover their ſtrength afterward ſo perfectly, as to grow near the ſize of thoſe which are properly thinned at the firſt hoeing; therefore where the Carrots are deſigned to have large roots, they muſt never ſtand too cloſe, nor ſhould they have any other crop mixed with them.

This root has been long cultivated in gardens for the table, but has not till of late years been cultivated in the fields for cattle, nor has it been practiſed as yet but in few parts of England; it is therefore greatly to be wiſhed, that the culture of it was extended to every part of England, where the ſoil is proper for the purpoſe; for there is ſcarce any root yet known, which more deſerves it, being a very hearty good food for moſt ſorts of animals. One acre of Carrots, if well planted, will fatten a greater number of ſheep or bullocks, than three acres of Turneps, and the fleſh of theſe animals will be firmer and better taſted. Horſes are extremely fond of theſe roots, and for hogs there is not any better food. I have alſo known theſe roots cultivated for feeding of deer in parks, which has proved of excellent uſe in hard winters, when there has been a ſcarcity of other food; at which times great numbers of deer have periſhed for want, and thoſe which have eſcaped, have been ſo much reduced, as not to recover their fleſh the following ſummer; whereas, thoſe fed with Carrots have been kept in good condition all the winter, and upon the growth of the graſs in the ſpring, have been fat early in the ſeaſon, which is an advantage, where the graſs is generally backward in its growth.

There is alſo an advantage in the cultivation of this root beyond that of the Turnep, becauſe the crop is not ſo liable to fail; for as the Carrots are ſown in the ſpring, the plants generally come up well, and unleſs the months of June and July prove very bad, there is no danger of the crop ſucceeding; whereas Turneps are frequently deſtroyed by the flies at their firſt coming up, and in dry autumns they are attacked by caterpillars, which in a ſhort time devour whole fields, but Carrots are not attacked by theſe vermin: therefore every farmer who has a ſtock of cattle or ſheep, ſhould always have a ſupply of theſe roots, if he has land proper for the purpoſe, which muſt be light, and of a proper depth to admit of the roots running down.

In preparing the land for Carrots, if it has not been in tillage before, it ſhould be ploughed early in autumn, and then ploughed acroſs again before winter, laying it up in high ridges to mellow by the froſt; and if the ground is poor, there ſhould be ſome rotten dung ſpread over it in winter, which ſhould be ploughed in about the beginning of February; then in March, the ground ſhould be ploughed again to receive the ſeeds; in the doing of which, ſome farmers have two ploughs, one following the other in the ſame furrow, ſo that the ground is looſened a foot and a half deep. Others have men with ſpades following the plough in the furrows, turning up a ſpit of earth from the bottom, which they lay upon the top, levelling it ſmooth and breaking the clods; the latter method is attended with a little more expence, but is much to be preferred to the firſt, becauſe in this way the clods are more broken, and the ſurface of the ground is laid much evener.

If the land has been in tillage before, it will require but three ploughings; the firſt juſt before winter, when it ſhould be laid in high ridges for the reaſons before given; the ſecond croſs ploughing ſhould be in February, after which, if it is well harrowed to break the clods, it will be of great ſervice; the laſt time muſt be in March to receive the ſeeds, this ſhould be performed in the manner before mentioned. After this third ploughing, if there remain great clods of earth unbroken, it will be proper to harrow it well before the ſeeds are ſown. One pound and a half of ſeeds will be ſufficient for an acre of land, but as they are apt to adhere together, it renders them more difficult to ſow even than moſt other ſorts; therefore ſome mix a quantity of dry ſand with their ſeeds, rubbing them well together, ſo as to ſeparate the Carrot ſeeds from each other, which is a good method. After the ſeeds are ſown, they muſt be gently harrowed in to bury them; and when the plants come up, they ſhould be hoed in the manner before directed.

But in order to preſerve your Carrots for uſe all the winter and ſpring, you ſhould, about the beginning of November, when the green leaves are decayed, dig them up, and lay them in ſand in a dry place, where the froſt cannot come to them, taking them out from time to time as you have occaſion for them, reſerving ſome of the longeſt and ſtraiteſt roots for ſeed, if you intend to ſave any; which roots ſhould be planted in the middle of February, in a light ſoil, about a foot aſunder each way, obſerving to keep the ground clear from weeds; and about the middle of Auguſt, when you find the ſeeds are ripe, you muſt cut it off, and carry it to a dry place, where it ſhould be expoſed to the ſun and air for ſeveral days to dry; then you may beat out the ſeeds, and put it up in bags, keeping it in a dry place until you uſe it. This ſeed is ſeldom eſteemed very good after the firſt or ſecond year at moſt, but new ſeed is always preferred, nor will it grow when it is more than two years old.

The third ſort grows naturally about Montpelier; this hath ſmoother ſtalks than the common Carrot, the ſegments of the leaves are broader, and of a lucid green; the umbels of the flowers are larger, and not ſo regular. This is an annual plant, but it ſucceeds beſt when ſown in autumn.

The fourth ſort is of lower growth than either of the former; the ſtalks are cloſely covered with ſhort prickles, the ſegments of the leaves are broad and obtuſe, the umbels are ſmall, and the involucrum is longer than the umbel, and the leaves are trifid which compoſe it.

The fifth ſort riſes with a ſlender, rough, hairy ſtalk upward of two feet high; the leaves are ſhort, and have a few ſmall ones intermixed, which are thinly placed, and cut into acute ſegments; the umbels are not ſo large as thoſe of the common ſort, and the involucrum is twice the length of the umbel; the leaves which compoſe it are divided into five or ſeven parts, ending in acute points; the flowers are yellow.

The ſixth ſort hath a channelled ſtalk riſing near three feet, which is terminated by large umbels of flowers, with a wing-pointed involucrum; the ſegments of the lower leaves are cut into obtuſe ſegments, and are of a deep green colour.

The ſeventh ſort is an annual plant, which grows naturally in Spain and Italy; this riſes with an upright, ſmooth, channelled ſtalk three feet high, garniſhed with ſmooth leaves, which are divided into many fine narrow ſegments like thoſe of Fennel; the ſtalks branch out upward, and each branch is terminated by a large umbel, compoſed of a great number of ſmall ones; the involucrum is ſhorter than the umbel, and each of the leaves which compoſe it is trifid: the foot-ſtalks which ſuſtain the ſmall umbels (or rays) are long and ſtiff; theſe are by the Spaniards uſed for picking their teeth, from whence the plant had the title of Viſnaga, or Pick-tooth. The ſeeds of this plant ſhould be ſown in autumn, for thoſe which are ſown in the ſpring frequently fail, or at leaſt remain in the ground till next year before they grow; the plants require no other culture but to keep them clean from weeds, and thin them where they are too cloſe.

The eighth ſort grows naturally about Tangier. This riſes with an upright ſtalk above two feet high, garniſhed with double-winged leaves which are hairy; the ſtalk branches upward into ſeveral diviſions, each being terminated by an umbel of white flowers, which are ſucceeded by prickly ſeeds.

If the ſeeds of this ſort are not ſown in the autumn, the plants rarely perfect their ſeeds in this country; for when they are ſown in the ſpring, and the plants come up ſoon after, they generally run up to ſeed in autumn, ſo that the froſts come on before they have time to ripen.

Theſe ſorts are ſometimes preſerved in botanic gardens for the ſake of variety, but being of no uſe, are not cultivated in other gardens.

DAUCUS CRETICUS. See ATHAMANTA.

D'AYENIA, Monier.

This genus of plants receives its title from Monſeigneur Le Duc D'Ayen, who is a great lover and promoter of the ſcience of botany; and has a noble garden at St. Germains, which is well ſtored with rare plants from many different parts of the world, and has appointed Dr. Monier, member of the Royal Academy of Sciences, the ſuperintendent of it.

The CHARACTERS are;

It hath an empalement compoſed of five ſmall oval leaves which are dry. The flower hath five petals, whoſe points are united to a plain ſtarry nectarium; the nectarium ſits upon a cylindrical column which is erect, and the length of the empalement; it is bell-ſhaped, having five depreſſed lobes at the margin: it hath five ſhort ſtamina inſerted into the border of the nectarium, terminated by roundiſh ſummits, which are joined to the border of the petals. It hath a roundiſh germen in the bottom of the nectarium, ſupporting a cylindrical ſtyle, crowned by a five-cornered obtuſe ſtigma. The capſule hath five cells, incloſing five oblong ſeeds faſtened to the capſule.

This genus of plants is ranged in the fourth ſection of Linnæus's twentieth claſs, intitled Gynandria Pentandria, the flowers having five ſtamina, which are faſtened with the ſtyle to the nectarium.

We at preſent know but one SPECIES of this genus, viz.

D'AYENIA (*Puſilla*) foliis cordatis glabris. Lin. Sp. 1354. *D'Ayenia with heart-ſhaped ſmooth leaves.*

The ſeeds of this plant were ſent by the younger De Juſſieu from Peru to Paris, where they ſucceeded, and have ſince been communicated to many other gardens in Europe. I received the ſeeds from Dr. Monier, intendent of the garden of the Duke D'Ayen at St. Germains, which have for ſome years grown in the Chelſea garden, where the plants annually flower and perfect their ſeeds.

This plant hath a weak ligneous ſtalk, which divides into ſeveral ſlender branches, riſing from nine inches to a foot high, garniſhed by heart-ſhaped ſmooth leaves, which are ſlightly indented on their edges, ſtanding upon pretty long foot-ſtalks; they are of a lucid green, and end in acute points, placed alternately on the branches. At the baſe of each foot-ſtalk, from the ſide of the branches, come out the flowers, two, three, or four, ariſing from the ſame point, each ſtanding upon a ſeparate ſlender foot-ſtalk; they have five ſlender ſtamina, collected into a ſort of column, like the malvaceous flowers, having a five-cornered germen at the bottom, which afterward becomes a roundiſh five-cornered capſule, having five cells, in each of theſe is lodged one kidney-ſhaped ſeed. The flowers are tubulous, ſpreading open at the top, where they are cut into five acute ſegments, each being terminated by a ſlender tail; they are purple, and continue in ſucceſſion on the ſame plants from July to the winter.

This plant is propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed early in the ſpring; and when the plants are come up, and have four leaves, they ſhould be tranſplanted on a freſh hot-bed to bring them forward; part of them may be planted in ſmall pots, and the others may be planted on the bed: thoſe in the pots ſhould be plunged into a hot-bed of tanners bark; they muſt be ſhaded till they have taken new root, then they muſt have free air admitted to them every day, in proportion to the warmth of the ſeaſon; they require to be frequently watered in warm weather, but they ſhould not have it in too great plenty. The plants ſhould continue all the ſummer in the hot-bed, where they muſt have a good ſhare of air; for thoſe which are fully expoſed to the open air will not thrive, and if they are too much drawn, they do not flower well. The plants will live through the winter in a moderate ſtove; but as they perfect their ſeeds well the firſt year, few perſons care to continue the old plants. There is a figure of this plant exhibited in the 118th plate of our figures of plants.

DAY-LILY. See HEMEROCALLIS.

DECORTICATION, is the pulling off the outward bark of trees, alſo the peeling or barking of roots.

DELPHINIUM. Lin. Gen. Plant. 602. Tourn. Inſt. R. H. 426. tab. 241. [Δελφὶν, *Gr.* a dolphin; ſo called, becauſe the flower, before it opens, reſembles a dolphin. It is called Conſolida Regalis, from its conſolidating virtue. Caſpar Bauhin calls it the Royal Plant, becauſe it has its cup turned backwards, like a nobleman's badge. Cæſalpinus, Pliny, and the poets ſay, this plant is the true Hyacinth, becauſe it has the ſyllable ai inſcribed on its flower, which is a particle of bewailing,] Larkſpur, or Larkſheel.

The Characters are,

The flower hath no empalement; it is compoſed of five unequal petals placed circularly; the upper petal is extended at the hinder part into a tubular obtuſe tail; the two ſide petals are nearly of the ſame ſize with the upper, but the two lower are ſmaller; theſe ſpread open. There is a bifid nectarium ſituated in the center of the petals, and is involved in the tube by the back part. The flower hath many ſmall ſtamina which incline to the petals, and are terminated by ſmall erect ſummits; it hath three oval germen, ſupporting three ſtyles which are as long as the ſtamina, crowned by reflexed ſtigmas; the germen afterward become ſo many capſules joined together, which open croſſways, each having one cell filled with angular ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's thirteenth claſs, intitled Polyandria Trigynia, the flower having many ſtamina and three ſtyles

The Species are,

1. Delphinium (*Conſolida*) nectariis monophyllis, caule ſubdiviſo. Hort. Cliff. 217. *Larkſpur with a one-leaved nectarium and a divided ſtalk.* Delphinium ſegetum. Tourn. Inſt. 426. *Corn Larkſpur, and the* Conſolida regalis arvenſis. C. B. P. 142. *Field Royal Conſound.*
2. Delphinium (*Ajacia*) nectariis monophyllis, caule ſimplici. *Larkſpur with a one-leaved nectarium, and an erect ſtalk.* Delphinium hortenſe, flore majore & ſimplici cæruleo. Tourn. Inſt. R. H. 426. *Garden Larkſpur, with a larger ſingle blue flower.*
3. Delphinium (*Ambiguum*) nectariis monophyllis, caule ramoſo. *Larkſpur with a one-leaved nectarium and a branching ſtalk.* Delphinium elatius purpuro violaceum. Suvert. Flor. *Branched Larkſpur.*
4. Delphinium (*Peregrinum*) nectariis diphyllis corollis enneapetalis capſulis teretis, foliis multipartitis obtuſis. Hort. Cliff. 213. *Larkſpur with a two-leaved nectarium, a flower with eleven petals and three capſules, and leaves divided into many obtuſe ſegments.* Delphinum latifolium, parvo flore. Tourn. Inſt. R. H. 426. *Broad-leaved Larkſpur with a ſmall flower.*
5. Delphinium (*Elatum*) nectariis diphyllis, labellis bifidis, apice barbatis, foliis inciſis, caule erecto. Hort. Upſal. 151. *Larkſpur with a two-leaved nectarium, a bifid lip bearded at the top, cut leaves, and an erect ſtalk.* Delphinium perenne montanum villoſum, aconiti folio. Tourn. Inſt. 426. *Perennial hairy Mountain Larkſpur with a Monkſhood leaf, commonly called the Bee Larkſpur.*
6. Delphinium (*Grandiflorum*) nectaris diphyllis, labellis integris, floribus ſubſolitariis, foliis compoſitis lineari-multipartitis. Hort. Upſal. 150. *Larkſpur with a two-leaved nectarium, an entire lip, flowers growing ſingly, and compound leaves divided into many narrow parts.* Delphinium humilius anguſtifolium perenne, flore azureo. Amman. *Dwarf narrow-leaved perennial Larkſpur with an azure flower.*
7. Delphinium (*Americanum*) nectariis diphyllis, labellis integris, floribus ſpicatis, foliis palmatis multifidis glabris. Plate 119. *Larkſpur with a two-leaved nectarium, an entire lip, flowers growing in ſpikes, and palmated, multifid, ſmooth leaves, commonly called American Larkſpur.*
8. Delphinium (*Staphiſagria*) nectariis diphyllis, foliis palmatis, lobis integris. Hort. Cliff. 213. *Larkſpur with a two-leaved empalement, and palmated leaves having entire lobes.* Delphinium platani folio, ſtaphyſagria dictum. Tourn. Inſt. R. H. 428. *Larkſpur with a Plane-tree leaf, called Staveſacre.*

The ſeveral varieties of the Garden Larkſpur are not here enumerated, as they would ſwell the work beyond its intended bulk, if all theſe were diſtinguiſhed, therefore here are only the diſtinct ſpecies mentioned; and as the gardeners diſtinguiſh the Garden Larkſpurs into thoſe which are branched, and ſuch as have upright ſtalks; which difference is permanent, and never alters, whatever may be aſſerted to the contrary by ignorant pretenders; ſo I ſhall juſt mention the ſeveral varieties which there are of each ſort, commonly cultivated in the gardens of the curious. And firſt of the branched Larkſpur, there are of the following colours, with ſingle and double flowers.

Blue, purple, white, fleſh, Aſh, and Roſe colours; and ſome have flowers beautifully ſpotted, with two or three of theſe different colours.

The upright or unbranched Larkſpur, produces a greater variety of colours than the branched, and the flowers are larger and fuller than thoſe; but the principal colours run nearly the ſame with thoſe of the other, though many of the colours are deeper, and there are more different ſhades of theſe colours in the flowers of this ſort.

The firſt ſort grows naturally on arable lands, in France, Spain, and Italy, and is ſuppoſed to be the ſame as the Garden Larkſpur, which is a great miſtake; for I have cultivated it many years in the garden, and never found it alter: the leaves of this ſort are broader, and not ſo much divided as thoſe of the garden kind, and are placed thinner upon the ſtalks; the flowers are ſmaller, and grow in longer ſpikes; the ſtalks are not ſo much branched as that ſort which is called the branched, nor are they ſingle like the upright, ſo that I think it may be allowed to be a different ſpecies.

The ſecond ſort hath upright ſtalks, which ſcarce put out any branches; the ſpikes of flowers grow erect, and the flowers are placed very cloſe together, ſo that they make a fine appearance. Theſe plants flower in July and Auguſt, and are very great ornaments to the borders of the flower-garden.

The branching Larkſpur, which is the third ſort, comes later to flower than the upright; this riſes with a very branching ſtalk three feet high or more; the branches come out horizontally from the ſide of the ſtalks, but afterward turn that part on which the ſpike of flowers grow, which is at the extremity upward, ſo as to make an angle; the leaves are long and finely divided; the flowers are placed thinner in the ſpikes than thoſe of the upright ſort; they are large, and ſome of them very double and of various colours.

Theſe plants are annual, ſo are every year propagated by ſeeds, which ſhould be ſown where the plants are deſigned to remain, for they do not bear tranſplanting well, eſpecially if they are not removed very young; thoſe ſeeds which are ſown in autumn, produce the ſtrongeſt plants and moſt double flowers, and ripen their ſeeds better than thoſe which are ſown in the ſpring, as they come earlier to flower; but to continue a ſucceſſion of theſe flowers, there ſhould be ſome ſeeds ſown in the ſpring. When they are ſown on the borders of the flower-garden for ornament, they ſhould be in patches of about a foot diameter, in the middle of the borders, at proper diſtances; in each of theſe patches may be ſcattered ten or a dozen ſeeds, covering them over about a quarter of an inch with earth; and in the ſpring the plants may be thinned, leaving about five or ſix of the upright ſort in each patch to ſtand for flowering; but of the branching ſort, not more than three or four, becauſe theſe require room; after this the plants will require no farther care but to keep them clean from weeds, and when they begin to flower ſhould be ſupported by flower-ſticks to prevent their being broken by wind, eſpecially if they are not in a ſheltered ſituation. If the ſeeds were well choſen, there will be very few ordinary flowers among them; and if there are ſeeds of the different coloured flowers ſown in each patch, they will make a pleaſing variety: but the upright ſort ſhould never be mixed in the ſame patches with the branching, becauſe they do not flower at the ſame time.

But in order to preſerve the two ſorts fine without degenerating to ſingle or bad colours, there ſhould be a bed of each ſort ſown in autumn, in ſome ſeparate part of the garden, where the plants ſhould be properly thinned, and kept clean from weeds, till they begin to ſhew their flowers; when they ſhould be carefully looked over every other day, to pull out all thoſe plants, whoſe flowers are not very double nor of good colours; for if theſe are permitted to ſtand among the others till their farina has impregnated them, it will certainly cauſe them to degenerate; ſo that thoſe perſons who are contented with only marking their good flowers for ſeed, and ſuffer the others to ſtand for ſeed among them, will always find themſelves diſappointed in the goodneſs of their flowers the following ſeaſon: therefore thoſe who propoſe to have theſe flowers in perfection, ſhould never gather the ſeeds of ſuch as grew in the borders of the flower-garden; becauſe there it will be almoſt impoſſible to preſerve them ſo true, as when they are in beds at a diſtance from all other kinds.

When the ſeed-veſſels turn brown, they muſt be carefully watched, to gather them before they open and diſcharge the ſeeds; ſo that thoſe which are ſituated on the lower part of the ſtalk, will open long before thoſe on the upper part of the ſtalk are ripe; for which reaſon the pods ſhould from time to time be gathered as they ripen, and not ſuffered to ſtand till the ſtalks are pulled up, which is often practiſed. Thoſe pods which are ſituated on the lower part of the ſtalks, are much preferable to ſuch as grow near the top; for which reaſon thoſe who are very curious in the choice of their ſeeds, crop off the upper part of the ſpikes of flowers, and never ſuffer them to ſtand for ſeeds.

As theſe plants are very hardy, and require ſo little care in their culture, ſo they are worthy of a place in every good garden; for during their continuance in flower, there are few plants which make a better appearance; and for gathering to make flower-pots to adorn rooms, there is ſcarce any flower ſo proper; becauſe by their upright growth and long ſpikes, they riſe to a proper height above the pots; and when the ſeveral colours are ſkilfully intermixed they make a rich appearance, and continue long in beauty.

The fourth ſort grows naturally in Sicily and Spain, I received the ſeeds of it from Gibraltar; this hath a very branching ſtalk, which riſes about two feet high; the lower leaves are divided into many broad obtuſe ſegments, but thoſe which are upon the ſtalks are generally ſingle; the flowers grow ſcatteringly toward the upper part of the branches, they are ſmall, and of a deep blue colour; theſe are ſucceeded by very ſmall ſeed-veſſels, which are ſometimes ſingle, and at others double, and very rarely three together, as in the common ſorts. This is an annual plant, whoſe ſeeds ſhould be ſown in autumn, and the plants treated as the common ſort; it hath little beauty, and is only kept in ſome gardens for the ſake of variety.

The fifth ſort hath a perennial root, which ſends out ſeveral upright ſtalks in the ſpring, riſing to the height of four feet, garniſhed with leaves which are divided into many broad ſegments, in form of a ſpreading hand; theſe ſegments are cut at their extremities into two or three acute points; the leaves are hairy, and ſtand upon long foot-ſtalks; the flowers terminate the ſtalks, growing in long ſpikes; they are of a light blue, covered toward their hinder part with a meally down. This flowers in July and Auguſt, and in autumn the ſtalks decay to the root.

The ſixth ſort grows naturally in Siberia, from whence the ſeeds were ſent to the Imperial garden at Peterſburgh, where they ſucceeded; and the ſeeds were ſent me from thence by the late Dr. Amman, who was profeſſor of botany in that univerſity. This hath a perennial root, which puts out two or three branching ſtalks every ſpring; theſe riſe about a foot and a half high, and are garniſhed at each joint with leaves compoſed of many narrow ſegments, which terminate with ſeveral acute points; they are ſmooth, and of a light green colour; the flowers come out toward the upper part of the ſtalks ſingly, each ſtanding upon a long naked foot-ſtalk; theſe are large, and of a fine azure colour; they appear the latter part of July, and are ſucceeded by ſeeds which ripen in the autumn.

The ſeventh ſort grows naturally in America; this is a perennial plant, which riſes with ſtrong branching ſtalks ſix or ſeven feet high, garniſhed with hand-ſhaped leaves, which are divided into four or five broad lobes, ending with many acute points; theſe are ſmooth, and ſtand upon long foot-ſtalks; the flowers terminate the ſtalks, growing in long ſpikes; they are of a fine blue colour, with a bearded nectarium, having two lips; and of a dark colour, reſembling at a ſmall diſtance the body of a bee.

All the perennial Larkſpurs are propagated by ſeeds, which, if ſown in autumn, will more certainly ſucceed, than thoſe which are ſown in the ſpring; when the plants come up, they ſhould be kept clean from weeds, and where they are too cloſe together, part of them ſhould be drawn out, to allow room for the others to grow till the following autumn, when they muſt be planted where they are to remain; the following ſummer they will flower, and the roots continue many years growing in magnitude, ſo will produce a greater number of flower-ſtalks.

The eighth ſort is an annual plant, which grows naturally in the Levant, as alſo in Calabria; this riſes with a ſtrong hairy ſtalk about two feet high, garniſhed with hand-ſhaped hairy leaves, compoſed of five or ſeven oblong lobes, which have frequently one or two acute indentures on their ſides; the flowers form a looſe ſpike at the upper part of the ſtalk, each ſtanding on a long foot-ſtalk; the flowers are of a pale blue or purple colour, and have a two-leaved nectarium: this is propagated by ſeeds, which ſhould be ſown in autumn, for thoſe ſown in the ſpring never grow the ſame year. The ſeeds ſhould be ſown where the plants are to remain, and require no other treatment than the common Larkſpur. The common people uſe the powder of this ſeed to kill lice, from whence it has been titled Louſewort.

DENS CANIS. See Erythronium.

DENS LEONIS. See Leontodon.

DENTARIA. Lin. Gen. Plant. 726. Tourn. Inſt. R. H. 225. tab. 110. Toothwort; in French *Dentaire.*

The Characters are,

The empalement of the flower is compoſed of four oblong oval leaves, which fall off; the flower hath four obtuſe petals placed in form of a croſs; it hath ſix ſtamina, four of which are as long as the empalement, the other two are ſhorter; theſe are terminated by oblong heart-ſhaped ſummits, which ſtand erect. In the center is ſituated an oblong germen, ſupporting a ſhort thick ſtyle, crowned by an obtuſe ſtigma; the germen afterward becomes a long taper pod with two cells, divided by an intermediate partition, opening with two valves, including many roundiſh ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa, the flowers having four long and two ſhort ſtamina, and the ſeeds being incloſed in long pods.

The Species are,

1. Dentaria (*Pentaphyllos*) foliis ſummis digitatis. Lin. Sp. 912. *Five-leaved Toothwort, whoſe upper leaves are hand-ſhaped.* Dentaria pentaphyllos, foliis mollioribus. C. B. P. 322. *Five-leaved Toothwort with ſoft leaves.*
2. Dentaria (*Bulbifera*) foliis inferioribus pinnatis, ſummis ſimplicibus. Hort. Cliff. 335. *Toothwort with lower leaves winged, and the upper ones ſingle.* Dentaria

ria heptaphyllos baccifera. C. B. P. 322. *Seven-leaved bulb-bearing Toothwort.*

3. **Dentaria** (*Enneaphyllos*) foliis ternis ternatis. Lin. Sp. Plant. 653. *Toothwort with three-leaved trifoliate leaves.* Dentaria triphyllos. C. B. P. 322. *Three-leaved Toothwort.*

The firſt ſort riſes with a ſtrong ſtalk a foot and a half high, garniſhed with a leaf at each joint, compoſed of five lobes, which are four inches long, and near two broad in the wideſt part, ending in acute points, deeply ſawed on their edges; theſe are ſmooth, and ſtand on long foot-ſtalks; the flowers grow in looſe ſpikes at the top of the ſtalks; they are ſmall, of a bluſh colour, and ſucceeded by long taper pods filled with ſmall roundiſh ſeeds. It grows in the ſhady woods in the ſouth of France and Italy.

The ſecond ſort riſes with ſlender ſtalks about a foot high; the leaves at the bottom have ſeven lobes, thoſe a little above five, others but three, and at the upper part of the ſtalk they are ſingle: the flowers grow in cluſters at the top of the ſtalk; theſe have four obtuſe purple petals, and are ſucceeded by taper pods filled with roundiſh ſeeds.

The third ſort riſes with an upright ſtalk a foot high; the leaves are compoſed of nine lobes, three growing together, ſo that one leaf has three times three; the flowers grow in ſmall bunches on the top of the ſtalks, and are ſucceeded by ſmall taper pods filled with roundiſh ſeeds.

Theſe plants grow on the mountains in Italy, and in the woods of Auſtria. The ſecond ſort is found wild in ſome parts of England, but particularly near Hare-field, in moiſt ſhady woods, and is ſeldom preſerved in gardens: this produces bulbs on the ſide of the ſtalks, where the leaves are ſet on, which, if planted, will grow and produce plants. Theſe plants are propagated by ſeeds, or parting their roots; the ſeeds ſhould be ſown in autumn, ſoon after they are ripe, in a light ſandy ſoil and a ſhady ſituation: in the ſpring the plants may be taken up where they grow too cloſe, and tranſplanted out in the like ſoil and ſituation; where, after they have taken root, they will require no farther care, but to keep them clear from weeds: the ſecond year they will produce flowers, and ſometimes perfect their ſeeds.

The beſt time to tranſplant the roots is in October, when they ſhould be planted in a moiſt ſoil and a ſhady ſituation; for they will not live in a dry ſoil, or when they are expoſed to the ſun.

DEW is by ſome defined to be a meteor bred of a thin cold vapour, or compoſed of the ſteams and vapours of the earth; which, being exhaled by the heat of the ſun, and kept ſuſpended during his preſence, do, upon his abſence, convene into drops, and then fall down unto the earth again.

Others define it, a thin, light, inſenſible miſt or rain, falling while the ſun is below the horizon.

The origin and matter of dews are, without doubt, from vapour and exhalations of the earth and water, raiſed by the warmth of the ſun and earth, &c.

There being many vapours in the air, though not always viſible, hence it comes to paſs, that even in clear weather great dews fall, eſpecially in countries where it ſeldom rains; for when it happens that the ſcattered vapours are collected and condenſed together, and forced downwards, they muſt needs fall, and bedew the plants and graſs.

The thin veſicles, of which vapours conſiſt, being once detached from their bodies, keep riſing in the air till they arrive at ſuch a ſtage as is of the ſame ſpecific gravity with themſelves, when their riſe is ſtopped: now, as it is the warmth or fire that dilates the parts of water, and forms thoſe veſicles that are ſpecifically lighter than the air, and are capable of aſcending therein; ſo when that heat declines, or is loſt, as by the approach or contiguity of any colder body, the veſicles condenſe, and become heavier and deſcend.

Therefore the ſun warming the atmoſphere in the day-time, by the continual influx of his rays, the vapours being once raiſed, continue their progreſs, not meeting with any thing to increaſe their gravity, till ſuch time as they are got far beyond the reach of the reflected warmth of the earth in the middle region of the atmoſphere, and there condenſe and form clouds.

Though ſome ſay, it is diſputable whether dews ever congregate ſo as to form clouds, as they are only elevated by the ſun; ſo that when that power is gone, as it is after the ſetting of the ſun, they immediately deſcend; and this is more obſervable in very warm weather, and very hot climates.

The time for the falling of the dew is either before ſun-riſing, or after ſun-ſet; that it may regularly fall at ſuch times, it is neceſſary for the air to be calm, for windy or ſtormy weather hinders it; but when it is calm weather, and gentle breezes are felt from the weſt about the ſetting, and from the eaſt about the riſing of the ſun, it is probable, that by moderately cooling the air, they collect the vapours and precipitate them; and becauſe the morning breezes are more general than the evening ones, for this reaſon the evening dews fall only here and there, but thoſe in the morning ſeldom fail to be univerſal: or, as it may be otherwiſe expreſſed, when the ſun is got below the horizon, the atmoſphere cools the vapours, which have in the preceding day been raiſed by the warmth of the earth; and the rays of the ſun being lodged there, as ſoon as they are got out of the air, they begin to condenſe apace, and ſpend their ſtock of heat and fire on the cold moiſt air that they paſs through.

Hence it is, that dews are more copious in the ſpring than other ſeaſons, there being a greater ſtock of vapour in readineſs, by reaſon there has been but a ſmall expence thereof during the winter's cold and froſt than at other times.

It is found by experience, that the dews are more copious in hotter countries than in cold, as Pliny obſerves of the ſummer nights in Africa, which he calls Roſcidæ æſtate noctes; the reaſon of which ſeems to be this, that in the day-time the heat of the ſun raiſes abundance of vapours out of the water; which vapours are ſo extremely rarefied by the ſame heat, that they are diſperſed far and wide; but the cool of the night brings them together, and condenſes them to that degree, that they fall to the ground, but not in ſuch large drops as rain does; but in colder countries, where there are frequent rains, and the vapours are leſs rarefied, moſt of them come down in rain, and but a ſmall part turns to dew: beſides, in Africa there is a great difference between the heat of the day and night, particularly in ſummer; for their nights are long, and very cold; whereas in northern countries they are little colder than the day, and much ſhorter than in places nearer the line.

Pliny likewiſe relates of Egypt, that it abounds in dews throughout all the heat of ſummer; for the air being there too hot to conſtipate the vapours in the day-time, they never gather into clouds, and for that reaſon they have no rain. But it is known, in climates where the days are exceſſive hot, the nights are remarkably cold, ſo that the vapours that are raiſed after ſun-ſet are readily condenſed into dews: or, perhaps notable coldneſs may be rather the effect than the cauſe of the quantity of dews; for much vapour being raiſed by the great heat of the earth, and the ſtock of fire being ſpent on it in the day-time, the influx of ſuch a great quantity of moiſture muſt greatly chill the air.

The difference between dew and rain ſeems to be only this, that dew falls at ſome particular times as aforeſaid, and in very ſmall drops, ſo as to be ſeen when down, but ſcarce perceivable while it is falling; whereas rain falls at any time, and in groſſer drops.

The reverend Dr. Hales, in his Treatiſe of Vegetable Statics, tells us, That in order to find out the quantity of dew that fell in the night on the 15th of Auguſt, 7 p. m. he took two glazed earthen pans, which were three inches deep, and twelve inches diameter in ſurface: that he filled them with pretty moiſt earth, taken off the ſurface of the ground, and they increaſed in weight by the night's dew 180 grains; and decreaſed in weight by the evaporation of the day 1 ounce + 282 grains.

He ſays likewiſe, he ſet theſe in other broader pans to prevent any moiſture from the earth ſticking to the bottom of them. He adds, that the moiſter the earth is, the more dew falls on it in a night, and more than a double quantity of dew falls on a ſurface of water than there does on an equal ſurface of moiſt earth. The evaporation of a ſurface of water in nine hours winter's dry day, is $\frac{1}{31}$ of an inch: the evaporation of a ſurface of ice ſet in the ſhade during a nine hours day, was $\frac{1}{31}$.

So here are 540 grains more evaporated from the earth every 24 hours in ſummer than fall in dew in the night; that is, in 21 days near 26 ounces from a circular area of a foot diameter; and circles being as the ſquares of their diameters, 10 pounds + 2 ounces will in 21 days be evaporated from the hemiſphere of 30 inches diameter, which the Sunflower's root occupies; which, with the 29 pounds drawn off by the plant in the ſame time, makes 39 pounds, that is, 9 pounds and $\frac{3}{4}$ out of every cubic foot of earth, the plant's roots occupying more than 4 cubic feet: but this is a much greater degree of drineſs than the ſurface of the earth ever ſuffers for 15 inches depth, even in the drieſt ſeaſons in this country.

In a long dry ſeaſon therefore, eſpecially within the tropics, we muſt have recourſe, for ſufficient moiſture to keep plants and trees alive, to the moiſt ſtrata of earth, which lie next below that in which the roots are.

Now moiſt bodies always communicate of their moiſture to more dry adjoining bodies; but this ſlow motion of the aſcent of moiſture is much accelerated by the ſun's heat to conſiderable depths in the earth, as is probable, he ſays, from the twentieth experiment in the ſaid book.

Now 180 grains of dew falling in one night on a circle of a foot diameter = 113 ſquare inches; theſe 180 grains being equally ſpread on this ſurface, its depth will be $\frac{1}{159}$ part of an inch $= \frac{180}{113 \times 254}$. He adds, that he found the dew in a winter night to be the $\frac{1}{90}$ part of an inch; ſo that if we allow 151 nights for the extent of the ſummer dew, it will in that time ariſe to one inch depth: and reckoning the remaining 214 nights for the extent of the winter's dew, it will produce 2,39 inches depth, which makes the dew of the whole year amount to 3,39 inches depth.

And the quantity which evaporated in a fair ſummer's day from the ſame ſurface, being as 1 ounce 282 grains, gives $\frac{1}{40}$ part of an inch depth for evaporation, which is four times as much as fell at night.

He ſays likewiſe, that he found by the ſame means, the evaporation of a winter's day to be nearly the ſame as in a ſummer's day; for the earth being in winter more ſaturate with moiſture, that exceſs of moiſture anſwers to the exceſſive heat in ſummer.

Nic. Cruquius, N° 381. of the Philoſophical Tranſactions, found, that 28 inches depth evaporated in a whole year from water, i. e. $\frac{1}{12}$ of an inch each day at a mean rate: but the earth in a ſummer's day evaporates $\frac{1}{40}$ of an inch, ſo the evaporation of a ſurface of water is to the evaporation of a ſurface of earth in ſummer as 10 : 3.

The quantity of rain and dew that falls in a year is at a medium 22 inches. The quantity of the earth's evaporation in a year is at leaſt 9 + $\frac{1}{2}$ inches; ſince that is the rate at which it evaporates in a ſummer's day: from which 9 + $\frac{1}{2}$ inches are to be deducted 3,39 inches for circulating daily dew, there remains 6,2 inches; which 6,2 inches deducted from the quantity of rain that falls in a year, there remains at leaſt 16 inches depth to repleniſh the earth with moiſture for vegetation, and to ſupply the ſprings and rivers.

Dr. Hales proceeds to inſtance, in the caſe of a Hop-ground which he gives in the ninth experiment of his book of Vegetable Statics, that the evaporation there found, from the Hops, conſidered only for three months, at $\frac{1}{101}$ part of an inch each day, which will be $\frac{9}{10}$ of an inch: but before it be allowed 6,2 inches to form the ſurface of the ground, which added to the $\frac{9}{10}$ give 7,1 inches, which is the utmoſt that can be evaporated from a ſurface of Hop-ground in a year; ſo that of 22 inches depth of rain, there remain 15 inches to ſupply ſprings, which are more or leſs exhauſted, according to the drineſs or wetneſs of the year.

Hence we find, that 22 inches depth of rain in a year is ſufficient for all the purpoſes of nature in ſuch flat countries as that about Teddington near Hampton Court. But in the hill countries, as in Lancaſhire, there falls 42 inches depth of rain water, from which, deducting 7 inches for evaporation, there remains 35 inches depth of water for the ſprings, beſides great ſupplies from much more plentiful dews than fall in plain countries; which vaſt ſtores ſeem ſo abundantly ſufficient to anſwer the great quantity of water, which is conveyed away by the ſprings and rivers from thoſe hills, that we need not have recourſe for ſupplies to the great abyſs, whoſe ſurface at high water is ſurmounted ſome hundreds of feet by thoſe vaſt hills from whence the longeſt and greateſt rivers take their riſe.

DIANTHERA. Lin. Gen. Plant. 37. Flor. Virg. 6.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, which is tubulous, and cut at the top into five equal parts; the flower is of the grinning kind, having one petal with a ſhort tube; the upper lip is reflexed and bifid, the lower is divided into three parts, the middle being the broadeſt; it hath two ſhort ſlender ſtamina adhering to the back of the petal, one of theſe hath a twin ſummit, the other is a little taller. It hath an oblong germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an obtuſe ſtigma. The empalement afterward becomes a capſule with two cells, opening with two valves, which are alternately compreſſed at the top and bottom, and open with an elaſticity, caſting a ſingle flat ſeed out of each cell.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, intitled Diandria Monogynia, the flower having two ſtamina and one ſtyle. This is one of the genera which, by Linnæus's method, is ſeparated to a great diſtance from their congeners; for by all their other characters they ſhould be joined to his fourteenth claſs, but having only two ſtamina, they are put under his ſecond.

We know but one SPECIES of this genus at preſent, viz.

DIANTHERA (*Americana*) ſpicis ſolitariis alternis. Lin. Sp. 24. *Dianthera with ſolitary alternate ſpikes.*

This plant grows naturally in Virginia, and other parts of North America, from whence the ſeeds have been ſent to England, where they have ſucceeded. This is a low herbaceous plant with a perennial root, which ſends out ſeveral weak ſtalks about four inches long, garniſhed with roundiſh leaves of an aromatic odour, ſtanding cloſe to the ſtalks; they are hairy, and of a dark green colour; from the ſide of the ſtalks the flowers are produced in ſmall ſpikes, placed alternately; theſe are in ſhape and colour very like thoſe of the Clinopodium, but have only two ſtamina in each. It flowers the latter end of July, but rarely produces ſeeds in England.

This plant is very difficult to preſerve in this country, for although it is hardy enough to live in the open air in England, yet it is very ſubject to rot in winter; and if it is placed under ſhelter, it is apt to draw up weak, and ſoon after decay, ſo that at preſent the plants are rare in this country.

DIANTHUS. Lin. Gen. Plant. 500. Caryophyllus. Tourn. Inſt. R. H. 329. Clove Gilly Flower, Carnation Pink; in French, *Oeillet.*

The Characters are,

The flower hath a long cylindrical empalement which is permanent; it hath five petals, whoſe tails are as long as the empalement, but their upper part is broad, plain, and crenated on their borders; theſe are inſerted in the bottom of the tube, and ſpread open above. It hath ten ſtamina which are as long as the empalement, terminated by oblong compreſſed ſummits. In the center is ſituated an oval germen, ſupporting two ſtyles which are longer than the ſtamina, crowned by recurved ſtigmas. The germen afterward becomes a cylindrical capſule with one cell, opening in four parts at the top, and filled with compreſſed angular ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's tenth claſs, intitled Decandria Digynia, the flowers having ten ſtamina and two ſtyles.

The Species are,

1. Dianthus (*Deltoides*) floribus ſolitariis, ſquamis calycinis lanceolatis binis, corollis crenatis. Hort. Cliff. 164. *Dianthus with a ſingle flower having a double ſcaly empalement, and crenated petals.* Caryophyllus ſylveſtris vulgaris latifolius. C. B. P. 209. *Maiden Pink.*
2. Dianthus (*Virgineus*) caule ſubunifloro, corollis crenatis, ſquamis calycinis breviſſimis, foliis ſubulatis. Lin. Sp. Plant. 412. *Dianthus with one flower on a ſtalk, crenated petals, very ſhort ſcales to the empalement, and awl-ſhaped leaves.* Caryophyllus minor repens. Noſtras. Raii. Syn. 335. *Engliſh ſmall creeping Pink, commonly called the matted Pink by ſeedſmen.*
3. Dianthus (*Glaucus*) floribus ſubſolitariis, ſquamis calycinis lanceolatus quaternis, corollis crenatis. Hort. Cliff. 164. *Dianthus with one flower on a ſtalk, having four ſpear-ſhaped ſcales to the empalement, and crenated petals.* Tunica ramoſior flore candido cum corollâ purpureâ. Hort. Elth. 400. *Branching Pink with a white flower, having a purple circle, commonly called Mountain Pink.*
4. Dianthus (*Plumarius*) floribus ſolitariis, ſquamis calycinis ſubovatis breviſſimis, corollis multifidis fauce pubeſcentibus. Lin. Sp. Plant. 411. *Dianthus with a ſingle flower, having ſhort oval ſcales to the empalement, and petals cut into many points, with a hairy bottom.* Caryophyllus ſimplex flore minore pallido rubente. C. B. P. 208. *Single wild Pink, with a ſmall, pale, reddiſh flower.*
5. Dianthus (*Caryophyllus*) floribus ſolitariis ſquamis calycinis ſubovatis breviſſimis, corollis crenatis. Hort. Cliff. 164. *Dianthus with a ſingle flower, having ſhort oval ſcales to the empalement, and crenated petals.* Caryophyllus hortenſis ſimplex, flore majore. C. B. P. 208. *Single Garden Carnation with a large flower.*
6. Dianthus (*Armeria*) floribus aggregatis faſciculatis, ſquamis calycinis lanceolatis villoſis tubum æquantibus. Hort. Cliff. 165. *Dianthus with many flowers gathered into bunches, having hairy ſpear-ſhaped ſcales to the empalement, as long as the tube of the flower.* Caryophyllus barbatus ſylveſtris. C. B. P. 208. *Bearded wild Pink, called Deptford Pink.*
7. Dianthus (*Barbatus*) floribus aggregatis faſciculatis, ſquamis calycinis linearibus, foliis lanceolatis. *Dianthus with many flowers gathered in bunches, having very narrow ſcales to the empalement, and ſpear-ſhaped leaves.* Caryophyllus barbatus hortenſis latifolius. C. B. P. 208. *Broad-leaved Garden Sweet William.*
8. Dianthus (*Prolifer*) floribus aggregatis capitatis, ſquamis calycinis ovatis obtuſis muticis tubum ſuperantibus. Lin. Sp. Plant. 587. *Dianthus with flowers collected into heads, and obtuſe, oval, chaffy ſcales to the empalements, which are longer than the tube.* Caryophyllus ſylveſtris prolifer. C. B. P. 209. *Wild childing Sweet William.*
9. Dianthus (*Ferrugineis*) floribus aggregatis capitatis, ſquamis calycinis lanceolatis ariſtatis, corollis crenatis. *Dianthus with flowers collected in heads, having ſpear-ſhaped ſcales to the empalement which are bearded, and crenated petals.* Caryophyllus montanus umbellatus, floribus variis luteis ferrugineis Italicus. Barrel. Obſ. 648. *Italian umbellated Mountain Pink, with flowers varying from yellow to an iron colour.*
10. Dianthus (*Chinenſis*) floribus ſolitariis, ſquamis calycinis ſubulatis patulis, tubum æquantibus, corollis crenatis. Hort. Cliff. 164. *Dianthus with a ſingle flower on each ſtalk, awl-ſhaped ſpreading ſcales to the empalement equalling the tube, and crenated petals.* Caryophyllus ſinenſis ſupinus, leucoii folio, flore unico. Tourn. Act. Par. 1705. *The China Pink.*
11. Dianthus (*Arenarius*) caulibus unifloris ſquamis calycinis ovatis obtuſis, corollis multifidis, foliis linearibus. Flor. Suec. 318. *Dianthus having a ſingle flower upon a ſtalk, oval ſcales to the empalement, the petals of which are cut into many points, and narrow leaves.* Caryophyllus ſylveſtris humilis, flore unico. C. B. P. 209. *Dwarf wild Pink with one flower.*
12. Dianthus (*Alpinus*) caule unifloro, corollis crenatis, ſquamis calycinis exterioribus tubum æquantibus, foliis linearibus obtuſis. Lin. Sp. Plant. 412. *Dianthus with one flower having crenated petals, the outer ſcales of the empalement equalling the tube, and narrow obtuſe leaves.* Caryophyllus pumilus latifolius. C. B. P. 209. *Dwarf broad-leaved Pink.*
13. Dianthus (*Superbus*) floribus paniculatis, ſquamis calycinis brevibus acuminatis, corollis multifido-capillaribus, caule erecto. Amœn. Acad. 4. p. 272. *Dianthus with paniculated flowers, having ſhort-pointed ſcales to their empalement, multifid petals, and an upright ſtalk.*
14. Dianthus (*Diminutus*) floribus ſolitariis, ſquamis calycinis octonis florem ſuperantibus. Lin. Sp. 587. *Dianthus with a ſingle flower on each ſtalk, having eight ſcales which riſe above the petals of the flower.* Caryophyllus ſylveſtris minimus. Tabern. Hiſt. 290.

The firſt ſort hath creeping ſtalks, from which come out ſeveral tufted heads, cloſely garniſhed with narrow leaves, whoſe baſe lie over each other embracing the ſtalks; between theſe ariſe the flower-ſtalks, which grow about ſix inches high, garniſhed at every joint by two narrow graſſy leaves placed oppoſite. The ſtalks are terminated by a ſingle flower. It flowers in June and July, and the ſeeds ripen in autumn. This is rarely admitted into gardens, the flower having no beauty.

The ſecond ſort is a low trailing plant, whoſe ſtalks lie on the ground; theſe grow very cloſe together, and are garniſhed with ſhort, narrow, graſſy leaves of a deep green colour; the ſtalks are terminated by ſmall red flowers, each ſtanding upon a ſeparate footſtalk. It flowers in July, and the ſeeds ripen in September. This ſort grows naturally in ſeveral parts of England, ſo is not often cultivated in gardens at preſent; but formerly the ſeeds were ſown to make edgings for the borders of the flower-garden by the title of matted Pink, by which the ſeeds were ſold in the ſhops.

The third ſort grows naturally upon Chidder rocks in Somerſetſhire, and ſome other parts of England. This was formerly cultivated in the gardens by the title of Mountain Pink. It hath a reſemblance of the ſecond ſort, but the leaves are ſhorter, and of a grayiſh colour; the ſtalks grow taller, and branch more; the flowers are larger, of a white colour, with a purple circle in the bottom, like that ſort of Pink called Pheaſants Eye. As the flowers of this ſort have no ſcent, the plants are ſeldom kept in gardens.

The fourth ſort grows naturally in ſeveral parts of England, frequently upon old walls; it is a ſmall ſingle Pink, of a pale red colour, ſo is not cultivated in gardens.

The fifth ſort is a ſmall ſingle Carnation, which has been long caſt out of all the gardens; from one of this ſort it is ſuppoſed, many of the fine flowers now cultivated in the gardens have been raiſed.

The ſixth ſort grows naturally in ſeveral parts of England, and particularly in a meadow near Deptford in Kent, from whence it had the title of Deptford Pink. This is of the kind called Sweet William; the flowers of theſe grow in cluſters at the end of the branches; they are red, and have long bearded empalements. I have cultivated this ſort above forty years, and have never obſerved it to vary.

The ſeventh ſort is the common Sweet William, which has been long cultivated in the gardens for ornament, of which there are now great varieties which differ in the form and colour of their flowers, as alſo in the ſize and ſhape of their leaves; thoſe which have narrow leaves were formerly titled Sweet Johns by the gardeners, and thoſe with broad leaves were called Sweet Williams; there are ſome of both theſe ſorts with double flowers, which are very ornamental plants in gardens.

The eighth ſort grows naturally in the ſouth of France, in Spain, Italy, and in England. This is an annual plant, which riſes with an upright ſtalk about a foot high, garniſhed with narrow graſſy leaves, and is terminated by a ſmall head or cluſter of pale red flowers, which are included in one common ſcaly empalement. Theſe have little beauty, ſo the plants are ſeldom kept in gardens.

The ninth ſort is a biennial plant, which riſes with an upright ſtalk a foot and a half high, having two long narrow leaves placed oppoſite at each joint, which embrace the ſtalk with their baſe; they are of a deep green colour, ſtiff, and end in acute points. The flowers grow in cloſe cluſters at the top of the ſtalks, having ſtiff bearded empalements; they are yellow and iron coloured intermixed on the ſame ſtalk, and frequently they are of both colours in the ſame head. This plant flowers in July, and the ſeeds ripen in autumn.

The tenth ſort came originally from China, ſo it is titled the China Pink; the flowers of this have no ſcent, but there are a great variety of lively colours among them; and of late years there has been great improvements made in the double flowers of this ſort, ſome of which are as full of petals as the double Pink, and their colours are very rich. The plants ſeldom grow more than eight or nine inches high, branching out on every ſide; the branches grow erect, and are terminated each by a ſingle flower. Theſe flower in July, and continue in ſucceſſion till the froſt ſtops them; they are commonly raiſed every year from ſeeds, but the roots will continue two years in dry ground.

The eleventh ſort is found growing naturally upon old walls and buildings in many parts of England; this is a ſingle ſmall Pink, of a ſweet odour, but of a pale colour and ſmall, ſo makes no appearance; and ſince the great improvement which has been made in theſe flowers by culture, this has been entirely neglected.

The twelfth ſort grows naturally on the Alps. This hath round, ſhort, blunt leaves; the ſtalks ſeldom riſe more than four inches high, each being terminated by a ſingle flower of a pale red colour. It is ſometimes preſerved in botanic gardens for the ſake of variety, but is rarely admitted into other gardens.

The thirteenth ſort grows naturally in Germany and Denmark; the leaves of this ſort are like thoſe of the narrow-leaved Sweet William; the ſtalk riſes more than a foot high, and is terminated by a ſingle flower, having five large petals of a pale red colour, which are cut into many long ſegments. The roots of this ſort will live three or four years, but the ſecond year from ſeeds they are in greateſt beauty; therefore as the ſeeds ripen well in England, young plants ſhould be annually raiſed.

The fourteenth ſort is a very diminutive plant, having ſhort narrow leaves growing in cloſe heads; the ſtalk ſeldom riſes ſix inches high, which is terminated by a ſingle flower, of a pale red colour, ſo has little beauty, therefore is only kept in botanic gardens for variety.

The ſorts here enumerated, are ſuch as the botaniſts allow to be diſtinct ſpecies; and all the varieties of fine flowers, which are now cultivated in the gardens of the curious, are only accidental variations which have been produced by culture; and the number of theſe are greatly increaſed annually, in many different parts of Europe; ſo that as new varieties are obtained, the old flowers are rejected.

The plants of this genus may be properly enough divided into three ſections. The firſt to include all the variety of Pinks, the ſecond all the Carnations, and the third thoſe of the Sweet William; for although theſe agree ſo nearly in their principal characters, as to be included under the ſame genus by the botaniſts, yet they never vary from one to the other, though they frequently change and vary in the colour of their flowers.

I ſhall now proceed to treat of theſe under their different ſections, and firſt I ſhall begin with the Pink, of which there are a great variety now cultivated in the gardens; the principal of which are, the damaſk Pink, the white Shock, the Pheaſant Eye, with double and ſingle flowers, varying greatly in their ſize and colour; the common red Pink, Cob's Pink, Dobſon's Pink, white Cob Pink, and Bat's Pink. The old Man's Head, and painted Lady Pink, rather belong to the Carnation.

The damaſk Pink is the firſt of the double ſorts in flower. This hath but a ſhort ſtalk; the flower is not very large, and not ſo double as many others; the colour is of a pale purple, inclining to red, but is very ſweet.

The next which flowers is the white Shock, which was ſo called from the whiteneſs of its flowers, and the borders of the petals being much jagged and fringed; the ſcent of this is not ſo agreeable as of ſome others.

Then comes all the different kinds of Pheaſants Eye, of which there are frequently new varieties raiſed, which are either titled from the perſons who raiſed them, or the place where they were raiſed; ſome of theſe have very large double flowers, but thoſe which burſt their pods are not ſo generally eſteemed.

The Cob Pink comes after theſe to flower; the ſtalks of this are much taller than thoſe of any of the former; the flowers are very double, and of a bright red colour; theſe have the moſt agreeable odour of all the ſorts, ſo merits a place in every good garden. The time of the Pinks flowering is from the latter end of May to the middle of July, and frequently that ſort of Pheaſant Eye, which is called Bat's Pink, will flower again in autumn.

The old Man's Head Pink, and the painted Lady, do not flower till July, coming at the ſame ſeaſon with the Carnation, to which they are more nearly allied than the Pink. The firſt when it is in its proper colours, is purple and white ſtriped and ſpotted, but this frequently is of one plain colour which is purple; this ſort will continue flowering till the froſt in autumn puts a ſtop to it, and the flowers having an agreeable ſcent, renders them valuable. The painted Lady is chiefly admired for the livelineſs of its colour, for it is not ſo ſweet, or of ſo long continuance as the other.

The common Pinks are propagated either by ſeeds, which is the way to obtain new varieties, or by making layers of them, as is practiſed for Carnations; or by planting ſlips, which, if carefully managed, will take root very well.

If they are propagated by ſeeds, there ſhould be care taken in the choice of them, and only the ſeeds of the beſt ſorts ſaved, where the perſons are curious to have the fineſt flowers. Theſe ſeeds may be ſown in the ſpring, and the plants afterward treated in the ſame manner as is hereafter directed for the Carnation; with this difference only, that as the Pinks are leſs tender, they may be more hardily treated. Thoſe which are propagated by layers, muſt be alſo managed as the Carnation, for which there are full inſtructions hereafter given. The old Man's Head and painted Lady Pinks, are commonly propagated this way, but moſt of the other ſorts are propagated from ſlips.

The beſt time to plant the ſlips of Pinks is about end of July, when, if there ſhould happen rain, it will be of great ſervice to them; but if the weather ſhould prove dry, they will require to be watered every other day, until they have taken root; theſe ſhould be planted in a ſhady border, and the ground ſhould be dug well, and all the clods broken, and if no rain falls, it ſhould be well ſoaked with water a few hours before the ſlips are planted; then the ſlips ſhould be taken from the plants, and all their lower leaves ſtripped off, and planted as ſoon as poſſible after, for if they are ſuffered to lie long after they are taken from the plants, they will wither and ſpoil; theſe need not be planted at a greater diſtance than three inches ſquare, and the ground muſt be cloſed very hard about them; then they muſt be well watered, and this muſt be repeated as often as is found neceſſary, till the cuttings have taken root; after which they will require no other care but to keep them clean from weeds till autumn, when they ſhould be tranſplanted to the borders of the flower-garden where they are to remain. There are ſome who plant the ſlips of Pinks later in the ſeaſon than is here directed; but thoſe plants are never ſo ſtrong nor flower ſo well, as thoſe which are early planted.

We ſhall next proceed to the culture of the Carnation; theſe the floriſts diſtinguiſh into four claſſes.

The firſt they call Flakes; theſe are of two colours only, and their ſtripes are large, going quite through the leaves.

The ſecond are called Bizarrs; theſe have flowers ſtriped or variegated with three or four different colours, in irregular ſpots and ſtripes.

The third are called Piquettes; theſe flowers have always a white ground, and are ſpotted (or pounced, as they call it) with ſcarlet, red, purple, or other colours.

The fourth are called painted Ladies; theſe have their petals of a red or purple colour on the upper ſide, and are white underneath.

Of each of theſe claſſes there are numerous varieties, but chiefly of the Piquettes, which ſome years ago were chiefly in eſteem with the floriſts, but of late years the Flakes have been in greater requeſt than any of the other kinds. To enumerate the varieties of the chief flowers in any one of theſe claſſes, would be needleſs, ſince every country produces new flowers almoſt every year; ſo that thoſe flowers, which, at their firſt raiſing, were greatly valued, are in two or three years become ſo common, as to be of little worth, eſpecially if they are defective in any one property. Therefore (where flowers are ſo liable to mutability, either from the fancy of the owner, or that better kinds are yearly produced from ſeeds, which, with good floriſts, always take place of older or worſe flowers, which are turned out of the garden to make room for them) it would be but ſuperfluous in this place to give a liſt of their names, which are generally borrowed either from the names and titles of noblemen, or from the perſon's name, or place of abode, who raiſed it.

Theſe flowers are propagated either from ſeeds (by which new flowers are obtained), or from layers, for the increaſe of thoſe ſorts which are worthy maintaining; but I ſhall firſt lay down the method of propagating them from ſeeds, which is thus:

Having obtained ſome good ſeeds, either of your own ſaving, or from a friend that you can confide in, about the middle of April, prepare ſome pots or boxes (according to the quantity of ſeed you have to ſow); theſe ſhould be filled with freſh light earth mixed with rotten neats dung, which ſhould be well incorporated together; then ſow your ſeeds thereon (but not too thick) covering it about a quarter of an inch with the ſame light earth, placing the pots or caſes ſo as to receive the morning ſun only till eleven of the clock, obſerving alſo to refreſh the earth with water as often as it may require. In about a month's time your plants will come up, and if kept clear from weeds, and duly watered, will be fit to tranſplant about the latter end of July; at which time you ſhould prepare ſome beds (of the ſame ſort of earth as was directed to ſow them in) in an open airy ſituation, in which you ſhould plant them at about three inches ſquare, obſerving to water and ſhade them till they have taken new root, then you muſt obſerve to keep them clear from weeds; in theſe beds they may remain until the end of Auguſt, by which time they will have grown ſo large as almoſt to meet each other; then prepare ſome more beds of the like good earth (in quantity proportionable to the flowers you have raiſed) in which you ſhould plant them at ſix inches diſtance each way, and not above four rows in each bed, for the more conveniently laying ſuch of them as may prove worthy preſerving, for in theſe beds they ſhould remain to flower.

The alleys between theſe beds ſhould be two feet wide, that you may paſs between the beds to weed and clean them. If the ſeaſon ſhould prove very dry at this time, they ſhould not be tranſplanted till there is ſome rain; ſo that it may happen to be the middle, or latter end of September ſome years, before there may be wet enough to moiſten the ground for this purpoſe; but if there is time enough for the plants to get good root before the froſt comes on, it will be ſufficient. If the winter ſhould prove ſevere, the beds ſhould be arched over with hoops, that they may be covered with mats, otherwiſe many of the plants may be deſtroyed, for the good flowers are not ſo hardy as the ordinary ones of this genus. There will be no other culture wanting to theſe, but to keep them clean from weeds, and when they ſhoot up their ſtalks to flower, they muſt be ſupported by ſticks to prevent their breaking. When your flowers begin to blow, you muſt look over them to ſee which of them proffer to make good flowers, which as ſoon as you diſcover, you ſhould lay down all the layers upon them; thoſe which are well marked, and blow whole without breaking their pods, ſhould be reſerved to plant in borders, to furniſh you with ſeed; and thoſe which burſt their pods, and ſeem to have good properties, ſhould be planted in pots, to try what their flowers will be, when managed according to art; and it is not till the ſecond year that you can pronounce what the value of a flower will be, which is in proportion to the goodneſs of its properties; but, that you may be well acquainted with what the floriſts call good properties, I ſhall here ſet them down.

1. The ſtem of the flower ſhould be ſtrong, and able to ſupport the weight of the flower without hanging down.

2. The petals (or leaves) of the flower ſhould be long, broad, and ſtiff, and pretty eaſy to expand, or (as the floriſts term them) ſhould be free flowers.

3. The middle pod of the flower ſhould not advance too high above the other petals of the flower.

4. The colours ſhould be bright, and equally marked all over the flower.

5. The flower ſhould be very full of leaves, ſo as to render it, when blown, very thick and high in the middle, and the outſide perfectly round.

Having made choice of ſuch of your flowers as promiſe well for the large ſort, theſe you ſhould mark ſeparately for pots, and the round whole blowing flowers for borders; you ſhould pull up all ſingle flowers, or ſuch as are ill-coloured, and not worth preſerving, that your good flowers may have the more air and room to grow ſtrong; theſe having been laid at a proper ſeaſon, as ſoon as they have taken root (which will be ſome time in Auguſt) they ſhould be taken off, and planted out, thoſe that blow large, in pots, and the other in borders (as hath been already directed).

Of late years the whole-blowing flowers have been much more eſteemed than thoſe large flowers which burſt their pods, but eſpecially thoſe round flowers which have broad ſtripes of beautiful colours, and round Roſe leaves, of which kinds there have been a great variety introduced from France within theſe few years; but as theſe French flowers are extremely apt to degenerate to plain colours, and being much tenderer than thoſe which are brought up in England, there are not ſuch great prices given for the plants now, as have been a few years paſt; from the preſent taſte for theſe whole-blowing Flake flowers, many of the old varieties, which had been turned out of the gardens of the floriſts many years ago, to make room for the large flowers, which were then in faſhion, have been received again; and large prices have been paid of late for ſuch flowers as ſome years ago were ſold for one ſhilling a dozen, or leſs, which is a ſtrong proof of the variableneſs of the fancies of the floriſts.

But I ſhall now proceed to give ſome directions for propagating theſe flowers by layers, and the neceſſary care to be taken in order to blow them fair and large.

The beſt ſeaſon for laying theſe flowers is in June, as ſoon as the ſhoots are ſtrong enough for that purpoſe, which is performed in the following manner: after having ſtripped off the leaves from the lower part of the ſhoot intended to be laid, make choice of a ſtrong joint about the middle part of the ſhoot (not too near the heart of the ſhoot, nor in the hard part next the old plant); then with your penknife make a ſlit in the middle of the ſhoot from the joint upwards half way to the other joint, or more, according to their diſtance; then with your knife cut the tops of the leaves, and alſo cut off the ſwelling part of the joint where the ſlit is made, ſo that the part ſlit may be ſhaped like a tongue; for if that outward ſkin is left on, it would prevent their puſhing out roots; then having looſened the earth round the plant, and, if need be, raiſed it with freſh mould, that it may be level with the ſhoot intended to be laid down, leſt by the ground being too low, by forcing down the ſhoot you ſplit it off; then with your finger make a hollow place in the earth, juſt where the ſhoot is to come, and with your thumb and finger bend the ſhoot gently into the earth, obſerving to keep the top as upright as poſſible, that the ſlit may be open; and being provided with forked ſticks for that purpoſe, thruſt one of them into the ground, ſo that the forked part may take hold of the layer, in order to keep it down in its proper place; then gently cover the ſhank of the layer with the ſame ſort of earth, giving it a gentle watering to ſettle the earth about it, obſerving to repeat the ſame as often as is neceſſary, in order to promote their rooting. In about five or ſix weeks after this, the layers will have taken root ſufficient to be tranſplanted; againſt which time you ſhould be provided with proper earth for them, which may be compoſed after the following manner:

Make choice of ſome good up-land paſture, or a common that is of a hazel earth, or light ſandy loam; dig from the ſurface of this your earth about eight inches deep, taking all the turf with it; let this be laid in a heap to rot and mellow for one year, turning it once a month, that it may ſweeten; then mix about a third part of rotten neats dung, or for want of that, ſome rotten dung from a Cucumber or Melon-bed; let this be well mixed together, and if you can get it time enough before-hand, let them lie mixed ſix or eight months before it is uſed, turning it ſeveral times, the better to incorporate their parts.

Obſerve, that although I have mentioned this mixture as the beſt for theſe flowers, yet you muſt not expect to blow your flowers every year equally large in the ſame compoſition; therefore ſome people who are extremely fond of having their flowers ſucceed well, alter their compoſitions every year in this manner, viz. one year they mix the freſh earth with neats dung, which is cold; the next year with rotten horſe dung, which is of a warmer nature, adding thereto ſome white ſea ſand to make the earth lighter.

But, for my part, I ſhould rather adviſe the planting two or three layers of each of the beſt kinds in a bed of freſh earth not over dunged, which plants ſhould only be ſuffered to ſhew their flowers, that you may be ſure they are right in their kind and colours; and when you are ſatisfied in that particular, cut off the flower-ſtems, and do not ſuffer them to ſpend the roots in blowing, by which means you will ſtrengthen your layers. And it is from theſe beds I would make choice of ſome of the beſt plants for the next year's blowing, always obſerving to have a ſucceſſion of them yearly, by which means you may have every year fine flowers, provided the ſeaſon proves favourable: for it is not reaſonable to ſuppoſe, that the layers taken from ſuch roots as have been exhauſted in producing large flowers, and have been forced by art to the utmoſt of their natural ſtrength, ſhould be able to produce flowers equally as large as their mother root did the year before, or as ſuch layers as are freſh from a poorer ſoil, and in greater health can do.

But this being premiſed, let us proceed to the planting of theſe layers, which (as I ſaid before) ſhould be done in Auguſt, or the beginning of September.

The common method uſed by moſt floriſts is, to plant their layers at this ſeaſon, two in each pot (the ſize of which pots are about nine inches over in the clear at the top); in theſe pots they are to remain for bloom; and therefore, in the ſpring of the year, they take off as much of the earth from the ſurface of the pots as they can, without diſturbing their roots, filling the pots up again with the ſame good freſh earth as the pots were before filled with. But there is ſome difficulty in ſheltering a great quantity of theſe flowers in winter, when they are planted in ſuch large pots, which in moſt winters they will require, more or leſs; my method therefore is, to put them ſingly into halfpenny pots in autumn, and in the middle or latter end of October, to ſet theſe pots into a bed of old tanners bark, which has loſt its heat, and cover them with a common frame (ſuch as is uſed for raiſing Cucumbers and Melons); and in two of theſe frames, which contain ſix lights, may be ſet a hundred and fifty of theſe pots: in theſe frames you may give them as much free air as you pleaſe, by taking off the lights every day when the weather is mild, and putting them on only in bad weather and great rains; and if the winter ſhould prove ſevere, it is only the covering the glaſſes with mats, ſtraw, or Peaſe-haulm, ſo as to keep out the froſt, which will effectually preſerve your plants in the utmoſt vigour.

In the middle or latter end of February, if the ſeaſon is good, you muſt tranſplant theſe layers into pots for their bloom (the ſize of which ſhould be about eight inches over at the top in the clear); in the doing of which, obſerve to put ſome potſherds or oyſter-ſhells over the holes in the bottoms of the pots, to keep the earth from ſtopping them, which would detain the water in the pots to the great prejudice of the flowers: then fill theſe pots about half way with the ſame good compoſt as was before directed, and ſhake the plants out of the ſmall pots with all the earth about the roots; then with your hands take off ſome of the earth round the outſide of the ball, and from the ſurface taking off the fibres of the roots on the outſide of the ball of earth; then put one good plant exactly in the middle of each pot, ſo that it may ſtand well as to the height, i. e. not ſo low as to bury the leaves of the plant with earth, nor ſo high, that the ſhank may be above the rim of the pot; then fill the pot up with the earth before-mentioned, cloſing it gently to the plant with your hands, giving it a little water, if the weather is dry, to ſettle the earth about it; then place theſe pots in a ſituation where they may be defended from the north wind, obſerving to give them gentle waterings, as the ſeaſon may require.

In this place they may remain till the middle or latter end of April, when you ſhould prepare a ſtage of boards to ſet the pots upon, which ſhould be ſo ordered as to have little ciſterns of water round each poſt, to prevent the inſects from getting to your flowers in their bloom, which, if they are ſuffered to do, will mar all your labour, by deſtroying all your flowers in a ſhort time; the chief and moſt miſchievous inſect in this caſe is, the earwig, which will gnaw off all the lower parts of the petals of the flowers (which are very ſweet) and thereby cauſe the whole flower to fall to pieces; but ſince the making one of theſe ſtages is ſomewhat expenſive, and not very eaſy to be underſtood by ſuch as have never ſeen them, I ſhall deſcribe a very ſimple one, which I have uſed for ſeveral years, which anſwers the purpoſe full as well as the beſt and moſt expenſive one can do: firſt, prepare ſome common flat pans, about fourteen or ſixteen inches over, and three inches deep; place theſe two and two oppoſite to each other, at about two feet diſtance, and at every eight feet lengthways, two of theſe pans; in each of theſe whelm a flower-pot, which ſhould be about ſix inches over at the top, upſide-down, and lay a flat piece of timber, about two feet and a half long, and three inches thick, croſs from pot to pot, till you have finiſhed the whole length of your ſtage; then lay your planks lengthways upon theſe timbers, which will hold two rows of planks for the ſize pots which were ordered for the Carnations; and when you have ſet your pots upon the ſtage, fill the flat pans with water, always obſerving, as it decreaſes in the pans, to repleniſh it, which will effectually guard your flowers againſt inſects; for they do not care to ſwim over water, ſo that if by this, or any other contrivance, the paſſage from the ground to the ſtage, on which the pots are placed, is defended by a ſurface of water three or four inches broad, and as much in depth, it will effectually prevent theſe vermin from getting to the flowers.

This ſtage ſhould be placed in a ſituation open to the ſouth-eaſt, but defended from the weſt winds, to which theſe ſtages muſt not be expoſed, leſt the pots ſhould be blown down by the violence of that wind, which is often very troubleſome at the ſeaſon when theſe flowers blow; indeed they ſhould be defended by trees at ſome diſtance, from the winds of every point; but theſe trees ſhould not be too near the ſtage, nor by any means place them near walls, or tall buildings, for in ſuch ſituations the ſtems of the flowers will draw up too weak. About this time, viz. the middle of April, your layers will begin to ſhoot up for flower; you muſt therefore be provided with ſome ſquare deal ſticks, about four feet and a half long, which ſhould be thicker toward the bottom, and planed off taper at the top; theſe ſticks ſhould be carefully ſtuck into the pots as near as poſſible to the plant, without injuring it; then with a ſlender piece of baſs mat, faſten the ſpindle to the ſtick to prevent its being broken; this you muſt often repeat, as the ſpindle advances in height, and alſo obſerve to pull off all ſide ſpindles as they are produced, and never let more than two ſpindles remain upon one root, nor above one, if you intend to blow exceeding large. Toward the beginning of June your flowers will have attained their greateſt height, and their pods will begin to ſwell, and ſome of the earlieſt begin to open on one ſide; you muſt therefore obſerve to let it open in two other places at equal angles; this muſt be done ſo ſoon as you perceive the pod break, otherwiſe your flower will run out on one ſide, and be in a ſhort time paſt recovering, ſo as to make a complete flower, and in a few days after the flowers begin to open, you muſt cover them with glaſſes which are made for that purpoſe, in the following manner:

Upon the top of the glaſs, exactly in the center, is a tin collar, or ſocket, about three fourths of an inch ſquare, for the flower-ſtick to come through; to this ſocket are ſoldered eight ſlips of lead at equal diſtances, which are about ſix inches and a half long, and ſpread open at the bottom about four inches aſunder; into theſe ſlips of lead are faſtened ſlips of glaſs, cut according to the diſtances of the lead, which, when they are fixed in, are bordered round the bottom with another ſlip of lead quite round, ſo that the glaſs hath eight angles, with the ſocket in the middle, and ſpread open at the bottom about eleven inches wide.

When your flowers are open enough to cover with theſe glaſſes, you muſt make a hole through your flower-ſtick, exactly to the height of the under part of the pod, through which you ſhould put a piece of ſmall wire about ſix inches long, making a ring at one end of the wire to contain the pod, into which ring you ſhould fix the ſtem of the flower; then cut off all the tyings of baſs, and thruſt the ſtem of the flower ſo far from the ſtick, as may give convenient room for the flower to expand without preſſing againſt the ſtick; to which diſtance you may fix it, by turning your wire ſo as not to draw back through the hole; then make another hole through the ſtick, at a convenient diſtance above the flower, through which you ſhould put a piece of wire, an inch and a half long, which is to ſupport the glaſſes from ſliding down upon the flowers; and be ſure to obſerve, that the glaſſes are not placed ſo high as to admit the ſun and rain under them to the flowers, nor ſo low as to ſcorch their leaves with the heat. At this time alſo, or a few days after, as you ſhall judge neceſſary, you ſhould cut ſome ſtiff paper, cards, or ſome ſuch thing, into collars about four inches over, and exactly round, cutting a hole in the middle of it about three fourths of an inch diameter, for the bottom of the flower to be let through; then place theſe collars about them, to ſupport the petals of the flower from hanging down; this collar ſhould be placed with inſide the calyx of the flower, and ſhould be ſupported thereby; then obſerve from day to day what progreſs your flowers make; and if one ſide comes out faſter than the other, you ſhould turn the pot about, and ſhift the other ſide towards the ſun; and alſo if the weather proves very hot, you ſhould ſhade the glaſſes in the heat of the day with Cabbage leaves, &c. to prevent their being ſcorched, or forced out too ſoon; and when the middle pod begins to riſe, you ſhould take out the calyx thereof with a pair of nippers made for that purpoſe; but this ſhould not be done too ſoon, leſt the middle part of the flower ſhould advance too high above the ſides, which will greatly diminiſh the beauty of it: and you ſhould alſo obſerve whether there are more leaves in the flower, than can properly be expanded for want of room; in which caſe you ſhould put out ſome of the lowermoſt or moſt unlikely leaves to ſpread, drawing out and expanding the others at the ſame time: and when your flowers are fully blown, if you cut them off, you ſhould put on a freſh collar of ſtiff paper, which ſhould be cut exactly to the ſize of the flower, that it may ſupport the petals to their full width, but not to be ſeen wider than the flower in any part: when this is put on, you muſt draw out the wideſt leaves to form the outſide of the flower, which although they ſhould be in the middle (as it often happens,) yet by removing the other leaves they may be drawn down, and ſo the next longeſt leaves upon them again, that the whole flower may appear equally globular without any hollow parts. In the doing of this, ſome floriſts are ſo curious as to render an indifferent flower very handſome; and on this depends, in a great meaſure, the ſkill of the artiſt to produce large fine flowers.

During the flowering ſeaſon, particular care ſhould be taken not to let them ſuffer for want of water, which ſhould by no means be raw ſpring water; nor do I approve of compound waters, ſuch as are enriched with various ſorts of dung; but the beſt and moſt natural water is that of a fine ſoft river; next to that is pond water, or ſtanding water; but if you have no other than ſpring water, it ſhould be expoſed to the ſun and air two days before it is uſed, otherwiſe it will give the flowers the canker and ſpoil them.

The directions here given are chiefly for the management of thoſe large Carnations, which require the greateſt ſkill of the floriſts, to have them in perfection; but as of late years theſe have not been ſo much in eſteem as formerly, and thoſe flowers which do not break their pods, and are termed whole Blowers, have now the preference. Theſe are generally planted in pots, and treated in the ſame way as the large flowers, but do not require ſo much trouble to blow them: all that is neceſſary to be done for theſe, is to faſten their ſtems up to flower-ſticks to prevent their being broken, and to take off the pods which proceed from the ſide of the ſtalks, leaving only the top bud to flower, if they are intended to be large and fair; and when the flowers begin to open, if they are ſcreened from the ſun in the heat of the day, and alſo from wet, they will continue much longer in beauty.

But although the moſt valuable of theſe flowers are uſually planted in pots, and thus carefully treated, yet many of theſe whole blowing flowers may be planted in beds, or borders of the flower-garden, where they are ſome of the principal ornaments during their continuance in flower, which is from the beginning of July till the middle of Auguſt, eſpecially if the ſeveral colours are properly intermixed; for the Flakes and Bizarrs ſhould be intermixed with the Picquettes, and not planted ſeparate, unleſs where they are deſigned for ſaving the ſeeds; in which caſe, thoſe which are the fineſt of each ſort, ſhould be planted in beds at a diſtance from each other, eſpecially where perſons are deſirous to keep them diſtinct; for, where the ſorts are blended together, there will be an admixture of their farina, ſo that the ſeeds will vary, and not produce the particular kinds; though I do not remember ever to have ſeen any Flake flowers ariſe from ſeeds of the Picquettes, nor vice verſâ.

The flowers which are planted in the full ground, generally produce ſeeds better than thoſe in pots; but whoever propoſes to raiſe a ſupply of new flowers from ſeeds, muſt always obſerve to ſave the beſt of their ſeedling flowers for this purpoſe; for it is well known, that after any of theſe flowers have been a few years propagated by layers, they become barren, and do not ſeed; which is alſo the caſe with moſt other plants which are propagated by ſlips, layers, or cuttings; ſo that the young plants which have been newly obtained from ſeeds, are always the moſt productive of ſeeds: the plants which are propagated by layers or ſlips, will always continue to produce the ſame flowers, ſo that when a fine variety is obtained, it is this way propagated and maintained; but all the new varieties come from ſeeds, ſo that all thoſe who are curious in theſe flowers, annually ſow their ſeeds.

I ſhall next proceed to the culture of that ſpecies, which is commonly known by the title of Sweet William; of this there are a great variety of different colours, which are ſingle, and three or four with double flowers: ſome of theſe have narrow leaves, which were formerly titled Sweet Johns, but of late that diſtinction has not been made, becauſe they are found to vary when raiſed from ſeeds.

Some of the ſingle flowers have very rich colours, which frequently vary in thoſe of the ſame bunch; there are others with fine variegated flowers, and others whoſe middles are of a ſoft red, bordered with white, which are called Painted Ladies; but where perſons are deſirous to preſerve any of theſe varieties in perfection, the beſt flowers of each ſhould be particularly marked, and no other permitted to ſtand near them, leſt their farina ſhould impregnate them, which would cauſe them to vary.

That which is called the Painted Lady Sweet William, is a very beautiful variety; the ſtalks of this do not riſe ſo high as moſt of the other; the bunches of flowers are larger, and produced more in the form of an umbel, the flowers ſtanding equal in height, make a better appearance: there are others whoſe ſtalks riſe three feet high, and the flowers of a very deep red or ſcarlet colour. Theſe all flower at the ſame time with the Carnations, which renders them leſs valuable, becauſe they have no ſcent.

The ſingle kinds of theſe flowers are generally propagated by ſeeds, which muſt be ſown the latter end of March or the beginning of April, in a bed of light earth, and in June they will be fit to tranſplant out; at which time you muſt prepare ſome beds ready for them, and ſet them at ſix inches diſtance every way: in theſe beds they may remain till Michaelmas, at which time they may be tranſplanted into the borders of the pleaſure-garden or wilderneſs. Theſe will flower the next year in June, and perfect their ſeeds in Auguſt, which you ſhould ſave from the beſt coloured flowers for a ſupply.

They may be alſo propagated by ſlipping their roots at Michaelmas; but this is ſeldom practiſed, ſince their ſeedling roots will always blow the ſtrongeſt, and new varieties are obtained yearly.

The four ſorts with double flowers are, 1. The broad-leaved ſort, which hath very double flowers, of a deep purple colour inclining to blue, which burſts its pods, ſo that it is not ſo much eſteemed as the others, and therefore has been leſs regarded, and is now almoſt totally baniſhed the gardens of the curious. 2. The Double Roſe Sweet William, whoſe flowers are of a fine deep Roſe colour, and ſmell ſweet; this is much valued for the beauty and ſweetneſs of its flowers; the empalement (or pods) of theſe flowers never burſt, ſo the flowers remain with their petals fully expanded, and do not hang down looſely as thoſe of the former. 3. The Mule, or Fairchild's Sweet William; it hath narrower leaves than either of the former, and is of that variety called Sweet John: this was ſaid to have been produced from ſeeds of a Carnation, which had been impregnated by the farina of the Sweet William; the flowers of this are of a brighter red colour than either of the former, their bunches are not quite ſo large, but the flowers have an agreeable odour. The fourth ſort has fine variegated flowers.

The double kinds are propagated by layers, as the Carnations; they love a middling ſoil, not too light, nor too heavy or ſtiff, nor too much dunged, which very often occaſions their rotting: theſe continue flowering for a long time, and are extremely beautiful, eſpecially the Mule, which produces two full blooms of flowers, one in June, and the other in July. This is very ſubject to canker and rot away, eſpecially if planted in a ſoil over wet or too dry, or if watered with ſharp ſpring water. Theſe flowers being planted in pots, are very proper to adorn court-yards at the time they are in flower.

The China Pink is generally ſuppoſed an annual plant, becauſe the plants which are raiſed from ſeeds flower and produce ripe ſeeds the ſame ſeaſon, ſo their roots are not often preſerved; but where they are planted on a dry ſoil, they will continue two years, and the ſecond year will produce a greater number of flowers than the firſt. There are a great variety of very rich colours in theſe flowers, which annually vary when raiſed from ſeeds. The double flowers of this ſort are moſt eſteemed, though the colours of the ſingle are more diſtinct and beautiful; for the multiplicity of petals in the double flowers, in a great meaſure, hides the deep ſhades, which are toward the lower part of the petals.

Theſe plants are propagated by ſeeds, which ſhould be ſown upon a gentle hot-bed about the beginning of April; this moderate heat is only intended to forward the vegetation of the ſeeds, therefore when the plants come up, they muſt have a large ſhare of air admitted to them, to prevent their drawing up weak; and as ſoon as the weather will permit, they muſt be expoſed to the open air; in about three weeks or a month after, the plants will be fit to remove; then they ſhould be carefully taken up with good roots, and planted in a bed of rich earth, at about three inches aſunder, being careful to ſhade them from the ſun till they have taken new root, and in dry weather they muſt have water three or four times a week. The farther care is to keep them clean from weeds till the end of May, at which time they may be tranſplanted to the places where they are deſigned to remain for flowering, when they may be taken up with large balls of earth to their roots, ſo as ſcarcely to feel their removal, eſpecially if it happens to rain at that time.

As theſe plants do not grow large, ſo when they are planted ſingly in the borders of the flower-garden, they do not make ſo fine an appearance, as where they are planted by themſelves in beds; or if they are planted in ſmall clumps, of ſix or eight roots in each, where the flowers being of different colours, ſet off each other to advantage.

Thoſe who are curious in theſe flowers, take particular care in ſaving their ſeeds, for they never permit any ſingle flowers to ſtand among their double, but pull them up as ſoon as they ſhew their flowers, and alſo draw out all thoſe which are not of lively good colours; where this is obſerved, the flowers may be kept in great perfection; but where perſons have truſty friends, who live at ſome diſtance, with whom they can exchange ſeeds once in two or three years, it is much better ſo to do, than to continue ſowing ſeeds in the ſame place many years in ſucceſſion, and this holds true in moſt ſorts of ſeeds: but the great difficulty is to meet with an honeſt perſon of equal ſkill, who will be as careful in the choice of his plants for ſeed, as if he was to ſow them himſelf.

DIAPENSIA. See Sanicula.

DICTAMNUS. Lin. Gen. Plant. 468. Fraxinella. Tourn. Inſt. R. H. 430. tab. 243. White Dittany, or Fraxinella; in French, *Fraxinelle.* This plant was titled Fraxinella, from Fraxinus the Aſh-tree, the leaves of this having ſome reſemblance in their form, to thoſe of the Aſh-tree, ſo it was called Little Aſh. But as this plant has been long mentioned under the title of Dictamnus albus, i. e. *White Dittany* in the diſpenſaries, ſo Dr. Linnæus has adapted that title to this genus.

The Characters are,

The empalement of the flower is compoſed of five ſmall oblong leaves, ending in points. The flower hath five oblong petals which are unequal, two of them turning upward, two are oblique on the ſides, and one turns downward. It hath ten riſing ſtamina, which are as long as the petals, which are ſituated between the two ſide petals; they are not equal in length, and are terminated by obtuſe four-cornered ſummits ſtanding erect. In the center is ſituated a five-cornered germen, ſupporting a ſhort incurved ſtyle, crowned by an acute ſtigma; the germen afterward becomes a capſule with five cells, each having a compreſſed margin, which ſpreads open at their exterior parts, but join together at their inner, opening with two valves, and incloſing ſeveral roundiſh, hard, ſhining ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, the flower having ten ſtamina and one ſtyle.

We have but one diſtinct Species of this genus, viz.

Dictamnus (*Albus*). Hort. Cliff. 161. Fraxinella. Cluſ. Hiſt. 99. and the Dictamnus albus, vulgò Fraxinella. C. B. P. 222. *White Dittany, commonly called Fraxinella.*

There are three varieties of this plant, one with a pale red flower ſtriped with purple, another with a white flower, and one with ſhorter ſpikes of flowers; but as I have obſerved them to vary when propagated by ſeeds, ſo I eſteem them only ſeminal varieties.

This is a very ornamental plant for gardens, and as it requires very little culture, ſo deſerves a place in all good gardens. It hath a perennial root, which ſtrikes deep into the ground, and the head annually increaſes in ſize; theſe ſend up many ſtalks, which riſe from two to three feet high, garniſhed with winged leaves placed alternate, compoſed of three or four pair of oblong lobes, terminated by an odd one: they are ſmooth and ſtiff, ſitting cloſe to the midrib, which hath a longitudinal furrow on the upper ſide; the lobes (or ſmall leaves) placed on each ſide the midrib, are oblique, but thoſe which terminate the leaf have their ſides equal. The flowers are produced in a long pyramidal looſe ſpike or thyrſe; on the top of the ſtalk, which is nine or ten inches long; the flowers of one ſort is white, and of the other they are of a pale red, marked with red or purple ſtripes. The whole plant when gently rubbed, emits an odour like that of Lemon peel, but when bruiſed has ſomething of a balſamic ſcent. It flowers the latter end of May, and in June, and the ſeeds ripen in September.

Theſe plants are propagated by ſeeds, which, if ſown in the autumn ſoon after they are ripe, the plants will appear the following April; but when they are kept out of the ground till the ſpring, the ſeeds ſeldom ſucceed; or if they do grow, it is the following ſpring before the plants appear, ſo that a whole year is loſt. When the plants come up, they muſt be conſtantly kept clean from weeds; and in the autumn when their leaves decay, the roots ſhould be carefully taken up, and planted in beds at ſix inches diſtance every way; theſe beds may be four feet broad, and the paths between them two, that there may be room enough to paſs between the beds to weed them. In theſe beds the plants may ſtand two years, during which time they muſt be conſtantly kept clean from weeds; and if they thrive well, they will be ſtrong enough to flower; ſo in the autumn they ſhould be carefully taken up, and planted in the middle of the borders of the flower-garden, where they will continue thirty or forty years, producing more ſtems of flowers in proportion to the ſize of the roots. All the culture theſe require, is to be kept clean from weeds, and the ground about them dug every winter.

The roots of this plant are uſed in medicine, and eſteemed cordial and cephalic, reſiſting putrefaction and poiſon, and are uſeful in malignant and peſtilential diſtempers, as alſo in epilepſies.

DICTAMNUS CRETICUS. See Origanum.

DIERVILLA. Tourn. Act. R. Par. 1706. Lonicera. Lin. Gen. Plant. 210.

The title of this genus was given it by Dr. Tournefort, after Mr. Dierville, a ſurgeon, who brought this plant from Acadia.

The Characters are,

The empalement of the flower is cut into five parts, almoſt to the bottom; the flower is of one leaf, having a tube at the bottom, but is cut into five parts at the top, and has the appearance of a lip flower; it hath five ſtamina, which are terminated by oblong ſummits, which are equal with the petal. At the bottom of the flower is ſituated an oval germen fixed to the empalement, ſupporting a ſlender ſtyle equal with the ſtamina, crowned by an obtuſe ſtigma; the germen afterward becomes a pyramidal berry, divided into four cells, which contain ſmall round ſeeds.

This genus of plants is ranged in the fourth ſection of Tournefort's third claſs, which includes the plants with a tubulous anomalous flower of one leaf. It is ranged by Dr. Linnæus under his genus of Lonicera, in the firſt ſection of his fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

We know but one Species of this genus at preſent, viz.

Diervilla (*Lonicera*) Acadienſis fruticoſa, flore luteo. Act. R. Par. 1706. *Shrubby Diervilla of Acadia with a yellow flower.* This is the Lonicera racemis terminalibus foliis ſerratis. Lin. Sp. Plant. 275. *Lonicera with bunches of flowers terminating the branches, and ſawed leaves.*

This plant grows naturally in the northern parts of America, from whence it was brought to Europe, and is now propagated in the gardens for ſale. It hath woody roots which ſpread far in the ground, and put out ſhoots at a diſtance from the principal ſtalk, whereby it multiplies greatly: the ſtalks are ligneous, and ſeldom riſe more than a foot and a half high; theſe are garniſhed with oblong heart-ſhaped leaves, ending in acute points; they are very ſlightly ſawed on their edges, and are placed oppoſite, ſitting cloſe to the ſtalks: the upper part of the ſtalks are garniſhed with flowers, which uſually come out from the ſide of the ſtalk at the ſitting on of the leaves, and alſo at the top of the ſtalks; there are two or three flowers ſuſtained upon each foot-ſtalk: they are of a pale yellow, and being ſmall, make no great appearance. Theſe come out in May, and if the ſeaſon proves moiſt and cold, they frequently flower again in Auguſt.

It is eaſily propagated by ſuckers, which it ſends out in plenty, and loves a moiſt ſoil and ſhady ſituation, where the cold will never injure it.

DIGITALIS. Lin. Gen. Plant. 676. Tourn. Inſt. R. H. 164. tab. 73. Raii Meth. Plant. 89. Foxglove; in French, *Digitale.*

The Characters are,

It hath a permanent empalement, which is cut into five parts; the flower is bell-ſhaped, of one petal, with a large open tube, whoſe baſe is cylindrical and contracted, but the brim is divided into four parts ſlightly; the upper lip ſpreading and indented at the top, the lower is larger. It hath four ſtamina, which are inſerted in the baſe of the petal, two being longer than the other, which are terminated by bipartite acuminated ſummits; the flower being paſt, the germen ſwells to an oval capſule, having two cells ſitting on the empalement, incloſing many ſmall angular ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhorter ſtamina, and the ſeeds being included in a capſule.

The Species are,

1. Digitalis (*Purpurea*) calycinis foliolis ovatis acutis, corollis obtuſis, labio ſuperiore integro. Hort. Upſal. 178. *Foxglove whoſe ſmall leaves of the empalement are oval and acute, the petals obtuſe, and the upper lip entire.* Digitalis purpurea folio aſpero. C. B. P. 243. *Purple Foxglove with a rough leaf, or common Foxglove.*
2. Digitalis (*Thapſi*) foliis decurrentibus. Lin. Sp. 867. *Foxglove with running leaves.* Digitalis Hiſpanica purpurea minor. Tourn. Inſt. 165. *Leſſer Spaniſh purple Foxglove.*
3. Digitalis (*Lutea*) calycinis foliolis lanceolatis corollis acutis labio ſuperiore bifido. Hort. Upſal. 178. *Foxglove with ſpear-ſhaped leaves to the empalement, an acute petal, whoſe upper lip is bifid.* Digitalis minor lutea, parvo flore. C. B. P. 244. *Leſſer yellow Foxglove with a ſmall flower.*
4. Digitalis (*Magno flore*) foliolis calycinis linearibus, corollis acutis, labio ſuperiore integro, foliis lanceolatis. *Foxglove with long narrow leaves to the empalement, an acute petal, whoſe upper lip is entire, and ſpear-ſhaped leaves.* Digitalis lutea, magno flore. C. B. P. 244. *Yellow Foxglove with a larger flower.*
5. Digitalis (*Ferruginea*) calycinis foliolis ovatis obtuſis, corollæ labio inferiore longitudine floris. Lin. Sp. Plant. 622. *Foxglove with oval blunt leaves to the empalement, and the lower lip of the petal as long as the flower.* Digitalis anguſtifolia, flore ferrugineo. C. B. P. 244. *Narrow-leaved Foxglove with an iron-coloured flower.*
6. Digitalis (*Canarienſis*) calycinis foliolis lanceolatis, corollis bilabiatis acutis, caule fruticoſo. Lin. Sp. Plant. 622. *Foxglove with ſpear-ſhaped leaves to the empalement, an acute petal with two lips, and a ſhrubby ſtalk.* Digitalis acanthoides Canarienſis fruteſcens, flore aureo. Hort. Amſt. 2. p 105. *Shrubby Canary Foxglove like Bearſbreech, with a golden flower.*
7. Digitalis (*Orientalis*) calycinis foliolis acutis, foliis ovato-lanceolatis nervoſis. *Foxglove with acute leaves to the empalement, and oval, ſpear-ſhaped, veined leaves.* Digitalis lutea non ramoſa, ſcorzoneræ folio. Buxb. Cent. 25. *Yellow unbranched Foxglove with a leaf like Scorzonera.*

The firſt ſort grows naturally by the ſide of hedges in ſhady woods in moſt parts of England, ſo is rarely cultivated in gardens. This is a biennial plant, which the firſt year produces a great tuft of long rough leaves which are hairy; the ſecond year it ſhoots up a ſtrong herbaceous ſtalk, which riſes from three to four feet high, garniſhed with leaves of the ſame form as the lower, but they gradually leſſen upward, ſo thoſe which are intermixed with the flowers on the top are very narrow. The flowers grow in a long looſe thyrſe, ſtanding only on one ſide of the ſtalk; they are large, tubulous, and ſhaped like a thimble, of a purple colour, with ſeveral white ſpots on the under lip; theſe flowers are ſucceeded by oval capſules with two cells, which are filled with dark brown ſeeds. It flowers in June, and the ſeeds ripen in autumn; if they are permitted to ſcatter, the plants will come up in the ſpring, and become troubleſome weeds; but whoever has a mind to cultivate it, ſhould ſow the ſeeds in autumn, for thoſe which are ſown in the ſpring ſeldom ſucceed, or at leaſt lie one year in the ground before they grow. This plant ſtands in the liſt of medicinal ſimples of the diſpenſaries, and there is an ointment made of the flowers, and May-butter, which has been in good eſteem.

There is a variety of this with a white flower, which is found growing naturally in ſome parts of England, which differs from this only in the colour of the flower and leaves; but this difference is permanent, for I have cultivated it more than thirty years in the garden, and have never found it vary.

The ſecond ſort grows naturally in Spain, from whence I received the ſeeds; this plant ſeldom riſes much more than a foot and a half high; the lower leaves are ten inches long, and three broad in the middle; they are ſoft, woolly, and roughly veined on their under ſide; the ſtalks are garniſhed with leaves of the ſame ſhape, but ſmaller; the upper part of the ſtalk hath a ſhort thyrſe of purple flowers like thoſe of the common ſort, but they are ſmaller, and the ſegments of the petal are acute. This plant retains its difference when cultivated in gardens.

The third ſort hath very long obtuſe leaves near the root; the ſtalk is ſmall, and riſes from two to three feet high, the lower part being pretty cloſely garniſhed with ſmooth leaves, about three inches long and one broad, ending in obtuſe points: the upper part of the ſtalk, for ten inches in length, is adorned with ſmall yellow flowers, which are cloſely ranged on one ſide of the ſtalk, having a few very ſmall acute leaves placed between them, which are ſituated on the oppoſite ſide of the ſtalk; the upper lip of the flower is entire, and the petal is obtuſe. It flowers in June, and the ſeeds ripen in autumn.

The fourth ſort hath long ſmooth-veined leaves at the bottom; the ſtalk is ſtrong, and riſes two feet and a half high, garniſhed with leaves which are five inches long, one and a half broad, ending in acute points; theſe have many longitudinal veins, and are ſlightly ſawed on their edges; the upper part of the ſtalk is adorned with large yellow flowers, nearly of the ſize of thoſe of the common ſort, the brim having acute points, and the upper lip entire. This flowers and ripens its ſeeds about the ſame time as the former.

The fifth ſort hath narrow ſmooth leaves, which are entire; the ſtalk riſes near ſix feet high, and puts out ſome ſlender branches from the ſide toward the bottom; the lower part of the ſtalks is garniſhed with very narrow ſmall leaves, three inches long, and one third of an inch broad; the flowers terminate the ſtalk, growing in a very long ſpike, with very few leaves between them, and thoſe very ſmall; the empalement is divided into four obtuſe parts, the lower lip extending much longer than the upper. The flowers are of an iron colour, and appear in June.

The ſixth ſort grows naturally in the Canary Iſlands, from whence the ſeeds were firſt brought to England; and many of the plants were raiſed in the biſhop of London's gardens at Fulham, part of which were ſent to the royal gardens at Hampton Court, and ſome were ſent over to the gardens in Holland: thoſe which were ſent to Hampton Court, were preſerved there a few years, but by the ignorance of the gardeners, to whoſe care thoſe gardens were committed, this, with many other valuable plants, were ſoon deſtroyed.

This plant hath a ſhrubby ſtalk which riſes to the height of five or ſix feet, dividing into ſeveral branches, garniſhed with rough ſpear-ſhaped leaves, near five inches long, and two broad in the middle, gradually decreaſing to both ends, having a few ſhort ſerratures on their edges; theſe are placed alternately on the branches; each of theſe branches is terminated by a looſe ſpike of flowers, about four inches in length; the empalement of theſe is cut into five acute ſegments

ments almoſt to the bottom; the upper lip is long and entire, this is arched, and immediately under it the ſtamina and ſtyle are ſituated; the lower lip is obtuſe, and indented at the top; there are two acute ſegments on the ſide, which compoſe the chaps of the flower; there are two of the ſtamina longer than the other; theſe are crowned with roundiſh ſummits. In the bottom of the flower is ſituated the germen, ſupporting a ſlender ſtyle, crowned by an oval ſtigma; the germen afterward becomes an oval capſule, filled with ſmall angular ſeeds.

This plant begins to flower in May,and there is generally a ſucceſſion of flowers on the ſame plant, till the winter puts a ſtop to them, which renders the plant more valuable. It is propagated by ſeeds, which ſhould be ſown in pots filled with light earth, in the autumn, ſoon after the ſeeds are ripe; theſe pots ſhould be plunged into an old bed of tanners bark, whoſe heat is gone, and in mild weather the glaſſes ſhould be drawn off to admit the air; but in hard rains and froſt they muſt be kept on, to protect the ſeeds from both, which frequently deſtroys them here when they are expoſed; in the ſpring the plants will come up, when they ſhould enjoy the free air in mild weather, but muſt be protected from the cold. When theſe are large enough to tranſplant, they ſhould be each planted into a ſeparate ſmall pot filled with light earth, and placed under the frame till they have taken new root, then they ſhould be gradually inured to the open air. During the ſummer ſeaſon the plants ſhould remain abroad in a ſheltered ſituation, but in the winter they muſt be placed in a greenhouſe, for they will not live abroad in England; they muſt not be kept too warm and cloſe in the houſe, for they only want protection from the froſt; therefore in mild weather, they ſhould have free air conſtantly admitted to them, and they require frequent waterings, but they ſhould not have it in too great plenty in winter.

The ſeventh ſort grows naturally in Tartary, from whence the ſeeds were ſent to the imperial garden at Peterſburgh, and from thence I received them. This plant hath many oval ſpear-ſhaped leaves, which are ſmooth, ariſing from the root; between theſe ariſe the ſtalk, which grows about a foot high, and is garniſhed below with ſmooth ſpear-ſhaped leaves, from four to five inches long, and one and a half broad in the middle, leſſening gradually at both ends; theſe have no foot-ſtalks, but their baſe embraces the ſtalks half round; the upper part of the ſtalk is adorned by a ſhort looſe ſpike of yellow flowers, which are almoſt as large as thoſe of the great yellow ſort before-mentioned, but they are ſhorter. This flowers in May, and the ſeeds ripen in autumn.

All theſe ſorts ſhould be ſown in the autumn; for if the ſeeds are ſown in the ſpring, they commonly fail, or at leaſt lie a whole year in the ground before they vegetate. The plants are biennial (except the ſeventh ſort) and generally periſh ſoon after the ſeeds are ripe.

DIOSCOREA. Plum. Nov. Gen. 9. tab. 26. Lin. Gen. Plant. 995.

The Characters are,

It hath male and female flowers in different plants; the male flowers have a bell-ſhaped perianthium of one leaf, cut into ſix parts, but have no petals or empalement; they have ſix ſhort hairy ſtamina, terminated by ſingle ſummits. The female flowers have the ſame perianthium as the male; they have no petals, but have a ſmall three-cornered germen, ſupporting three ſtyles, which are crowned by ſingle ſtigmas; the perianthium afterward becomes a triangular capſule with three cells, opening with three valves, containing two compreſſed bordered ſeeds in each.

This genus of plants is ranged in the ſixth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Hexandria. The plants of this claſs and ſection have male and female flowers on different plants, and the male flowers have ſix ſtamina.

The Species are,

1. Dioscorea (*Sativa*) foliis cordatis alternis, caule lævi tereti. Hort. Cliff. 459. *Dioſcorea with heart-ſhaped leaves placed alternate, and a ſmooth taper ſtalk.* Dioſcorea ſcandens, foliis tamni fructu racemoſo. Plum. Nov. Gen. 9. *Climbing Dioſcorea with black Briony leaves, and fruit growing in long bunches.*
2. Dioscorea (*Haſtata*) foliis haſtato-cordatis, caule lævi, racemis longiſſimis. *Dioſcorea with ſpear-pointed heart-ſhaped leaves, a ſmooth ſtalk, and very long bunches of flowers.* Dioſcorea ſcandens, folio haſtato fructu racemoſo. Houſt. MSS. *Climbing Dioſcorea with a ſpear-pointed leaf, and fruit growing in bunches.*
3. Dioscorea (*Villoſa*) foliis cordatis alternis, oppoſitiſque caule lævi. Lin. Sp. 1463. *Dioſcorea with heart-ſhaped leaves placed alternate and oppoſite, and a ſmooth ſtalk.* Dioſcorea ſcandens, folio ſubrotundo acuminato fructu racemoſo. Houſt. MSS. *Climbing Dioſcorea with a roundiſh pointed leaf, and fruit growing in long bunches.*
4. Dioscorea (*Bulbifera*) foliis cordatis, caule lævi bulbifera. Flor. Zeyl. 360. *Dioſcorea with heart-ſhaped leaves, and a ſmooth ſtalk bearing bulbs.* Volubilis nigra, radice albâ aut purpureâ maxima tuberoſa eſculenta, caule membranulis extantibus alato, folio cordato nervoſo. Sloan. Cat. Jam. 46. *The Yam, or Yammes.*
5. Dioscorea (*Oppoſitifolia*) foliis oppoſitis ovatis acuminatis. Lin. Sp. 1483. *Dioſcorea with oval-pointed leaves growing oppoſite.*
6. Dioscorea (*Digitata*) foliis digitatis. Hort. Cliff. 459. *Dioſcorea with hand-ſhaped leaves.* Nureni Kelengu. Hort. Mal. 7. p. 67.

The firſt ſort grows naturally in moſt of the iſlands in the Weſt Indies. I received the ſeeds of this ſort from Jamaica, where the late Dr. Houſtoun found it growing plentifully. This hath ſlender climbing ſtalks, which fix themſelves to any ſupport near them, and riſe to the height of eighteen or twenty feet, garniſhed with heart-ſhaped leaves, ending with acute points, having five longitudinal veins, which ariſe from the foot-ſtalks, which diverge toward the ſides, but meet again at the point of the leaves. They ſtand upon pretty long foot-ſtalks, from the baſe of which ariſe the branching ſpikes of flowers, which are ſmall, and have no beauty; the female flowers are ſucceeded by three-cornered oblong capſules, having three cells, each containing two compreſſed ſeeds.

The ſecond ſort differs from the firſt in the ſhape of their leaves, theſe having two round ears at their baſe, but the middle extends to an acute point, like that of an halbert. The bunches of flowers are longer, and are looſer placed than thoſe of the former ſort.

The third ſort hath broad, round, heart-ſhaped leaves, which end in acute points; theſe have many longitudinal veins which ariſe from the foot-ſtalk, and diverge to the ſide, but afterward join at the point of the leaf; the flowers come out on long looſe ſtrings, ſtanding on ſhort foot-ſtalks; the female flowers are ſucceeded by three-cornered oblong capſules, with three cells, having compreſſed bordered ſeeds.

The fourth ſort hath triangular winged ſtalks, which trail upon the ground and extend to a great length; theſe frequently put out roots from the joints as they lie upon the ground, whereby the plants are multiplied. The roots of this plant are eaten in many parts of both Indies, where the plants are much cultivated.

The fifth ſort grows naturally in Virginia, and in other parts of North America. This hath a ſmooth ſtalk which climbs on the neighbouring plants, and riſes five or ſix feet high, garniſhed with heart-ſhaped leaves, which are placed oppoſite; they are covered with ſmall hairs, and have ſeveral longitudinal veins. The flowers come out from the ſide of the ſtalk in the ſame manner as the other ſorts, but have no beauty. Theſe plants are preſerved in ſome curious botanic gardens for the ſake of variety; but as they have no beauty, there are few perſons who will allow them a place, eſpecially as moſt of the ſorts require a good ſtove to preſerve them through the winter in England.

Theſe plants may be propagated by laying their branches into the ground, which in about three months will put out roots, and may then be taken from the old plants, and planted into ſeparate pots, which ſhould be plunged into the tan-bed in the ſtove; during the winter theſe plants ſhould have but little water given them; but in ſummer, when they are growing vigorouſly, they ſhould be watered three or four times a week, and in warm weather the glaſſes ſhould be opened to admit a large ſhare of free air. Theſe plants rarely flower in England, but when the ſeeds are ſent from America, they ſhould be immediately ſown in pots, and plunged into a hot-bed, where, if the ſeeds are ſown early in the ſpring, the plants will come up the ſame ſeaſon; but when they are ſown late, the ſeeds often remain in the ground till the following ſpring before they vegetate; therefore when the plants do not come up the firſt ſeaſon, the pots ſhould be ſcreened from the froſt the following winter, and put into a new hot-bed in the ſpring, which will bring up the plants, if the ſeeds were good.

The fourth ſort is much cultivated by the inhabitants of the iſlands in America, and is of great uſe to them for feeding of their negroes; and the white people make puddings of their roots, when ground to a ſort of flour. This plant is ſuppoſed to have been brought from the Eaſt to the Weſt Indies, for it has not been diſcovered to grow wild in any part of America; but in the iſland of Ceylon, and on the coaſt of Malabar, it grows in the woods, and there are in thoſe places a great variety of ſorts.

This ſort, which is chiefly cultivated in the Weſt Indies, has a root as big as a man's leg, of an irregular form, and of a dirty brown colour on the outſide, but when cut, are white and meally within. The ſtalks of this plant are triangular and winged; the leaves are heart-ſhaped, having two ears, ſomewhat like thoſe of Arum. Theſe ſtalks climb to the height of ten or twelve feet, when they grow near trees or ſhrubs, to which they faſten themſelves, otherwiſe they trail upon the ground.

This plant is propagated by cutting of the root into pieces, obſerving to preſerve an eye or bud to each, as is practiſed in planting of Potatoes; each of theſe being planted will grow, and produce three or four large roots. In America they are commonly ſix or eight months in the ground before the roots are taken up for uſe. The roots are roaſted or boiled, and eaten by the inhabitants, and ſometimes are made into bread.

In ſome curious gardens this plant is preſerved for the ſake of variety, but it is ſo tender as not to live in England, unleſs it is placed in a warm ſtove. As theſe roots are frequently brought from America, whoever hath an inclination to preſerve the plant, may cut them in the manner before deſcribed, and plant each piece in a pot filled with freſh earth, and plunged into a hot-bed of tanners bark, and give them little water until they ſhoot, leſt they ſhould rot. With this management I have had the ſhoots ten feet high, but the roots have not grown to any great ſize with me. This plant will not thrive in the open air in the warmeſt time of the year, ſo muſt conſtantly be kept in the bark-ſtove.

DIOSMA. Lin. Gen. Plant. 241. Spiræa. Com. Rar. Plant. 2. African Spiræa, vulgò.

The CHARACTERS are,

The flower hath a permanent empalement, which is divided into four acute ſegments, which are plain at their baſe; it hath five obtuſe petals, which ſpread open and are as long as the empalement; it hath five ſtamina terminated by oval erect ſummits, and a five-pointed hollow nectarium ſitting on the germen, from which ariſes a ſingle ſtyle, crowned by an obſolete ſtigma. The germen afterward becomes a fruit compoſed of five compreſſed capſules, which open lengthways, each incloſing one ſmooth oblong ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flowers having five ſtamina and one ſtyle.

The SPECIES are,

1. DIOSMA (*Oppoſitifolius*) foliis ſubulatis acutis oppoſitis. Hort. Cliff. 71. *Dioſma with acute awl-ſhaped leaves placed oppoſite.* Spiræa Africana, foliis cruciatim poſitis. Com. Rar. Plant. 1. tab. 1. *African Spiræa with leaves placed in form of a croſs.*
2. DIOSMA (*Hirſuta*) foliis linearibus hirſutis. Hort. Cliff. 71. *Dioſma with narrow hairy leaves.* Spiræa Africana odorata, foliis piloſis. Com. Rar. Plant. 3. tab. 3. *Sweet African Spiræa with hairy leaves.*
3. DIOSMA (*Rubra*) foliis linearibus acutis glabris, carinatis ſubtus bifarium punctatis. Lin. Sp. Plant. 198. *Dioſma with ſmooth, narrow, acute leaves, which are ſpotted on their under ſide.* Spiræa Africana odorato, floribus ſuaverubentibus. Com. Rar. Plant. 2. *Sweet African Spiræa with ſoft red flowers.*
4. DIOSMA (*Erricoides*) foliis lineari-lanceolatis ſubtus convexis, bifariam imbricatis. Lin. Sp. Plant. 198. *Dioſma with narrow ſpear-ſhaped leaves, which are convex on their under ſide, and imbricated two ways.* Spiræa Africana ericæ bacciferæ foliis. Raii Hiſt. 91. *African Spiræa with leaves like the Berry-bearing Heath.*
5. DIOSMA (*Lanceolata*) foliis lanceolatis glabris. Lin. Sp. 287. *Dioſma with ſmooth ſpear-ſhaped leaves.* Spiræa Africana, Saturejæ foliis brevioribus. Raii Dendr. 91.

The firſt ſort riſes to the height of three feet; the branches are very long and ſlender, and are produced from the ſtem very irregularly; the leaves are placed croſſways, and are pointed; theſe are every evening cloſed up to the branches. The flowers are produced along the branches from between the leaves; and in the evening, when theſe flowers are expanded, and the leaves are cloſely embracing the ſtalks, the whole plant appears as if covered with ſpikes of white flowers; and as theſe plants continue a long time in flower, they make a fine appearance when the plants are intermixed with other exotics in the open air.

The ſecond ſort has been long known under the title of Spiræa Africana odorata, foliis piloſis, or *Sweet-ſcented African Spiræa, with hairy leaves.* This ſort makes a very handſome ſhrub, growing to the height of five or ſix feet; the ſtalks are woody, ſending out many ſlender branches; the leaves come out alternately on every ſide, which are narrow-pointed and hairy. The flowers are produced in ſmall cluſters at the end of the ſhoots, which are white; theſe are ſucceeded by ſtarry ſeed-veſſels, having five corners, like thoſe of the ſtarry Aniſe; each of theſe corners is a cell, having one ſmooth, ſhining, oblong, black ſeed; theſe ſeed-veſſels abound with a reſin, which affords a grateful ſcent, as doth alſo the whole plant.

The third ſort is of humbler growth than either of the former, ſeldom riſing above three feet high, and ſpreads out into many branches; the leaves of this ſort are ſmooth, and reſemble thoſe of the Heath, and this plant from thence had the name of Erica Æthiopica, &c. given it by Dr. Plukenet: the flowers of this kind are produced in cluſters at the end of the branches, like thoſe of the ſecond ſort, but are ſmaller, and the bunches are not ſo large.

All theſe plants are propagated by cuttings, which may be planted during any of the ſummer months, in pots filled with light freſh earth, and plunged into a very moderate hot-bed, where they ſhould be ſhaded in the day time from the ſun, and frequently refreſhed with water. In about two months the cuttings will have taken root, when they ſhould be each tranſplanted into a ſmall pot, and placed in a ſhady ſituation until the plants have taken freſh root, when they may be placed among other exotic plants, in a ſheltered ſituation: theſe plants may remain abroad until the beginning of October or later, if the ſeaſon continues favourable; for they only require to be ſheltered from froſt, ſo that in a dry airy green-houſe they may be preſerved very well in winter, and in ſummer they may be expoſed to the open air with other green-houſe plants.

Theſe plants grow naturally at the Cape of Good Hope, from whence the ſeeds were ſent to Europe, where ſome of the ſpecies have been long preſerved in the gardens of the curious. There have been ſome other ſpecies in the Engliſh gardens than are here enumerated, but theſe are all that are at preſent to be found here.

The ſecond ſort frequently ripens its ſeeds in England; but if the ſeeds are not ſown ſoon after they are ripe, they rarely grow, or they commonly lie a whole year in the ground.

DIOSPYROS. Lin. Gen. Plant. 1027. Guaiacana. Tourn. Inſt. R. H. 600. tab. 371. The Indian Date Plumb.

The Characters are,

It hath hermaphrodite and female flowers on the ſame plant, and male flowers on ſeparate plants; the hermaphrodite flowers have a large obtuſe permanent empalement of one leaf, which is divided into four parts; the flower hath one petal which is ſhaped like a pitcher, and cut at the brim into four ſegments, which ſpread open; it hath eight ſhort briſtly ſtamina firmly joined to the empalement, terminated by oblong ſummits which have no farina. In the center is ſituated a roundiſh germen, ſupporting a ſingle quadrifid ſtyle, crowned by an obtuſe bifid ſtigma; the germen afterward becomes a large globular berry with many cells, each including one oblong, compreſſed, hard ſeed. The male flowers have a one-leaved empalement, cut into ſmall acute ſegments; the petal is thick and four-cornered, cut into four obtuſe ſegments which turn backward; they have eight ſhort ſtamina, terminated by long, acute, twin ſummits, but have no germen.

This genus of plants is ranged in the ſecond ſection of Linnæus's twenty-third claſs, intitled Polygamia Diœcia. The plants of this claſs and ſection have hermaphrodite and female flowers growing on the ſame plant, and the male on ſeparate plants.

The Species are,

1. Diospyros (*Lotus*) foliorum paginis diſcoloribus. Lin. Sp. Plant. 1057. *Dioſpyros with the ſurface of the leaves of two colours.* Guaiacana. J. B. 2. 138. *The Indian Date Plumb.*
2. Diospyros (*Virginiana*) foliorum paginis concoloribus. Lin. Sp. Plant. 1057. *Dioſpyros with the ſurface of the leaves of one colour.* Guaiacana Virginiana Piſhamin dicta. Boerh. Ind. alt. 2. *The Piſhamin or Perſimon, and by ſome Pitchumon Plumb.*

The firſt ſort is ſuppoſed to be a native of Africa, and was tranſplanted from thence into ſeveral parts of Italy, and alſo the ſouth of France. The fruit of this tree is by ſome ſuppoſed to be the Lotus, which Ulyſſes and his companions were inchanted with. This is a tree of a middling growth in the warm parts of Europe, where there are ſeveral of them which are upward of thirty feet high; but particularly in the botanic garden at Padua there is one very old tree, which has been deſcribed by ſome of the former botaniſts, under the title of Guaicum Patavinum. This tree produces plenty of fruit every year, from the ſeeds of which many plants have been raiſed. In England there are none of theſe trees, but what have been raiſed within a few years paſt, in the phyſic garden at Chelſea; for the ſeeds of which I was greatly obliged to my much honoured friend, his excellency the Chevalier Rathgeb, his imperial majeſty's miniſter at Venice, who has alſo ſupplied me with many other curious plants, trees, and fruits, from different parts of the world, where his extenſive correſpondence has been employed to collect whatever rare plants he could procure; and his generoſity in communicating what ſeeds and plants he can procure to the phyſic garden at Chelſea, requires this public acknowledgment.

The ſecond ſort is a native of America, but particularly in Virginia and Carolina there is great plenty of theſe trees growing in the woods. The ſeeds of this ſort are frequently brought to England, where the trees are now become pretty common in the nurſeries about London. This riſes to the height of fourteen or ſixteen feet, but generally divides into many irregular trunks near the ground, ſo that it is very rare to ſee a handſome tree of this ſort. This produces plenty of fruit in England, but they never come to perfection here. In America the inhabitants preſerve the fruit until it be rotten (as is practiſed by Medlars in England) when they are eſteemed a pleaſant fruit.

Theſe are both propagated by ſeeds, which will come up very well in the open ground; but if they are ſown upon a moderate hot-bed, the plants will come up much ſooner, and make a greater progreſs; but in this caſe the ſeeds ſhould be ſown in pots or boxes of earth, and plunged into the hot-bed, becauſe the plants will not bear tranſplanting till autumn, when the leaves fall off; ſo that when the plants are up, and have made ſome progreſs, they may be inured by degrees to the open air; and in June they may be wholly expoſed, and may remain abroad until November, when it will be proper to ſet the pots under a hot-bed frame to protect them from hard froſt, which, while they are very young, may kill the tops of the plants; but they muſt have as much free air as poſſible in mild weather. The following ſpring, before the plants begin to ſhoot, they ſhould be tranſplanted into a nurſery, in a warm ſituation, where they may be trained up for two years, and then removed to the places where they are deſigned to remain. Theſe are both hardy enough to reſiſt the greateſt cold of this country, after the plants have acquired ſtrength.

DIPSACUS. Lin. Gen. Plant. 107. Tourn. Inſt. R. H. 466. tab. 265. [διψακὸς, *Gr.* i. e. thirſty. It is ſaid to have taken its name by way of contrary, becauſe it receives the dew or rain in the hollow ſinus of its leaves that cohere together, by which it drives away the injuries of thirſt. It is alſo called Labrum Veneris, from the poſition of its leaves, which form a ſort of baſon, containing a liquor that beautifies the face.] The Teazel; in French, *Chardon à Bonnitier.*

The Characters are,

It hath many florets collected in one common perianthium, which is permanent; the florets have but one petal, which is tubular, cut into four parts at the top, which are erect. They have four hairy ſtamina which are as long as the petal, terminated by proſtrate ſummits; the germen is ſituated below the flower, ſupporting a ſlender ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes a column-ſhaped ſeed, incloſed in the common conical fruit, which is divided by long prickly partitions.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

The Species are,

1. Dipsacus (*Sylveſtris*) foliis ſeſſilibus ſerratis, ariſtis fructibus erectis. *Teazel with ſawed leaves ſet cloſe to the ſtalks, and erect beards to the fruit.* Dipſacus ſylveſtris. Dod. Pemp. 735. *Wild Teazel.*
2. Dipsacus (*Fullonum*) foliis connatis, ariſtis fructibus recurvis. *Teazel with leaves joined at their baſe, and the beards of the fruit recurved.* Dipſacus ſativus. Dod. Pemp. 735. *Cultivated Teazel.*
3. Dipsacus (*Laciniatus*) foliis connatis ſinuatis. Lin. Sp. Plant. 97. *Teazel with ſinuated leaves joined at their baſe.* Dipſacus folio laciniato. C. B. P. 385. *Teazel with a laciniated leaf.*
4. Dipsacus (*Piloſus*) foliis petiolatis appendiculatis. Hort. Upſal. 25. *Teazel with foot-ſtalks having appendices.* Dipſacus ſylveſtris, capitulo minore, ſeu. Virga Paſtoris minor. C. B. P. 385. *Wild Teazel with a ſmaller head, or ſmaller Shepherd's Rod.*

The firſt of theſe plants is very common upon dry banks in moſt parts of England, and is ſeldom cultivated in gardens, unleſs for the ſake of variety.

The fourth ſort grows naturally in many places near London, and is rarely admitted into gardens.

The third ſort grows naturally in Alſace, and is kept in botanic gardens for the ſake of variety; this differs from the wild Teazel in having the leaves deeply cut and jagged.

But it is the ſecond ſort only which is cultivated for uſe, which is called Carduus Fullorum, or Fullonum, being of ſo ſingular uſe in raiſing the knap upon woollen cloth, for which purpoſe there are great quantities of this plant cultivated in the weſt country. This plant is propagated by ſowing the ſeeds in March, upon a ſoil that has been well ploughed: about one peck of this ſeed will ſow an acre; for the plants ſhould have room to grow, otherwiſe the heads will not be ſo large, nor in ſo great quantity. When the plants are come up, you muſt hoe them in the ſame manner as is practiſed for Turneps, cutting down all the weeds, and ſingling out the plants to about ſix or eight inches diſtance; and as the plants advance, and the weeds begin to grow again, you muſt hoe them a ſecond time, cutting out the plants to a wider diſtance, for they ſhould be, at laſt, left at leaſt a foot aſunder: and you ſhould be particularly careful to clear them from weeds, eſpecially the firſt ſummer; for when the plants have ſpread ſo as to cover the ſurface of the ground, the weeds will not ſo readily grow between them. The ſecond year after ſowing, the plants will ſhoot up ſtalks with heads, which will be fit to cut about the beginning of Auguſt; at which time they ſhould be cut, and tied up in bunches, ſetting them in the ſun if the weather be fair; but if not, they muſt be ſet in rooms to dry. The common produce is about an hundred and ſixty bundles or ſtaves upon an acre, which they ſell for about one ſhilling a ſtave. Some people ſow Caraway and other ſeeds among their Teazels, but this is not a good method, for the one ſpoils the other; nor can you ſo eaſily clear them from weeds, as when alone. Dr. Linnæus ſuppoſes this to be only a ſeminal variety of the common wild Teazel; but I have cultivated both the ſorts more than forty years, and have never found either of them alter, ſo that there can be no doubt of their being diſtinct ſpecies.

DIRCA, Leather Wood.

The Characters are,

There is no empalement to the flower, which is club-ſhaped, of one petal, having a ſhort-bellied tube, and an unequal border; it hath eight ſlender ſtamina ſituated in the middle of the tube, terminated by erect roundiſh ſummits, with an oval germen, ſupporting a ſlender ſtyle which is longer than the ſtamina, crowned by a ſimple ſtigma. The germen afterward becomes a berry with one cell, incloſing one ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's eighth claſs, intitled Octandria Monogynia, the flower having eight ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Dirca (*Paluſtris*). Amœn. Acad. 3. p. 12. *Marſh Leatherwood.* Thymelæa floribus albis primo vere erumpentibus, foliis oblongis acuminatis, viminibus & cortice valde tenacibus. Flor. Virg. 155.

This ſhrub grows naturally in ſwamps in Virginia, Canada, and other parts of North America, where it ſeldom riſes more than five or ſix feet high, but in Europe it rarely is more than half ſo high; it ſends out many articulated branches near the root, garniſhed with oval leaves, of a pale yellowiſh colour, and ſmooth; the flowers come out from the ſide of the branches, two or three upon each foot-ſtalk; they are of a greeniſh white colour, and appear early in the ſpring, juſt at the time when the leaves begin to ſhoot; the flowers are ſeldom ſucceeded by ſeeds in England. This ſhrub is very difficult to propagate in Europe; for as it does not produce ſeeds here, it can only be increaſed by layers or cuttings, and theſe are generally two years before they put out roots; for as the ſhrubs grow naturally in very moiſt places, they are with difficulty preſerved in gardens, unleſs they are planted in wet ground, but they are ſeldom injured by cold.

DITTANY, the white. See Dictamnus.

DITTANY of Crete. See Origanum.

DOCK. See Lapathum.

DODARTIA. Lin. Gen. Plant. 698. Tourn. Cor. 47. tab. 478. [This plant was ſo named by Dr. Tournefort, from Monſieur Dodart, a member of the Academy of Sciences at Paris.] We have no Engliſh name for this plant.

The Characters are,

The flower hath a permanent empalement of one leaf, which is bell-ſhaped, cut into five parts at top; the flower hath one petal, is ringent, having a cylindrical diflexed tube much longer than the empalement; the upper lip riſes and is indented, the lower lip ſpreads open and is trifid, the middle ſegment being narrow. It hath four ſtamina which incline to the upper lip, two of which are ſhorter than the other, and are terminated by ſmall roundiſh ſummits. In the center is ſituated a round germen, ſupporting an awl-ſhaped ſtyle, crowned by a bifid obtuſe ſtigma. The germen afterward becomes a globular capſule with two cells, filled with ſmall ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhort ſtamina, and the ſeeds being included in a capſule.

The Species are,

1. Dodartia (*Orientalis*) foliis linearibus integerrimis glabris. Lin. Sp. Plant. 633. *Dodartia with very narrow, ſmooth, entire leaves.* Dodartia Orientalis, flore purpuraſcente. Tourn. Cor. 47. *Eaſtern Dodartia with a purpliſh flower.*
2. Dodartia (*Linaria*) foliis radicalibus oblongo-ovatis, ſerratis, caulinis linearibus integerrimis floribus ſpicatis terminalibus. *Dodartia with oblong, oval, ſawed leaves at the bottom, thoſe on the ſtalks narrow and entire, and flowers growing in ſpikes at the end of the ſtalks.* Linaria bellidis folio. C. B. P. 212. *Toad Flax with a Daiſy leaf.*

The firſt ſort was diſcovered by Dr. Tournefort near mount Ararat in Armenia, from whence he ſent the ſeeds to the royal garden at Paris, where they ſucceeded, and from thence moſt of the curious gardens in Europe have been ſupplied with this plant. This plant having characters which are different from all thoſe of Tournefort's Inſtitutions, he conſtituted this genus, and gave it the title from Monſieur Dodart, member of the Royal Academy of Sciences at Paris, and phyſician to her Royal Highneſs the Princeſs of Conti.

It hath a perennial root which creeps far under the ſurface, and ſends out new ſtalks at a great diſtance from the parent plant; theſe ſtalks are firm, a little compreſſed, and grow a foot and a half high, ſending out ſeveral ſide branches, garniſhed with long, fleſhy, narrow leaves placed oppoſite, of a deep green colour; thoſe on the lower part of the ſtalk are ſhorter and broader than thoſe above, but thoſe on the upper part of the ſtalk are entire; and at theſe joints the flowers come out ſingly on each ſide the ſtalk, ſitting cloſe to it; theſe are near an inch long; the bottom is tubulous, but divides into two lips above; the upper lip is hollow like a ſpoon, the convex ſide ſtanding upward, and is divided into two parts; the lower lip is divided into three parts, the middle being the narroweſt. The flower is of a deep purple colour, and appears in July, and is rarely ſucceeded by ſeeds in England. It propagates very faſt by its creeping roots, ſo that when it is once eſtabliſhed in a garden, it will multiply faſt enough; it loves a light dry ſoil, and may be tranſplanted either in autumn when the ſtalks decay, or in the ſpring before the new ſtalks ariſe.

The ſecond ſort is a biennial, or at moſt a triennial plant, which frequently periſhes ſoon after the ſeeds are ripe. This ſends out from the root ſeveral oblong leaves, which are near four inches long, narrow at their baſe, but increaſe in width upward, where they are about an inch broad, rounded at the end, and deeply ſawed on the edges; between theſe ariſe the ſtalks, which grow a foot high, their lower parts being garniſhed with leaves of the ſame form as the lower leaves, but much ſmaller; the upper leaves are very narrow and entire. The flowers grow in ſpikes on the top of the ſtalks; they are very ſmall and white, but are ſhaped like thoſe of the former ſort. This is propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, upon a border of light earth, where they are deſigned to remain. When the plants appear the following ſpring, they muſt be thinned, and kept clear from weeds, which is all the culture they require: the ſecond year they will flower and ſeed, after which the plants uſually decay; when the ſeeds are ſown in the ſpring, the plants never come up the ſame year.

DODECATHEON. See Meadia.

DOG's TOOTH. See Erythronium.

DOG-WOOD. See Cornus.

DOLICHOS, Kidney Bean.

The Characters are,

The empalement is of one leaf, ſhort, and cut into four equal ſegments. The flower is of the butterfly kind, having a large round vexillum which is reflexed. The wings are oval, obtuſe, and the length of the keel. The keel is moon-ſhaped, compreſſed, and the top aſcends; it hath nine ſtamina joined below, and a ſingle one ſtanding ſeparate, terminated by ſingle ſummits, with a linear compreſſed germen, ſupporting an aſcending ſtyle, crowned by a bearded ſtigma. The germen afterward becomes a large oblong pod with two valves, containing compreſſed elliptical ſeeds.

This genus is diſtinguiſhed from Phaſeolus, by the keel of the flower not being ſpiral.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, the flower having ten ſtamina in two bodies.

The Species are,

1. Dolichos (*Lablab*) volubilis, leguminibus ovato-acinaciformibus, ſeminibus ovatis hilo arcuato verſus alteram extremitatem. Prod. Leyd. 368. *Dolichos with a winding ſtalk, oval bill-ſhaped pods, and oval ſeeds.* Phaſeolus Ægyptiacus nigro ſemine. C. B. P. 341.
2. Dolichos (*Uncinatus*) volubilis, pedunculis multifloris leguminibus cylindricis hirſutis apice unguiculo ſubulato hamato, caule hirto. Lin. Sp. 1019. *Dolichos with a winding ſtalk, many flowers on each foot-ſtalk, cylindrical hairy pods, whoſe points are crooked and awl-ſhaped.*
3. Dolichos (*Pruriens*) volubilis, leguminibus racemoſis hirtis, valvulis ſubcarinatis, pedunculis ternis. Jacq. Amer. 27. *Dolichos with a winding ſtalk, hairy pods growing in a racemus, almoſt boat-ſhaped valves, and each foot-ſtalk having three pods.*
4. Dolichos (*Urens*) volubilis, leguminibus racemoſis hirtis tranſverſim lamellatis, ſeminibus hilo cinctis. Jacq. Amer. 27. *Dolichos with a winding ſtalk, hairy pods in a racemus, whoſe hairs are ſituated in tranſverſe lamellæ, commonly called Cow-itch.*

There are many other ſpecies of this genus, as there are alſo of Phaſeolus; but as there are few of them cultivated in the Engliſh gardens, it would ſwell this work to a great bulk, if they were all inſerted which have come to our knowledge, as the author has cultivated more than ſixty ſpecies, beſide many varieties.

The two firſt ſorts here mentioned, are cultivated in warm countries for the table, but in England theſe ſeldom perfect their ſeeds; and were they to thrive here as well as in the warm countries, they would be little eſteemed, becauſe we have much better ſorts in our gardens already; for the ſcarlet flowering Kidney Bean is preferable to all the other ſorts for eating, ſo deſerves our care to cultivate it more than any other.

The third and fourth ſorts are ſometimes preſerved in botanic gardens, but eſpecially the fourth, whoſe pods are cloſely covered with ſtinging hairs, commonly known by the title of Cow-itch; but theſe are too tender to thrive in the open air in this country, ſo that whoever is deſirous to have the plants, ſhould ſow their ſeeds in a hot-bed in March; and when the plants are come up, they ſhould be each planted in a ſeparate pot, and plunged into the hot-bed again, being careful to ſhade them till they have taken root; after which they muſt have freſh air every day admitted to them, in proportion to the warmth of the ſeaſon; and when the plants are too tall to remain in the hot-bed, they ſhould be removed into the bark-ſtove, where, if they are allowed room to run, they will flower and perfect their ſeeds.

DORIA. See Solidago and Othonna.

DORONICUM. Lin. Gen. Plant. 862. Tourn. Inſt. R. H. 487. tab. 477. Leopard's Bane.

The Characters are,

It hath a flower compoſed of ſeveral hermaphrodite florets, which are ſituated in the center, and form the diſk, and of female florets which compoſe the rays; theſe are included in one common empalement, which hath a double ſeries of leaves as long as the rays. The hermaphrodite florets are funnel-ſhaped, and cut into five parts at the top; theſe have five ſhort hairy ſtamina, terminated by cylindrical ſummits. In the bottom is ſituated the germen, ſupporting a ſlender ſtyle, crowned by an indented ſtigma; the germen afterward becomes a ſingle, oval, compreſſed ſeed, crowned with hairy down. The female florets are formed like a tongue, which are ſpread out and compoſe the border; theſe have a germen, ſupporting a ſtyle, crowned by two reflexed ſtigmas, but have no ſtamina; the germen becomes a ſingle furrowed ſeed, covered with a hairy down.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua. The plants of this ſection have female and hermaphrodite flowers, which are both fruitful.

The Species are,

1. Doronicum (*Pardalianches*) foliis cordatis obtuſis, denticulatis radicalibus petiolatis, caulinis amplexicaulibus. Lin. Mat. Med. 394. *Leopard's Bane with obtuſe, heart-ſhaped, indented leaves, thoſe from the root having foot-ſtalks, and thoſe above embracing the ſtalks.* Doronicum maximum, foliis caulem amplexiantibus. C. B. P. 184. *Greateſt Leopard's Bane with leaves embracing the ſtalks.*
2. Doronicum (*Plantagineum*) foliis ovatis acutis, ſubdentatis, ramis alternis. Hort. Cliff. 411. *Leopard's Bane with oval-pointed leaves indented at bottom, and alternate branches.* Doronicum plantaginis folio. C. B. P. 184. *Leopard's Bane with a Plantain leaf.*
3. Doronicum (*Helveticum*) foliis lanceolatis, denticulatis, ſubtus tomentoſis, caule unifloro. Prod. Leyd. 160. *Leopard's Bane with ſpear-ſhaped indented leaves, woolly on their under ſide, and one flower on a ſtalk.* Doronicum Helveticum incanum. C. B. P. 185. *Hoary Helvetian Leopard's Bane.*
4. Doronicum (*Bellidiaſtrum*) caule nudo ſimpliciſſimo unifloro. Hort. Cliff. 500. *Leopard's Bane with a naked ſingle ſtalk having one flower.* Bellis ſylveſtris media caule carens. C. B. P. 261. *Middle wild Daiſy having a tall ſtalk.*

The firſt ſort grows naturally in Hungary, and upon the Helvetian mountains, but is frequently preſerved in the Engliſh gardens. It hath thick fleſhy roots, which are divided into many knots or knees, ſending out ſtrong fleſhy fibres, which penetrate deep into the ground; and from theſe ariſe in the ſpring a cluſter of heart-ſhaped leaves, which are hairy, and ſtand upon foot-ſtalks; between theſe ariſe the flower-ſtalks, which are channelled and hairy, growing near three feet high, putting out one or two ſmaller ſtalks from the ſide, which grow erect, and are garniſhed with one or two heart-ſhaped leaves, cloſely embracing the ſtalks with their baſe; each ſtalk is terminated by one large yellow flower, compoſed of about twenty-four rays or female florets, which are about an inch long, plain, and indented in three parts at the top. In the center is ſituated a great number of hermaphrodite florets, which compoſe the diſk; theſe are tubulous, and ſlightly cut at the top into five parts. The flowers appear in May, and are ſucceeded by ſeeds which ripen in July; theſe are crowned by a hairy down, which ſerves to convey them to a diſtance.

This plant multiplies very faſt by its ſpreading roots, and if the ſeeds are permitted to ſcatter, they will produce plants wherever they happen to fall, ſo that it becomes a weed where it is once eſtabliſhed; it loves a moiſt ſoil and a ſhady ſituation.

The ſecond ſort hath oval leaves, ending in acute points; theſe are indented on their edges toward their baſe, but their upper parts are entire; the ſtalks riſe about two feet high; each is terminated by a large yellow flower, like thoſe of the former ſort; the ſtalks of this ſort have two or three leaves, which are placed alternately, and their baſe ſits cloſe to the ſtalks; theſe are not ſo hairy as thoſe of the former ſort; it flowers about the ſame time with that, and the ſeeds ripen well in England. This grows naturally in Portugal, Spain, and Italy, but is equally hardy with the firſt, and multiplies in as great plenty; the root is perennial.

The third ſort hath longer leaves than either of the former, which are covered with a hoary down on their under ſide, and are indented on their edges; the ſtalks are ſingle, and have ſeldom more than one leaf upon each; theſe grow a foot and a half high, and are terminated by a ſingle flower on the top, like thoſe of the former ſorts. This grows naturally on the Pyrenees and Helvetian mountains. It delights in a moiſt ſoil and a ſhady ſituation, and propagates in plenty, either from ſeeds or by parting the roots: it flowers and ſeeds about the ſame time with the former.

The fourth ſort grows naturally on the Alps and Pyrenean mountains; this hath a perennial root; the leaves are like of the leſſer Daiſy, but longer, and not ſo broad. The flower grows upon a naked foot-ſtalk, which is near a foot long; the roots ſeldom ſend out more than one ſtalk; the rays of the flower are white, and very like thoſe of the common Daiſy; the diſk of the flower is yellow, which is compoſed of hermaphrodite flowers.

This plant is preſerved in botanic gardens for the ſake of variety, but the flowers make little better appearance than thoſe of the common Field Daiſy, only they ſtand upon much taller foot-ſtalks. It muſt have a ſhady ſituation and a moiſt ſoil, otherwiſe it will not thrive in this country; it is propagated by parting of the roots, for the ſeeds do not ripen well in England. I received this from Verona, near which place it grows naturally.

The roots of the firſt ſort have been ſometimes uſed in medicine, ſome having commended it as an expeller of the poiſon of ſcorpions; but others reckon it to be a poiſon, and affirm that it will deſtroy wolves and dogs.

The other ſorts which have been formerly ranged under this genus, are now ſeparated, and may be found under the title ARNICA.

DORSIFEROUS plants [of dorſum, the back, and fero, *Lat.* to bear,] ſuch plants as are of the capillary kind, without ſtalk, and that bear their ſeeds on the backſide of their leaves.

DORSTENIA. Plum. Nov. Gen. 29. tab. 8. Lin. Gen. Plant. 147. [This plant was ſo named by father Plumier, from Dr. Dorſten, a German phyſician, who publiſhed a hiſtory of plants in folio.] Contrayerva.

The CHARACTERS are,

It hath one common plain involucrum ſituated vertically, upon which ſit many ſmall florets as in a diſk; theſe have no petals, but have four ſhort ſlender ſtamina, terminated by roundiſh ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſingle ſtyle crowned by an obtuſe ſtigma; the germen afterward becomes a ſingle ſeed, incloſed in the common fleſhy receptacle.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

The SPECIES are,

1. DORSTENIA (*Contrayerva*) acaulis, foliis pinnatifido-palmatis, ſerratis, floribus quadrangulis. Lin. Sp. 176. *Dwarf Dorſtenia with many pointed, hand-ſhaped, ſawed leaves, and flowers placed on a quadrangular receptacle.* Dorſtenia ſphondylii folio, dentariæ radice. Plum. Nov. Gen. 29. *Dorſtenia with a Cow Parſnep leaf, and a Toothwort root.*
2. DORSTENIA (*Houſtoni*) acaulis, foliis cordatis angulatis acuminatis, floribus quadrangulis. Lin. Sp. 176. *Dwarf Dorſtenia with angular, heart-ſhaped, pointed leaves, and quadrangular receptacles to the flowers.* Dorſtenia dentariæ radice, folio minùs laciniato, placentâ quadrangulari & undulatâ. Houſt. MSS. *Contrayerva with a Toothwort root, a leaf leſs cut, and a quadrangular waved placenta.*
3. DORSTENIA (*Drakena*) acaulis, foliis pinnatifido-palmatis integerrimis, floribus ovalibus. Lin. Sp. 176. *Dwarf Dorſtenia with many pointed, hand-ſhaped, entire leaves, and an oval receptacle to the flowers; handed leaves, whoſe angles are very acute, and an oblong four-cornered placenta.*

The firſt of theſe plants was diſcovered by my late ingenious friend Dr. William Houſtoun, near Old Vera Cruz in New Spain. The ſecond was found by the ſame gentleman, on the rocky grounds about Campeachy. The third ſort was found in great plenty in the iſland of Tobago, by Mr. Robert Millar, ſurgeon. But the roots of all theſe ſpecies are indifferently brought over, and uſed in medicine, and for dyeing.

The firſt ſort ſends out ſeveral leaves from the root, which are about four inches long, and as much in breadth; theſe are deeply laciniated into five or ſeven obtuſe parts, ſtanding upon foot-ſtalks near four inches long; they are ſmooth, and of a deep green. The ſtalk which ſupports the placenta ariſes from the root, and grows near four inches high, upon which the fleſhy placenta is vertically placed; this is of an oval form about one inch long, and three quarters broad. Upon the upper ſurface of this, the ſmall flowers are cloſely ſituated, the fleſhy part becoming an involucrum to them; theſe are very ſmall, and ſcarce conſpicuous at a diſtance, being of an herbaceous colour.

The ſecond ſort ſends out ſeveral angular heart-ſhaped leaves from the root, which have foot-ſtalks eight or nine inches in length and very ſlender; the leaves are about three inches and a half long, and almoſt four broad at their baſe, the two ears having two or three angles which are acute, and the middle of the leaves are extended and end in acute points like a halbert; theſe are ſmooth and of a lucid green; the foot-ſtalk which ſuſtains the placenta is nine inches long, and about half an inch ſquare, and the upper ſurface cloſely ſet with ſmall flowers like the firſt.

The third ſort ſends out leaves of different forms; ſome of the lower leaves are heart-ſhaped, having a few indentures on their edges, and ending in acute points, but the larger leaves are deeply cut like the fingers on a hand, into ſix or ſeven acute ſegments. Theſe leaves are five inches long, and ſix broad in the middle; they are of a deep green, and ſtand upon long foot-ſtalks. The placenta is very thick and fleſhy, an inch and a half long, and three quarters broad, having four acute corners; theſe have a number of ſmall flowers, placed on their upper ſurface like the other ſpecies.

Theſe plants are at preſent very rare in Europe, nor was it known what the plant was, whoſe roots were imported, and had been long uſed in medicine in England, until the late Dr. Houſtoun informed us: for although father Plumier had diſcovered one ſpecies of this plant, and given the name of Dorſtenia to the genus, yet he ſeems not to have known, that the Contrayerva was the root of that plant.

It will be difficult to obtain theſe plants, becauſe the ſeeds are ſeldom to be found good; nor will they grow, if they are kept long out of the ground; ſo that the only ſure method to obtain them is, to have the roots taken up at the time when their leaves begin to decay, and planted pretty cloſe in boxes of earth, which may be brought very ſafe to England, provided they are preſerved from ſalt water, and are not over-watered with freſh water in their paſſage. When the plants arrive, they ſhould be tranſplanted each into a ſeparate pot filled with freſh earth, and plunged into the bark-ſtove, which ſhould be kept of a moderate heat; and the plants muſt be frequently refreſhed with water during the ſummer ſeaſon; but in winter, when the leaves are decayed, it ſhould be given to them more ſparingly. With this management theſe plants may not only be maintained, but may alſo be increaſed by parting their roots in the ſpring, before the plants put out their leaves.

DORYCNIUM. See Lotus.

DOUGLASSIA. See Volkameria.

DRABA. Dillen. Gen. Lin. Gen. Plant. 714. Alyſſon. Tourn. Inſt. R. H. 216. tab. 104.

The Characters are,

The flower hath a four-leaved empalement, which falls off. It hath four petals placed in form of a croſs. It hath ſix ſtamina, four of which are as long as the empalement, the other two are much ſhorter and incurved; theſe are terminated by roundiſh ſummits. In the center is ſituated a bifid germen, ſupporting a permanent ſtyle, crowned by an oblong ſtigma. The germen afterward becomes a very ſhort capſule with two cells, ſeparated by the ſwelling ſtyle, which is oblique, and longer than the capſule. The valves are parallel to the middle, and divide the lower part of the cell from the upper, which is open, round, concave, and opens oblique, each cell containing a ſingle ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliculoſa, the flower having four long and two ſhort ſtamina, and the ſeeds growing in ſhort capſules or pods.

The Species are,

1. Draba (*Alpina*) ſcapo nudo ſimplici, foliis lanceolatis integerrimis. Fl. Lapp. 255. *Draba with a ſingle naked ſtalk, and very entire ſpear-ſhaped leaves.* Alyſſon Alpinum, hirſutum luteum. Tourn. Inſt. 217. *Yellow hairy Alpine Madwort.*
2. Draba (*Verna*) ſcapis nudis, foliis lanceolatis ſub inciſis. Hort. Cliff. 333. *Draba with naked ſtalks and cut leaves.* Alyſſon vulgare, polygoni folio, caule nudo. Tourn. Inſt. 217. *Common Madwort with a Knot-graſs leaf and naked ſtalk.*
3. Draba (*Pyrenaica*) ſcapo nudo, foliis cuneiformibus trilobis. Lœfl. Lin. Sp. Plant. 642. *Draba with a naked ſtalk, and wedge-ſhaped leaves with three lobes.* This is the Alyſſon Pyrenaicum, perenne, minium, foliis trifidis. Tourn. Inſt. 217. *Leaſt perennial Madwort of the Pyrenees with trifid leaves.*
4. Draba (*Muralis*) caule ramoſo, foliis cordatis dentatis amplexicaulibus. Prod. Leyd. 33. *Draba with a branching ſtalk, and heart-ſhaped indented leaves embracing the ſtalks.* Alyſſon veronicæ folio. Tourn. Inſt. 217. *Madwort with a Speedwell leaf.*
5. Draba (*Polygonifolia*) caule ramoſo, foliis ovatis ſeſſilibus dentatis. Lin. Sp. Plant. 643. *Draba with a branching ſtalk, and oval indented leaves growing cloſe to the branches.* Alyſſon Alpinum, polygoni folio incano. Tourn. Inſt. R. H. 217. *Alpine Madwort with a hoary Knot-graſs leaf.*
6. Draba (*Incana*) foliis caulinis numeroſis incanis, ſiliculis oblongis. Flor. Suec. 526. *Draba with many hoary leaves on the ſtalks, and oblique pods.* Lunaria ſiliqua oblongâ intortâ. Tourn. Inſt. 219. *Moonwort with an oblong intorted pod.*

The firſt ſort grows naturally on the Alps, and other mountainous parts of Europe; this is a very low plant, which divides into ſmall heads like ſome ſorts of Houſeleek, and from thence it was titled Sedum Alpinum &c. or Alpine Houſeleek. The leaves are ſhort, narrow, and very hairy; from each of theſe heads come out a naked flower-ſtalk an inch and a half high, terminated by looſe ſpikes of yellow flowers, having four obtuſe petals placed in form of a croſs; when they fade they are ſucceeded by triangular or heart-ſhaped pods, which are compreſſed, and incloſe three or four roundiſh ſeeds. It flowers in March, and the ſeeds ripen the beginning of June.

This plant is eaſily propagated by parting of the heads; the beſt time for doing of this is in autumn, becauſe it ſhoots up to flower very early in the ſpring. It ſhould have a moiſt ſoil and a ſhady ſituation, where it will thrive and flower annually. It requires no other culture but to keep it clean from weeds.

The ſecond ſort is an annual plant, which grows naturally upon walls and dry banks in many parts of England, ſo is never cultivated in gardens. This flowers in April, and the ſeeds ripen in May.

The third ſort grows naturally on the Alps, and other mountainous parts of Europe. This is a low perennial plant, which ſeldom riſes more than two inches high; it has a ſhrubby ſtalk, which divides into many ſmall heads like the firſt ſort. The leaves are ſmall, ſome of them are winged, having five ſhort narrow lobes, placed on a midrib, others have but three. The flowers come out in cluſters, ſitting cloſe to the leaves. They are of a bright purple colour, and appear early in the ſpring. This is a perennial plant, which may be propagated by parting of the heads in the ſame manner as the firſt, and requires the ſame treatment.

The fourth ſort grows naturally in ſhady woods in many parts of Europe, and is but ſeldom kept in gardens, unleſs for the ſake of variety. It is an annual plant, riſing with an upright branching ſtalk about ten inches high, garniſhed with heart-ſhaped indented leaves, which embrace the ſtalks with their baſe. The ſtalks are terminated by looſe ſpikes of white flowers, which appear the beginning of May; in June the ſeeds ripen, and the plants ſoon after decay. If the ſeeds are permitted to ſcatter, the plants will come up without trouble. It muſt have a ſhady ſituation, and delights in a moiſt ſoil.

The fifth ſort is an annual plant, which grows in ſhady woods in the northern parts of Europe. This is like the former ſort, but the leaves are larger, rounder, and do not embrace the ſtalks; they are alſo hairy, and the flowers are yellow. If the ſeeds of this are permitted to ſcatter, the plants will maintain themſelves if they have a ſhady ſituation.

The ſixth ſort riſes with an upright ſtalk about a foot high, the lower part being very cloſely garniſhed by oblong hoary leaves, which are indented on their edges. The upper part of the ſtalks puts out two or three ſhort branches; theſe are almoſt naked of leaves, as is alſo the upper part of the ſtalk. The flowers come out looſely on the top of the ſtalk; they are compoſed of four ſmall white petals placed in form of a croſs, which are ſucceeded by oblong pods, which are twiſted, containing three or four roundiſh compreſſed ſeeds. It flowers in June, and the ſeeds ripen in July. This grows naturally in the north of England and in Wales.

This plant ſeldom continues more than two years, but if the ſeeds are ſown in autumn in a ſhady border, the plants will come up in the ſpring; or where the ſeeds are permitted to ſcatter, the plants will riſe without any trouble.

DRACO ARBOR. See Palma.

DRACO HERBA. [i. e. Dragon's-wort.] Tarragon, vulgò. See Abrotanum.

DRACOCEPHALUM. Lin. Gen. Plant. 648. Dracocephalon. Tourn. Inſt. R. H. 181. tab. 83. [of δράκων, a dragon, and κεφαλὴ, a head.] i. e. Dragon's-Head.

The Characters are,

The flower hath a ſhort permanent empalement of one leaf, which is tubulous. It hath one ringent petal, with a tube the length of the empalement, with large oblong inflated chaps. The upper lip is obtuſe and arched, the under lip is trifid; the two ſide ſegments are erect, the middle turns downward and is indented. It hath four ſtamina ſituated near the upper lip, two being ſhorter than the other, and are terminated by heart-ſhaped ſummits. It hath a four-parted germen, ſupporting a ſlender ſtyle, ſituated with the ſtamina, and crowned by a bifid reflexed ſtigma. The germen afterward becomes four oval oblong ſeeds, incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, the flower having two long and two ſhorter ſtamina, and the ſeeds are naked.

The Species are,

1. Dracocephalum (*Virginianum*) floribus ſpicatis foliis lanceolatis ſerratis. Lin. Sp. 828. *American Dragon's-Head with ſingle leaves and ſpiked flowers.* Dracocephalon Americanum. Breyn. Prod. 1. 34. *American Dragon's-Head.*

2. **Dracocephalum** (*Canarienſe*) floribus ſpicatis, foliis compoſitis. Lin. Hort. Cliff. 308. *Dragon's-Head with ſpiked flowers and compound leaves.* Moldavica Americana trifolia odore gravi. Tourn. Inſt. 184. *Three-leaved American Balm, having a ſtrong ſmell, commonly called Balm of Gilead.*

3. **Dracocephalum** (*Moldavica*) floribus verticillatis, bracteis lanceolatis ſerraturis capillaceis. Lin. Hort. Cliff. 308. *Dragon's-Head with flowers growing in whorls, and ſpear-ſhaped bractæ.* Moldavica betonicæ folio, flore cæruleo. Tourn. Inſt. R. H. 184. *Moldavian Balm with a Betony leaf and blue flower.*

4. **Dracocephalum** (*Ocymifolia*) floribus verticillatis, foliis floralibus orbiculatis. Lin. Hort. Cliff. 308. *Dragon's-Head with flowers growing in whorls, and the upper leaves round.* Moldavica orientalis minima ocymifolio, flore purpuraſcente. Tourn. Cor. 11. *Leſſer Eaſtern Moldavian Balm with a Willow leaf and a bluiſh flower.*

5. **Dracocephalum** (*Caneſcens*) floribus verticillatis, bracteis oblongis, ſerraturis ſpinoſis, foliis tomentoſis. Hort. Upſal. 166. *Dragon's-Head with flowers growing in whorls, and the little leaves under the flowers ſawed, ending in ſpines, and woolly leaves.* Moldavica orientalis betonicæ folio, flore magno violaceo. Tourn. Cor. 11. *Eaſtern Moldavian Balm with a Betony leaf, and a large blue flower.*

6. **Dracocephalum** (*Nutans*) floribus verticillatis, bracteis oblongis ovatis integerrimis, corollis majuſculis nutantibus. Hort. Upſal. 167. *Dragon's-Head with flowers growing in whorls, the ſmall leaves under the flowers are oblong, entire, and hanging flowers much larger than the empalement.* Moldavica betonicæ folio, floribus minoribus cæruleis pendulis. Amman. Ruth. 44. *Moldavian Balm with a Betony leaf, and ſmaller blue pendulous flowers.*

7. **Dracocephalum** (*Thymiflorum*) floribus verticillatis, bracteis oblongis integerrimis, corollis vix calyce majoribus. Hort. Upſal. 167. *Dragon's-Head with flowers growing in whorls, the ſmall leaves are oblong, entire, and the flowers equal with the empalement.* Moldavica betonicæ folio, floribus minimis pallidè cæruleis. Amman. Ruth. 46. *Moldavian Balm with a Betony leaf, and very ſmall blue flowers.*

8. **Dracocephalum** (*Peltatum*) floribus verticillatis, bracteis orbiculatis ſerratociliatis. Hort. Upſal. 166. *Dragon's-Head with flowers growing in whorls, oval bracteæ and very narrow ſpear-ſhaped leaves.* Moldavica orientalis, ſalicis folio, flore parvo cæruleo. Tourn. Cor. 11. *Eaſtern Moldavian Balm with a Willow leaf, and a ſmall blue flower.*

9. **Dracocephalum** (*Grandiflorum*) floribus verticillatis foliis ovatis inciſo-crenatis, bracteis lanceolatis integerrimis. Lin. Sp. Plant. 595. *Dragon's-Head with flowers growing in whorls, oval leaves which are cut and crenated, and ſpear-ſhaped bracteæ which are entire.*

The firſt ſort is a native of North America, where it grows in the woods, and by the ſides of rivers. This riſes with an upright ſtalk, which is four-cornered, near three feet high, garniſhed with ſpear-ſhaped leaves about three inches long, and half an inch broad, ſitting cloſe to the ſtalk; they are ſawed on their edges, and are placed oppoſite at each joint, ſometimes there are three leaves ſtanding round at the ſame place. The flowers are purple and grow in ſpikes on the top of the ſtalks, ſo make a pretty variety among other hardy plants, eſpecially if the plants are ſtrong and vigorous. This is a perennial plant, which will live in the open air, but requires a moiſt ſoil, or ſhould be duly watered in dry weather, otherwiſe the leaves will ſhrink, and the flowers will make little appearance. This may be allowed a place in the ſhady borders of a garden, ſince it will not ramble, or take up much room. It flowers in July, and continues until the middle or end of Auguſt, and may be propagated by parting of the roots in autumn.

The ſecond ſort is a native of the Canary Iſlands, and hath been long an inhabitant in the gardens; it is uſually called by the gardeners Balm of Gilead, from the ſtrong reſinous ſcent which the leaves emit on being rubbed. This is a perennial plant, which riſes with ſeveral ſquare ſtalks to the height of three feet or more, becoming ligneous at their lower parts, and are garniſhed with compound leaves at each joint, which are placed oppoſite; theſe have three or five lobes, which are oblong, pointed, and ſawed on their edges. The flowers come out in ſhort thick ſpikes on the top of the ſtalks; they are of a pale blue colour, and are ſucceeded by ſeeds, which ripen very well in England. This plant continues producing flowers moſt part of ſummer; it is uſually kept in green-houſes; but in mild winters the plants will live abroad, if they are planted in warm borders; and thoſe plants which are kept in pots, will thrive much better when they are ſheltered under a frame, than if placed in a green-houſe, where the plants are apt to draw up weak, for they ſhould have as much free air as poſſible in mild weather, and only require to be ſheltered from ſevere froſt. This may be propagated by ſeeds, which, if ſown in autumn, will more certainly grow, than thoſe which are ſown in the ſpring; but if theſe are ſown in pots, they muſt be ſheltered under a frame in the winter, and if the plants do not come up the ſame autumn, they will ariſe in the ſpring; but if the ſeeds are ſown in the full ground, it ſhould be in a warm border; and in hard froſt they ſhould be ſheltered, otherwiſe the young plants will be deſtroyed. The plants may alſo be propagated by cuttings; which, if planted in a ſhady border any time in ſummer, will very ſoon take root, and furniſh plenty of rooted plants.

The third ſort is a native of Moldavia; this has been long preſerved in curious gardens. It is an annual plant, which riſes with branching ſtalks a foot and a half high, garniſhed with oblong leaves, which are placed oppoſite, and are deeply ſawed on their edges. The flowers come out in whorls round the ſtalks at every joint; theſe are blue, and appear in July, continuing to the middle of Auguſt, and the ſeeds ripen in September. The plants have a ſtrong balſamic odour, which is to ſome perſons very agreeable: the ſeeds ſhould be ſown in ſmall patches in the ſpring, upon the borders where they are to remain, and when the plants come up, they ſhould be thinned where they grow too near together, and kept clear from weeds, which is the only culture they require. Of this there is a variety with white flowers, which is pretty common in the gardens; this only differs from the other in the colour of the flowers, but yet theſe conſtantly retain their difference from ſeeds.

The fourth ſort was diſcovered by Dr. Tournefort in the Archipelago, who ſent the ſeeds to the royal garden at Paris, which have ſince been communicated to many curious gardens in Europe; this riſes with upright ſtalks about a foot high, which ſeldom put out branches; theſe are garniſhed with long narrow leaves, which are entire, placed oppoſite at each joint, where the flowers come out in whorls, almoſt the whole length of the ſtalks; theſe are of a pale blue, and appear about the ſame time as the former; this ſort has very ſmall flowers, which make no great appearance, therefore is ſeldom cultivated, except in botanic gardens for the ſake of variety.

The fifth ſort was diſcovered by Dr. Tournefort in the Levant; this hath hoary ſquare ſtalks, which riſe a foot and a half high, putting out two or three ſide branches, garniſhed with hoary leaves near two inches long, and half an inch broad, a little indented on their edges; they are placed oppoſite at the joints, juſt under the whorls of flowers, which ſit cloſe to the ſtalk; theſe are larger than thoſe of the other ſpecies, and are of a fine blue colour, which between the hoary leaves of the plant, make a pretty appearance. It flowers and ſeeds about the ſame time as the former ſorts; this is generally treated as an annual plant, like the former ſorts, but the roots of this will live two years if they are in a dry ſoil. There is a variety of this with white flowers, the ſeeds of which generally produce the ſame coloured flowers.

The ſixth ſort grows naturally in Siberia, from whence the ſeeds were ſent to the imperial garden at Peterſburgh, and the late Dr. Amman, who was profeſſor of botany, ſent me the ſeeds. This is an annual plant, from whoſe roots come out many ſquare weak ſtalks, which grow about nine inches long; theſe are at the bottom garniſhed with oval ſpear-ſhaped leaves about two inches long, and one inch and a quarter broad, ſtanding oppoſite upon pretty long foot-ſtalks, and are crenated on their edges. The upper part of the ſtalks have ſmaller leaves, which ſit cloſe at the joints, from whence come out the flowers in whorls; they are of a deep blue colour, and hang downward; theſe appear at the ſame time with the former, and the ſeeds ripen in autumn.

The ſeventh ſort grows alſo in Siberia, the ſeeds of this were ſent me with the former. It hath ſquare ſtalks, which riſe a foot and a half high; the lower leaves are very like thoſe of Betony, and ſtand upon very long foot-ſtalks. The upper leaves are ſmall, and ſit cloſer to the ſtalks. The flowers come out in whorls at every joint; theſe are very ſmall, and of a pale purple or blue colour, ſo make little appearance, but it is preſerved in ſome gardens for the ſake of variety.

The eighth ſort grows naturally in the Levant, from whence Dr. Tournefort ſent the ſeeds to the royal garden at Paris. This is an annual plant, which riſes with a ſquare ſtalk about a foot high, ſending out two ſmall ſide branches from the lower part. The leaves are ſpear-ſhaped, and crenated on their edges; they are placed oppoſite, and ſtand on foot-ſtalks. The flowers are ſmall, of a purpliſh colour, and come out in whorls round the ſtalks, having two roundiſh-ſmall leaves (called bracteæ) immediately under them, which are ſawed on their edges, each ſerrature ending with a long hair. This ſort flowers and ſeeds at the ſame time as the former.

All theſe ſorts are propagated by ſeeds, which may be ſown either in the ſpring or autumn, in the places where the plants are to remain, and will require no other treatment than the third ſort.

DRACONTIUM. Lin. Gen. Plant. 916. Dracunculus. Tourn. Inſt. R. H. 160. tab. 70. Dragon; in French, *Serpentaire*.

The Characters are,

It hath a ſingle cylindrical ſpadix (or ſtalk) on the upper part of which the parts of fructification are diſpoſed in a ſingular manner. The flowers have no empalement, but have five oval concave petals, which are equal; they have ſeven narrow depreſſed ſtamina the length of the petals, terminated by oblong, four-cornered, twin ſummits, which ſtand erect; they have an oval germen, ſupporting a taper ſtyle, crowned by a three-cornered ſtigma. The germen afterward becomes a roundiſh berry, incloſing ſeveral ſeeds; theſe are all incloſed in a large fleſhy ſpatha (or ſheath) opening with one valve.

This genus of plants is ranged in the ſeventh ſection of Linnæus's twentieth claſs, intitled Gynandria Polyandria. This claſs and ſection contains the plants which have male and female flowers joined in the ſame ſpike, and the male flowers have ſeveral ſtamina.

The Species are,

1. Dracontium (*Pertuſum*) foliis pertuſis, caule ſcandente. Lin. Sp. Plant. 968. *Dragon with leaves having holes, and a climbing ſtalk.* Arum hederaceum, amplis foliis perforatis. Plum. Amer. 40. tab. 56. *Climbing Arum with large perforated leaves.*
2. Dracontium (*Polyphyllum*) ſcapo breviſſimo, petiolo radicato, lacero, foliolis tripartitis, laciniis pinnatifidis. Hort. Cliff. 434. *Dragon with a very ſhort ſtalk, the foot-ſtalk cut, and the ſmall leaves divided into three parts, which terminate in many points.* Arum polyphyllum, caule ſcabro punicante. Par. Bat. 93. *Many leaved Arum with a rough purple ſtalk.*
3. Dracontium (*Spinoſum*) foliis ſagittatis, pedunculis petioliſque aculeatis. Flor. Zeyl. 328. *Dragon with arrow-pointed leaves, whoſe foot-ſtalks have ſpines.* Arum Zeylanicum ſpinoſum, ſagittæ foliis. Par. Bat. 75. *Prickly Arum of Ceylon with arrow-pointed leaves.*
4. Dracontium (*Camtſchatcenſe*) foliis lanceolatis. Amœn. Acad. 2. p. 360. *Dragon with ſpear-ſhaped leaves.*

The firſt ſort grows naturally in moſt of the iſlands in the Weſt-Indies. This hath ſlender jointed ſtalks, which put out roots at every joint, that faſten to the trunks of trees, walls, or any ſupport which is near them, and thereby riſe to the height of twenty-five or thirty feet. The leaves are placed alternately, ſtanding upon long foot-ſtalks; they are four or five inches long, and two and a half broad, having ſeveral oblong holes in each, which on the firſt view appears as if eaten by inſects, but they are natural to the leaves. The flowers are produced at the top of the ſtalk, which always ſwells to a larger ſize in that part than in any other; theſe are covered with an oblong ſpatha (or hood) of a whitiſh green colour, which opens longitudinally on one ſide, and ſhews the piſtil, which is cloſely covered with flowers, of a pale yellow, inclining to white. When this plant begins to flower, it ſeldom advances farther in height, ſo that theſe ſeldom are more than ſeven or eight feet high; but the leaves are much larger on theſe, than thoſe of the plants which ramble much farther.

This plant is eaſily propagated by cuttings, which, if planted in pots filled with poor ſandy earth, and plunged into a hot-bed, will ſoon put out roots, if they had none before; but there are few of the joints which have not roots: the plants are tender, ſo will not live in the open air in England, therefore the pots ſhould be placed near the walls of the hot-houſe, againſt which the plants will climb, and faſten their roots into the wall, and thereby ſupport the ſtalks. They ſhould have but little water given them in the winter, but in warm weather it muſt be given them three or four times a week, and in the ſummer the free air ſhould be admitted to them in plenty. The plants have no particular ſeaſon of flowering, for they ſometimes flower in autumn, and at other times in the ſpring, but they do not ripen their ſeeds in England.

The ſecond ſort grows naturally in ſeveral of the iſlands of America. I received roots of this from Barbuda. This hath a large knobbed irregular root, covered with a rugged brown ſkin. The ſtalk riſes about a foot high, is naked to the top, where it is garniſhed with a tuft of leaves, which are divided into many parts. The ſtalk is ſmooth, of a purple colour, but is full of ſharp protuberances of different colours, which ſhine like the body of a ſerpent. The ſpadix (or ſtalk) of the flower riſes immediately from the root, and is ſeldom more than three inches high, having an oblong ſwelling hood at the top, which opens lengthways, ſhewing the ſhort, thick, pointed piſtil within, upon which the flowers are cloſely ranged.

This ſort is tender, ſo requires a warm ſtove to preſerve it in England. The roots muſt be planted in pots filled with light kitchen-garden earth, and plunged into the tan-bed in the ſtove, where they ſhould conſtantly remain; in the winter they muſt be watered very ſparingly, but in warm weather, when the plants are in vigour, they muſt be often refreſhed, but it ſhould not be given them in too great quantities; with this management the plants will flower, but their roots do not increaſe here.

The third ſort grows naturally in the iſland of Ceylon, and in ſeveral parts of India; this hath an oblong thick root, full of joints, from which ariſe ſeveral leaves, ſhaped like thoſe of the common Arum, but their foot-ſtalks are covered with rough protuberances. The ſtalk which ſupports the flower is ſhort, and ſet with the like protuberances; and at the top is a hood, or ſpatha, about four inches long, as thick as a man's finger, which opens longitudinally, and expoſes the piſtil, which is ſet with flowers. This is a tender plant, and requires the ſame treatment as the former ſort.

The fourth ſort hath roots like the common Arum, from which come out ſeveral ſpear-ſhaped leaves, ſtanding each upon a ſeparate foot-ſtalk, ariſing immediately from the root, as thoſe of the common Arum. This hath not yet flowered in England, ſo I can give no further account of it. This grows naturally in Siberia, ſo requires a ſhady ſituation, and will bear the greateſt cold of this country.

Theſe plants are preſerved in the gardens of the curious in England and Holland, more for the ſake of variety than for beauty; for except the firſt ſort, there is not any of them which make much appearance; that indeed may be ſuffered to have a place againſt the wall of the ſtove, over which it will ſpread, and cover the nakedneſs of the wall; and the leaves remaining all the year, which are ſo remarkably perforated, make a ſingular appearance.

All the other ſorts of Dragon are tender plants, ſo will not live in this country, unleſs they are preſerved in the warmeſt ſtoves; the ſeveral American ſorts grow naturally in the woods in Jamaica, and other hot parts of America; the climbing ſorts twiſt themſelves round the trunks of trees, into which they faſten their roots, which are ſent forth from their joints, and riſe to the height of thirty or forty feet. Theſe climbing ſorts are eaſily propagated by cuttings, which, being very ſucculent, may be brought over to England in a box of dry hay, if they are packed up ſeparate, ſo as not to injure each other by the moiſture, which is apt to flow out at the part where they are cut off, which may occaſion a fermentation, and thereby rot the cuttings. When the cuttings arrive, they ſhould be planted in ſmall pots filled with light freſh earth, and plunged into a hot-bed of tanners bark, being very careful not to let them have too much moiſture until they have taken root, leſt it rot them: when they have taken root, they muſt be frequently refreſhed with water; and when they are grown pretty large, they ſhould be placed in the bark-bed in the ſtove, where they muſt be placed near ſome ſtrong plants, to which they may faſten themſelves, otherwiſe they will not thrive; for though they will ſend forth roots at their joints, which will faſten to the mortar of the ſtove, when placed againſt the wall, yet they will not thrive near ſo well as againſt a ſtrong plant, which will afford them nouriſhment.

The other ſorts are propagated by offſets from their roots; theſe may be procured from the countries of their growth, and ſhould be planted in tubs of earth, about a month before they are put on board the ſhip to tranſport them; theſe tubs ſhould be placed in a ſhady ſituation until they have taken root. In their paſſage great care ſhould be had to keep them from ſalt water, as alſo not to let them have too much water given them; for if they have a little water once or twice a week at moſt, while they are in a hot climate, and when they are come into a cooler climate, once in a fortnight, this will be ſufficient for them; and it ſhould be done ſparingly, leſt it rot them; for if the tops of the plants ſhould decay for want of water in their paſſage, if the roots are not rotted, they will ſoon recover with proper care.

When the plants arrive, they ſhould be tranſplanted into pots filled with light freſh earth, and plunged into a hot-bed of tanners bark, and gently watered until they have taken good root, after which time they will require to be frequently refreſhed with water; but as their ſtems are very ſucculent, they muſt not have too much moiſture. Theſe plants ſhould be conſtantly kept in the ſtove, where, in hot weather, they ſhould have freſh air admitted to them; but in winter they muſt be kept very warm, otherwiſe they cannot be preſerved in this country.

Theſe plants will riſe to the height of three, four, or five feet, and will afford a very agreeable variety amongſt other tender exotic plants in the ſtove.

DRACUNCULUS PRATENSIS. See ACHILLEA.

DRAGON. See DRACONTIUM.

DROSERA. Ros Solis, or Sun-dew.

We have two or three ſpecies of this plant, which grow naturally upon bogs in many parts of England, and there are three or four other ſorts, which are natives of warmer countries; but as theſe cannot be cultivated in gardens, unleſs where there are bogs, it would be needleſs to deſcribe them.

The common round-leaved ſort is uſed in medicine, ſo is gathered by the herb-folks who ſupply the markets.

DRYAS, Cinquefoil Avens.

There are two ſpecies of this genus, which grow naturally in Scotland and Ireland, upon mountainous places, where the ſoil is wet; one of them hath five petals to the flower, and winged leaves, the other hath eight petals to the flower, and ſimple leaves; but as neither of the plants make much appearance, they are rarely preſerved except in ſome botanic gardens for variety.

DULCAMARA. See SOLANUM.

DUNGS are deſigned to repair the decays of exhauſted or worn-out lands, and to cure the defects of land, which are as various in their qualities as the dungs are, that are uſed to meliorate and reſtore them: ſome lands abound too much in coldneſs, moiſture, and heavineſs; others again are too light and dry, and ſo, to anſwer this, ſome dungs are hot and light, as that of ſheep, horſes, pigeons, &c. others again are fat and cooling, as that of oxen, cows, hogs, &c. And as the remedies that are to be uſed muſt be contrary to the diſtempers they are to cure, ſo the dung of oxen, cows, and hogs, muſt be given to clean, dry, light earths, to make them fatter and cloſer, and hot and dry dungs to meliorate cold, moiſt, and heavy lands.

There are two peculiar properties in dungs, the one is to produce a certain ſenſible heat, capable of producing ſome conſiderable effect, which properties are ſeldom found but in the dung of horſes and mules, while it is newly made, and a little moiſt; the other property of dung is, to fatten the earth and render it more fruitful.

The dung of horſes and mules is of admirable uſe in gardens in the winter time, becauſe it then animates and enlivens all things; and, in ſome meaſure, ſupplies the office which is performed by the heat of the ſun in the ſummer time, affording us all the novelties of the ſpring, as Aſparagus, Cucumbers, Radiſhes, ſallads, &c. Horſe dung is the beſt improvement for cold jejune lands that we can procure in any quantity; but yet horſe dung being uſed alone, or when it is too new, is frequently prejudicial to ſome plants; and if it be ſpread thin over lands in the ſummer time, it is of very little ſervice, becauſe the ſun, drawing out all the virtue and goodneſs of it, renders it little better than thatch or dry ſtraw; and though too much of it can ſcarcely be uſed in a kitchen-garden for Cabbages, Cauliflowers, and all other plants that grow there, and require abundance of nouriſhment; yet may it be a fault to lay too much of it on corn-lands, becauſe it produces abundance of ſtraw.

In very cold moiſt land, I have frequently ſeen new horſe dung buried as it came from the ſtable, and always obſerved that the crops have ſucceeded better, than where the ground was dreſſed with very rotten dung.

Horſe dung being of a very hot nature, is beſt for cold lands, and cow dung for hot lands; and being mixed together, may make a very good manure for moſt ſorts of ſoil, and for ſome they may be mixed with mud.

Sheeps dung and deers dung differ not much in their quality, and are eſteemed by ſome the beſt of dungs for cold clays. Some recommend them to be beat into powder, and ſpread very thin over autumn or ſpring crops, about four or five loads to an acre, after the ſame manner as aſhes, malt duſt, &c. are ſtrewed.

This I have ſeen practiſed upon corn, and alſo upon graſs land, to great advantage for the firſt year; but theſe light dreſſings do not laſt long, therefore require to be often repeated.

In Flanders and other places, they houſe their ſheep at nights in places ſpread with clean ſand, laid about five or ſix inches thick, which, being laid on freſh every night, is cleared out once a week; this mixture of ſand and dung makes an excellent dreſſing for ſtrong land, for the dung and urine of the ſheep is a very rich manure, bears a conſiderable price, and is an excellent manure for all ſtiff cold land: and Mr. Quinteney is of opinion, that it is the greateſt promoter of fruitfulneſs in all ſorts of ground.

Others recommend hogs dung as the fatteſt and moſt beneficial of all ſorts of dungs; and ſay, that one load of it will go as far as two loads of other dung, and that it is the beſt of all dungs for fruit-trees, eſpecially for Pear and Apple-trees in a light ſoil, and a very rich dung for graſs. I have often uſed this dung to fruit-trees when it was well rotted, and have found it the moſt beneficial to them of any manure.

The dung of pigeons, hens, and geeſe, are great improvers of meadow or corn land, the firſt of theſe being the beſt ſuperficial improvement that can be laid on meadow or corn land: but before it is uſed, it ought to have lain abroad out of the dove-houſe ſome time, that the air may have a little ſweetened it, and mollified the fiery heat that is in thoſe dungs.

Eſpecially it is good for cold, wet, clayey lands; but it ought to be dried before it be ſtrewed, becauſe it is naturally apt to clod in wet; and it ſhould be mixed with earth or ſand to keep it from clinging together, that it may be ſtrewed thin, being naturally very hot and ſtrong.

Some recommend the dung of pigeons, and alſo of other fowls, as the beſt manure for Aſparagus, Strawberries, or any ſorts of flowers; but this ſhould be rotted and well mixed with the earth, before it is uſed to flowers.

Monſieur Gentil approves of pigeons dung, as being good for ſuch trees whoſe leaves are apt to turn yellow, if they grow in free ſoils that are rather cold than hot, provided the heat of it has been abated by lying two or three years in the dunghill; but this ſhould be applied in autumn, and in ſmall quantities.

This being ſpread about an inch thick at the foot of a tree, whoſe leaves are yellow, and being left there till March, he recommends as very uſeful in cold and moiſt ſoils.

The dung of poultry being hot and full of ſalts, tends much to facilitate vegetation, and is abundantly quicker in its operation than the dung of animals which feed on herbs.

Sir Hugh Plat ſays, one load of grain will enrich ground more than ten loads of common dung; which if it be true, it is rational to ſuppoſe, that if ſimple grain, by only infuſion in the mixture of compoſts, has a very good effect, it will be more powerful when it has paſſed through the bodies of animals.

Human dung is a great improver of all cold ſour lands, and eſpecially if it be mixed with other earths or dungs to give it a fermentation.

But there is not any ſort of manure equal to the cleanſing of London ſtreets, for all ſtubborn clayey ſoils; the parts of which will be better ſeparated, and in a much leſs time, with this manure, than with any other compoſt whatever; and where it can be obtained, is extremely well worth procuring, either for corn, graſs, or garden land.

DURANTIA. Lin. Gen. Plant. 704. Caſtorea. Plum. Nov. Gen. 30. tab. 17.

The Characters are,

The flower hath a permanent empalement of one leaf, which is erect, and cut into five acute ſegments at the top, and ſits upon the germen; the flower is of the ringent kind, with one petal, having a long tube, which opens at the top in two lips; the upper lip is oval, erect, and concave; the under is divided into four equal ſegments, which are round. It hath four ſhort ſtamina, ſituated in the bottom of the tube, the two middle being a little ſhorter than the other, terminated by proſtrate ſummits; the germen which is ſituated under the flower, ſupports a long ſlender ſtyle, crowned by a headed ſtigma. The germen afterward becomes a globular berry, terminated by three acute points, having one cell incloſing four angular ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, the flower having two long and two ſhorter ſtamina, and the ſeeds being included in a capſule.

The title which was firſt given by father Plumier to this genus, was Caſtorea, in memory of Caſtor Durant, a phyſician of Rome, who publiſhed a hiſtory of plants in Italian, which was printed at Rome in 1585. Dr. Linnæus has now altered the title of the genus, and inſtead of the chriſtian name, he has given it the ſurname of the ſame perſon.

The Species are,

1. Durantia (*Plumeiri*) ſpinoſa. Lin. Sp. Plant. 637. *Prickly Durantia.* Caſtorea repens ſpinoſa. Plum. Nov. Gen. 30. *Creeping prickly Caſtorea.*
2. Durantia (*Racemoſa*) inermis. Lin. Sp. Plant. 637. *Durantia without thorns.* Caſtorea racemoſa flore cæruleo, fructu croceo. Plum. Nov. Gen. 30. *Branching Caſtorea with a blue flower and Saffron-coloured fruit.*
3. Durantia (*Erecta*) caule erecto ſpinoſo, foliis ovatis integerrimis, floribus racemoſis. *Durantia with an upright prickly ſtalk, oval entire leaves, and flowers growing in long bunches.* Jaſminum folio integro, obtuſo, flore cæruleo racemoſo, fructu flavo. Sloan. Cat. Jam. 169. *Jaſmine with entire obtuſe leaves, blue flowers growing in bunches, and a yellow fruit.*

The firſt ſort hath many trailing branches, which are armed with hooked thorns at every joint, and are garniſhed with oblong leaves, which are placed without order, and are ſlightly ſawed on their edges; the flowers come out from the ſide of the ſtalks in pretty long bunches, like thoſe of the common Currant; they are of a pale bluiſh colour, and ſucceeded by brown berries not unlike the fruit of the Hawthorn; theſe have one cell, and incloſe four angular ſeeds.

The ſecond ſort hath a branching woody ſtalk, which riſes ſeven or eight feet high; the branches are garniſhed with oval ſpear-ſhaped leaves three inches long, and one and a half broad in the middle; they are ſawed on their edges, of a lucid green colour, and ſtand oppoſite. The flowers are produced in long bunches at the end of the branches; theſe are blue, and ſucceeded by pretty large, round, yellow berries, which contain four angular ſeeds.

The third ſort riſes with a ſtrong woody ſtem to the height of ten or twelve feet, covered with a white bark, dividing into many branches, which are armed with ſharp thorns on their ſide; theſe are garniſhed with oval ſtiff leaves one inch long, and three quarters broad. The flowers come out in long bunches from the end of the branches, which are blue, and are ſucceeded by ſmall, round, yellow berries, which contain four angular ſeeds. I received this from the late Dr. Houſtoun, who found it growing in Jamaica.

The plants are natives of warm countries, ſo they require a ſtove to preſerve them in England; they are propagated by ſeeds, which ſhould be ſown in ſmall pots, and plunged into a hot-bed of tanners bark; and when the plants are fit to remove, they muſt be planted each into a ſeparate ſmall pot filled with light earth, and plunged into the hot-bed again, obſerving to ſhade them till they have taken new root, then they muſt be treated in the ſame manner as other plants from the ſame country.

The ſecond ſort may be propagated by cuttings, which may be planted in any of the ſummer months; but theſe ſhould be plunged into a moderate hot-bed, and ſhaded from the ſun till they have taken root, then they may be treated in the ſame manner as the ſeedling plants. This ſort is not ſo tender as the other two, ſo may be placed in the open air in ſummer; and if they are kept in a moderate temperature of warmth in the winter, they will thrive better than in great heat. I kept ſome of the plants of this ſort three winters, in a dry warm glaſs caſe without fires, and they have ſucceeded pretty well; but the winter 1762 proving ſevere, cauſed their leaves to fall, but ſince they have put out again very well.

DWARF-TREES. Theſe were formerly in much greater requeſt than they are at preſent; for though they have many advantages to recommend them, yet the diſadvantages attending them greatly over-balance; and ſince the introducing of eſpaliers into the Engliſh gardens, Dwarf-trees have been in little eſteem for the following reaſons:

1ſt, The figure of a Dwarf-tree is very often ſo much ſtudied, that, in order to render the ſhape beautiful, little care is taken to procure fruit, which is the principal deſign in planting theſe trees.

2dly, The branches being ſpread horizontally near the ſurface of the ground, render it very difficult to dig or clean the ground under them.

3dly, Their taking up too much room in a garden (eſpecially when they are grown to a conſiderable ſize) ſo that nothing can be ſown or planted between them.

4thly, Theſe trees ſpreading their branches near the ground, continually ſhade the ſurface of the earth; ſo that neither the ſun nor air can paſs freely round their roots and ſtems, to diſſipate noxious vapours; whereby the circumambient air will be continually replete with crude rancid vapours, which, being drawn in by the fruit and leaves, will render its juices crude and unwholſome, as well as ill taſted.

It is alſo very difficult to get to the middle of theſe Dwarf-trees in the ſummer, when their leaves and fruit are on the branches, without beating off ſome of the fruit, and breaking the young ſhoots; whereas, the trees on an eſpalier can at all times be come at on each ſide, to tie up the new ſhoots, or to diſplace all vigorous ones, which, if left on, would rob the trees of their nouriſhment.

Add to this, the fruit-buds of all ſorts of Pears and Apples, and moſt ſorts of Plumbs and Cherries, are firſt produced at the end of the former year's ſhoot, which muſt be ſhortened in order to keep the Dwarfs to their proper figure, ſo that the fruit-buds are cut off, and a greater number of branches are obtained, than can be permitted to ſtand; ſo that all thoſe ſorts of fruit-trees, whoſe branches require to be trained at their full length, are very improper to train up as Dwarfs; and the Peaches and Nectarines which will bear amputation, are too tender to be trained ſo in this country.

Theſe evils being entirely remedied by training the trees to an eſpalier, hath juſtly gained them the preference; however, if any one has a mind to have Dwarf-trees, notwithſtanding what has been ſaid, I ſhall lay down a few rules for their management.

If you deſign to have Dwarf Pear-trees, you ſhould bud or graft them on Quince ſtocks; but as many ſorts of Pears will not thrive if they are immediately budded or grafted on Quince ſtocks, ſo ſome of thoſe ſorts which will take freely, ſhould be firſt budded on the Quince ſtocks; and when theſe have ſhot, the ſorts you intend to cultivate, ſhould be budded into theſe; for free ſtocks are apt to make them ſhoot ſo vigorouſly, as not to be kept within bounds. Theſe grafts or buds ſhould be put in about four or ſix inches above the ſurface of the ground, that the heads of the trees may not be advanced too high; and when the bud or graft has put out four ſhoots, you ſhould ſtop the end of the ſhoots, to force out lateral branches.

Two years after budding, theſe trees will be fit to tranſplant where they are to remain; for though many people chuſe to plant trees of a greater age, yet they ſeldom ſucceed ſo well as young ones. The diſtance theſe trees ſhould be planted is twenty-five or thirty feet aſunder, for leſs will not do if the trees thrive well. The ground between them may be cultivated for kitchen-garden herbs while the trees are young, but you ſhould not ſow or plant too near their roots.

In order to train your trees regularly, you ſhould drive ſtakes into the ground round the tree, to which the branches ſhould be faſtened down with liſt in a horizontal poſition; for if they are ſuffered to grow perpendicularly while young, they cannot be afterwards reduced without great violence to any tolerable figure. The neceſſary directions to be afterwards followed are, not to ſuffer any branches to croſs each other; and always in ſhortening any ſhoots be ſure to leave the uppermoſt eye outwards, whereby the hollowneſs in the middle of the tree will be better preſerved; and be careful to rub off all perpendicular ſhoots in the middle of the trees, as ſoon as they are produced. The other neceſſary rules you will find under the article of PRUNING.

The ſorts of Pears which do beſt in Dwarfs, are all ſummer and autumn fruits; for winter Pears are not worth planting in Dwarfs, they ſeldom bearing well, nor are ever well taſted, and commonly are very ſtony, becauſe they are commonly grafted on Quince ſtocks.

Apples are alſo planted in Dwarfs, moſt of which are now budded or grafted on Paradiſe ſtocks; but as theſe are for the moſt part of a ſhort duration, they are not profitable, and are fit only for ſmall gardens as a matter of curioſity, producing fruit ſooner, and in greater plenty, than when they are upon Crab or Apple ſtocks.

The diſtance theſe trees ſhould be planted, if on Paradiſe ſtocks, ſhould be ſix or eight feet, and upon Dutch ſtocks eighteen or twenty; but if on Crab ſtokcs, twenty-five or thirty feet aſunder each way. The management of theſe being the ſame with Pears, I need not repeat it.

Some perſons alſo plant Apricots and Plumbs for Dwarfs, but theſe ſeldom ſucceed well, as being of a tender conſtitution; and thoſe which will produce fruit on Dwarfs, are much more likely to do ſo when trained on an eſpalier, where they can be much better managed; and therefore I judge it much the better method, as being more certain, and the trees will make a better appearance.

E.

EARTH is the principal matter whereof our globe conſiſts; the character of which, according to Dr. Boerhaave, is, that it is a foſſil body, neither diſſoluble by fire, water, nor air; that it is inſipid and tranſparent; more fuſible than ſtone; ſtill friable, and containing uſually a ſhare of fatneſs.

There is no ſuch thing as a ſtrictly ſimple earth. Mr. Boyle ſays, that it doth not appear, that nature, any more than art, affords an elementary earth; at leaſt, ſome which appear of the ſimpleſt ſorts are found, upon examination, to have qualities not aſcribed to pure earth.

Of ſuch earths ſome are ſimple and immutable, as chalk, pumice, and rotten ſtone; others compound and fatty; of which kind are all boles, red, white, and brown; fullers earth, and divers kinds of medicinal earths, as the Cretica, Hungarica, Lemnian earth, and others.

Which earth are all reſolvable into oil, a little acid ſalt, &c. and a calx, which is the baſis, or the earth properly ſo called.

Sand is by naturaliſts generally ranked as a ſpecies of earth, though not very properly; in that ſands, ſtrictly ſpeaking, are a ſort of cryſtals, or little tranſparent pebbles, and are calcinable; and, by the addition of a fixed alkaline ſalt, fuſible and convertible into glaſs.

The fat earth is rendered fertile by the means of ſand, and becomes fit to feed and nouriſh vegetables, &c. for pure earth is liable to coaleſce into a hard coherent maſs, as in clay; and earth thus embodied, and as it were glued together, would be very unfit for the nouriſhment of plants.

But if hard ſand, i. e. cryſtals, which are indiſſoluble in water, and ſtill retain the ſame figure, be intermixed with ſuch earth, they will keep the pores of the earth open, and the earth itſelf looſe and incompact, and by that means give room for the juices to move, aſcend, &c. and for plants to be nouriſhed thereby.

Thus a vegetable, being planted either in the ſand alone, or in the fat glebe and earth alone, receives no growth or increment, but is either ſtarved or ſuffocated; but mix the two, and the maſs becomes fertile.

In effect, by means of ſand the earth is rendered, in ſome meaſure, organical; pores and interſtices being hereby maintained or preſerved, ſomething analogous to veſſels is effected, by which the juices of the earth may be conveyed, prepared, digeſted, circulated, and at length excerned and thrown off in the roots of plants.

The earth is made up of two parts; the firſt the containing part, i. e. the body, bed, or couch: the ſecond the part contained, and thoſe are the nitrous or ſulphureous particles, or prolific ſalts. The firſt is a lifeleſs inanimate maſs, and is only the receptacle of the other; for the earth, conſidered ſimply, and abſtracted from the before-mentioned nitrous and prolific ſalts, is a lifeleſs, dead, and inanimate maſs; but by the co-operation of water, ſun, and air, is put into motion, and promotes the work of vegetation: but if it were ſtript of thoſe prolific ſalts and ſpirituous particles, would produce no manner of plant, herb, &c. that ſhould be planted or ſown in it.

Theſe nitrous particles, or prolific ſalts, are of various and different qualities; and according as the earth is more or leſs ſtored with all or ſome of them, it is more or leſs productive; and according as it abounds with ſome of them more than others, differing from one another in contexture, it conſtitutes the different ſpecies or kinds of ſoils adapted to the propagation of different plants, the pores of whoſe roots are formed to receive, and whoſe nature is to attract, thoſe ſalts that are congenial to them.

Some diſtinguiſh earths into three claſſes, ſand, loam, and clay, as thoſe upon one or other of which all others do in ſome reſpects depend.

Gravel, and all the open ſoils, till the loam is come at, are of the ſandy kind.

Thoſe binding earths from the loam downwards, till the ſtiffneſs of chalk may be come at, may be reckoned of the clay kind.

All theſe ſorts of earth have a little tendency to vegetation, and have their ſalts proper for it, but in a different proportion; as a peck of clay may probably have double the quantity of ſalts in it that a peck of loam has, and a peck of loam may have ſix times the quantity of ſalts that a peck of ſand has.

Loam. Some call the ſuperficial earth that we meet with in England by this name, without having regard to what proportion of ſand and clay it contains: others again call that earth loam, that inclines more to clay than ſand. Some by loam mean that ſort of earth that equally partakes of ſand and clay, being a medium between ſand and clay, which they call mother earth; but the true definition of loam is, that ſort of earth which is fat and ſlippery, not of ſo cloſe a texture as clay, nor too looſe and ſandy, but of a middle nature between them, and is eaſily diſſolved by froſt, and gentle or eaſy to be wrought. This is one of the beſt ſoils for moſt eſculent plants and roots.

This mother earth, they ſay, may be in colour either black or yellow, and of which of theſe colours ſoever it be, plants of moſt ſorts will grow in it.

Sand and clay likewiſe produce certain plants, which are natural to each of them, and conſequently will thrive better in them than in any other ſoil.

But ſand is apt to precipitate thoſe plants that are ſet in it, earlier than clay, and will cauſe them to germinate near a month ſooner than thoſe that grow in clay, and that for this reaſon, becauſe the ſalts which are in ſand, are liable to be put in motion by the leaſt approach of the warmth of the ſun; but as ſand is quick in the operation, the ſalts are ſoon exhaled and ſpent.

Clay. The pores of clay are more cloſely compacted together, and do not ſo eaſily give out thoſe ſalts that are contained in it; nor can the fibres of every tender plant make their way through it in queſt of their proper nutriment.

But if the parts of the clay be opened, by digging and breaking it into ſmall particles, and thoſe parts be kept open by a mixture of ſome ſharp ſand, or ſome other body of the like quality, the effects of its vigour will plainly appear.

Some diſtinguiſh the ſeveral temperaments of the earth either into a light, ſandy, or looſe contexture, or into thoſe of a ſtiff, clayey, or cloſe one, either of which have their reſpective good qualities; and all of them, when they are in their extremes, require art to render them uſeful and beneficial in the production and growth of plants.

A light, ſandy, or looſe earth, requires a proper ligature, and ſhould have a compoſt of a heavier nature; and thoſe that are heavy, clayey, and cloddy, ſhould have a compoſt of a more fiery ſprightly nature, that will inſinuate itſelf into the heavy, lumpy, indigeſted clods, which would otherwiſe very much obſtruct the buſineſs of vegetation.

A good earth ſhould be of a blackiſh colour, fat, pliant, or eaſy to be digged; it ſhould be neither cold nor light; it ought to have no ill ſmell or taſte, and it ſhould be of the ſame quality three or four feet deep for trees, which, if they have not that depth, will languiſh and decay after they have been planted ſix years. But this depth is not required for fruit-trees, which will thrive very well if they have two feet and a half of good earth, and generally produce the moſt generous fruits, when their roots ſpread near the ſurface of the earth.

In order to know whether the earth has any ill ſmell or taſte, they direct to lay a handful of it to ſoak in water for ſeven or eight hours, and afterwards to ſtrain it, and taſte and ſmell it, by which the taſte or ſmell will eaſily be perceived.

EARWIGS.

Theſe are very troubleſome vermin in a garden, eſpecially where Carnations are preſerved; for they are ſo fond of theſe flowers, that if care is not taken to prevent them, they will entirely deſtroy them, by eating off the ſweet part at the bottom of the petals or leaves. To prevent which, moſt people have ſtands erected, which have a baſon of earth or lead round each ſupporter, which is conſtantly kept filled with water. See the article CARNATION.

Others hang the hollow claws of crabs and lobſters upon ſticks in divers parts of the garden, into which theſe vermin get; and by often ſearching them, you will deſtroy them without much trouble, which will be of great ſervice to your wall fruit, for theſe are great deſtroyers of all ſoft fruits.

EBENUS. Lin. Gen. Nov. Barba Jovis. Tourn. Inſt. R. H. tab. 419. Ebony.

The CHARACTERS are,

The empalement of the flower is of one leaf, which is divided into five acute ſegments at the top; the flower is of the butterfly kind; the vexillum is obtuſe and reflexed; the wings are equal in length with the vexillum; they are broad and roundiſh; the keel is ſhorter and turns upwards. It hath ten ſtamina, nine joined, ſtanding together, and the other ſeparate, terminated by ſingle ſummits. In the bottom is ſituated an oblong germen, ſupporting a riſing ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes an oblong ſwelling pod, opening with two valves, and incloſing three or four kidney-ſhaped ſeeds. This is diſtinguiſhed from Trifolium, by the bracteæ which are ſituated between the flowers on the ſpike.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, the flowers having ten ſtamina in two bodies.

We know but one SPECIES of this genus, viz.

EBENUS. Lin. Sp. Plant. 764. Ebony. Barba Jovis lagopoides, Cretica, fruteſcens, incana, flore ſpicato purpureo amplo. Breyn. Prod. 2. *Shrubby Haresfoot Jupiter's Beard of Crete with hoary leaves, and a large purple flower growing in ſpikes.*

This plant grows naturally in Crete, and in ſome of the iſlands of the Archipelago; it riſes with a ſhrubby ſtalk three or four feet high, which puts out ſeveral ſide branches, garniſhed with hoary leaves at each joint, which are compoſed of five narrow ſpear-ſhaped lobes, which join at their tails to the foot-ſtalk, and ſpread out like the fingers of a hand. The branches are terminated by thick ſpikes of large purple flowers, which are of the butterfly or Pea-bloom kind; the ſpikes are from two to three inches long, ſo make a fine appearance, eſpecially when the plants are ſtrong, and have many ſpikes of flowers on them. It flowers in June and July, and in very warm ſeaſons will ſometimes perfect their ſeeds in England.

This is propagated by ſeeds, which ſhould be ſown in the autumn, for thoſe which are ſown in the ſpring often fail; they muſt be ſown in pots, and placed under a frame in the winter, where they may be protected from froſt. In the ſpring the plants will come up, which ſhould be kept clean from weeds, and refreſhed now and then with water. When theſe have acquired ſtrength enough to be removed, they ſhould be each planted in a ſeparate ſmall pot filled with light earth, and plunged into a moderate hot-bed juſt to promote their taking new root; then they ſhould be gradually inured to bear the open air, into which they ſhould be removed the latter end of May, placing them in a ſheltered ſituation, where they may remain till autumn, when they muſt be removed into ſhelter; for theſe plants will not live in the open air through the winter, nor ſhould they be too tenderly treated, leſt they draw up weak. I have found them ſucceed beſt when placed in an airy glaſs-caſe without fire in winter, where they will have more ſun and air than in a green-houſe. During the winter ſeaſon, the plants muſt be ſparingly watered, but in the ſummer they will require to be often refreſhed. The other management is the ſame as for other of the hardier exotic plants, among which this will make a fine variety.

EBULUS. See SAMBUCUS.

ECHINATE SEEDS [of echinus, *Lat.* a hedge-hog,] ſuch ſeeds of plants as are prickly and rough.

ECHINOMELOCACTUS. See CACTUS.

ECHINOPHORA. Lin. Gen. Plant. 292. Tourn. Inſt. R. H. 656. tab. 423. [of Ἐχῖνος, a hedge-hog, and φέρω, *Gr.* to bear.] Prickly Parſnep.

The CHARACTERS are,

It hath an umbellated flower; the general umbel is compoſed of many ſmaller, the intermediate being the ſhorteſt; the involucrum of the general umbel ends in acute thorns; thoſe of the rays are turbinated, of one leaf, cut into ſix unequal parts, with acute points; the perianthium is divided into five parts, and ſits on the germen; the general umbel is uniform; the flowers have five unequal petals which ſpread open; they have each five ſtamina, terminated by roundiſh ſummits. Under the perianthium is ſituated an oblong germen within the empalement, ſupporting two ſtyles, crowned by ſingle ſtigmas; the germen afterward turns to two ſeeds, which are incloſed in the hard empalement.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, the flower having five ſtamina and two ſtyles.

The SPECIES are,

1. ECHINOPHORA (*Spinoſa*) foliolis ſubulato-ſpinoſis integerrimis. Lin. Sp. Plant. 344. *Prickly-headed Parſnep, with awl-ſhaped prickly leaves which are entire.* Echinophora maritima ſpinoſa. Tourn. Inſt. 656. *Prickly maritime Parſnep.*
2. ECHINOPHORA (*Tenuifolia*) foliolis inciſis inermibus. Lin. Sp. Plant. 344. *Prickly-headed Parſnep, whoſe ſmall leaves are cut, but have no thorns.* Echinophora paſtinacæ folio. Tourn. Inſt. 656. *Prickly-headed Parſnep with a Carrot leaf.*

Theſe plants grow naturally on the borders of the Mediterranean ſea; they are preſerved in the gardens of botany for the ſake of variety; they have both perennial roots, which creep in the ground; the firſt hath branching ſtalks, growing five or ſix inches high, which are garniſhed with ſhort thick leaves, that terminate in two or three ſharp thorns; they are placed by pairs oppoſite: the flowers grow in an umbel, ſitting upon a naked foot-ſtalk, which ariſes from the ſide of the ſtalk; they are white, and under the umbel is ſituated an involucrum, compoſed of ſeveral leaves, which terminate in ſharp ſpines. It flowers in June, but ſeldom ripens ſeeds in this country.

The ſecond ſort riſes near a foot and a half high; from the principal ſtalk are ſent out two ſide branches at every joint, which are placed oppoſite; the lower part is garniſhed with leaves, which are finely divided like thoſe of the Carrot; the flowers grow in ſmall umbels at the extremity of the branches, having a ſhort prickly involucrum. This flowers in July, but doth not ripen ſeeds in England.

Theſe plants are propagated by their creeping roots in England, as they do not produce ſeeds here: the beſt time to tranſplant them is the beginning of March, a little before they ſhoot. The roots ſhould be planted in a gravelly or ſandy ſoil, and in a warm ſituation, or otherwiſe they ſhould be covered in the winter to prevent the froſt from deſtroying them,

ECHINOPS. Lin. Gen. Plant. 829. Echinopus. Tourn. Inſt. R. H. tab. 463. Globe Thiſtle.

The CHARACTERS are,

It hath a permanent perianthium, which is oblong, angular, and imbricated; the flower hath one funnel-ſhaped petal, which is divided at the top into five parts, which ſpread open and are reflexed. It hath five ſhort hairy ſtamina, terminated by cylindrical ſummits. In the bottom of the tube is ſituated an oblong germen, ſupporting a ſlender ſtyle the length of the tube, crowned by two oblong depreſſed ſtigmas which turn back; the germen afterward becomes an oblong oval ſeed narrowed at the baſe, but obtuſe and hairy at the top.

This genus of plants is ranged in the firſt ſection of Linnæus's ſeventeenth claſs, intitled Syngeneſia Polygamia Æqualis. This ſection includes thoſe plants which have only hermaphrodite fruitful florets.

The SPECIES are,

1. ECHINOPS (*Sphærocephalus*) capitulis globoſis pubeſcentibus. Lin. Sp. Plant. 1314. *Globe Thiſtle with globular heads and hairy leaves.* Echinopus major. J. B. 3. p. 69. *Greater Globe Thiſtle.*
2. ECHINOPS (*Ritro*) capitulo globoſo, foliis ſupra glabris. Lin. Sp. Plant. 1314. *Globe Thiſtle with a globular head, and the upper ſide of the leaves ſmooth.* Echinopus minor. J. B. 3. 72. *Smaller Globe Thiſtle.*
3. ECHINOPS (*Strigoſus*) capitulis faſciculatis calycibus, lateralibus ſterilibus, foliis ſuprà ſtrigoſis. Lin. Sp. Plant. 1315. *Globe Thiſtle with bundled heads, whoſe ſide empalements are barren, and wing-pointed leaves.* Echinopus minor annuus, magno capite. Tourn. Inſt. 463. *Smaller annual Globe Thiſtle with a large head.*
4. ECHINOPS (*Græcus*) caule unicapitato, foliis ſpinoſis, omnibus pinnatifidis villoſis, radice reptartice. *Globe Thiſtle with one head on each ſtalk, prickly leaves, which are all wing-pointed and woolly, and a creeping root.* Echinopus Græcus, tenuiſſime diviſus & lanuginoſus, capite minori cæruleo. Tourn. Cor. 34. *Greek Globe Thiſtle whoſe leaves are divided into narrow ſegments and are woolly, with a ſmaller blue head.*

The firſt is the common Globe Thiſtle, which has been long cultivated in ſome gardens for the ſake of variety; this grows naturally in Italy and Spain; it hath a perennial root, from which ariſe many ſtalks that grow to the height of four or five feet; theſe are garniſhed with long jagged leaves, which are divided into many ſegments almoſt to the midrib, the jags ending in ſpines; they are of a dark green on their upper ſide, but woolly on their under; the flowers are collected in globular heads, ſeveral of theſe grow upon each ſtalk; the common hath blue flowers, but there is a variety of it with white. It flowers in July, and the ſeeds ripen in Auguſt.

This plant is eaſily propagated by ſeeds, which, if permitted to ſcatter, the plants will come up in plenty, ſo a few of them may be tranſplanted to the places where they are deſigned to remain to flower; they require no other culture but to keep them clean from weeds: the ſecond year they will flower and produce ſeeds, and the roots will continue two or three years after; but if the ſeeds ſcatter, the plants will become troubleſome weeds; to prevent which, the heads ſhould be cut off as ſoon as the ſeeds are ripe.

The ſecond ſort grows in the ſouth of France and in Italy; this hath a perennial creeping root, which ſends up ſeveral ſtrong ſtalks that riſe two feet high, garniſhed with leaves, which are cut into many fine ſegments to the midrib, which are ſet with prickles, and are white on their under ſide: the ſtalks branch out toward the top; each of theſe branches is terminated by a globular head of flowers, which are ſmaller than thoſe of the firſt, and of a deeper blue; there is alſo a variety of this with white flowers. This flowers about the ſame time as the firſt, and is propagated in the ſame way. Theſe will both grow in almoſt any ſoil or ſituation.

The third ſort grows naturally in Spain and Portugal: this is an annual plant, which riſes with a ſtiff white ſtalk two feet high, garniſhed with divided leaves, ending in many points which have ſpines; their upper ſide is green, and covered with brown hairs, their under ſide white and woolly; the ſtalk is terminated by one large head of pale blue flowers. Theſe appear in July, and if the ſeaſon proves warm and dry, the ſeeds will ripen in autumn, but in wet cold years they rarely ripen here.

Theſe ſeeds ſhould be ſown in the ſpring, upon a border of light earth, where the plants are to remain; and they require no other management, but to thin them where they are too cloſe.

The fourth ſort grows naturally in Greece, from whence Dr. Tournefort ſent the ſeeds to the royal garden at Paris: this hath a perennial creeping root, by which it multiplies faſt enough; the ſtalks riſe about a foot high, and are cloſely garniſhed with leaves which are ſhorter and much finer divided than either of the former ſorts; theſe are hoary, and armed on every ſide with ſharp thorns; the ſtalks are terminated by one middle-ſized globular head of flowers, which in ſome are blue, and in others white. They appear the latter end of June, and in warm ſeaſons the ſeeds will ripen well in England. This is eaſily propagated by its creeping roots, or from ſeeds; it loves a dry ſoil and a warm ſituation.

ECHINUS, *Lat.* is the prickly head or cover of the ſeed or top of any plant, ſo called from its likeneſs to a hedgehog.

ECHIUM. Lin. Gen. Plant. 157. Tourn. Inſt. R. H. 135. tab. 54. [of Ἔχις, *Gr.* a viper, becauſe the ripe ſeed of this plant reſembles the head of a viper. It is called Herba Viperaria, becauſe the ancients believed that this plant killed vipers.] Viper's Bugloſs; in French, *Viperine.*

The CHARACTERS are,

The flower hath a permanent empalement, divided into five ſegments. It hath one petal with a ſhort tube, having an erect broad brim, cut into five parts, and is obtuſe; the two upper being longer than the lower, which are acute and reflexed. It hath five awl-ſhaped ſtamina, terminated by oblong proſtrate ſummits. In the bottom are ſituated four germen with one ſlender ſtyle, crowned by an obtuſe bifid ſtigma; the germen afterward become ſo many roundiſh pointed ſeeds, incloſed in the rough empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The SPECIES are,

1. ECHIUM (*Anglicum*) caule ſimplici erecto, foliis lanceolatis, floribus ſpicatis lateralibus, ſtaminibus corolla æquantibus. *Viper's Bugloſs with a ſingle erect ſtalk, having rough ſpear-ſhaped leaves, and flowers in ſpikes proceeding from the ſide, with the ſtamina equalling the petal.* Echium vulgare C. B. P. 254. *Common Viper's Bugloſs.*
2. ECHIUM (*Vulgare*) caule ſimplici erecto, foliis caulinis lanceolatis hiſpidis, floribus ſpicatis lateralibus ſtaminibus corollâ longioribus. *Viper's Bugloſs with a ſingle erect ſtalk, having rough narrow ſpear-ſhaped leaves, flowers growing in ſhort ſpikes on the ſides, and ſtamina longer than the petal.* Lycopſis Anglica. Lob. *Engliſh Lycopſis.*
3. ECHIUM (*Italicum*) corollis vix calycem excedentibus, margine villoſis. Hort. Upſal. 35. *Viper's Bugloſs, whoſe petals ſcarce exceed the empalement, having hairy borders.* Echium majus & aſperius, flore albo. C. B. P. 255. *Great rough Viper's Bugloſs with a white flower.*

4. Echium (*Luſitanicum*) corollis ſtamine longioribus. Lin. Sp. 200. *Viper's Bugloſs with the petal of the flower longer than the ſtamina.* Echium ampliſſimo folio, Luſitanicum. Tourn. *Portugal Viper's Bugloſs with a large leaf.*
5. Echium (*Creticum*) calycibus fructeſcentibus diſtantibus, caule procumbente. Lin. Hort. Upſal. 35. *Viper's Bugloſs with fruitful empalements growing at a diſtance, and a trailing ſtalk.* Echium Creticum latifolium rubrum. C. B. P. 254. *Broad-leaved Viper's Bugloſs of Candia, having a red flower.*
6. Echium (*Anguſtifolium*) caule ramoſo, aſpero, foliis calloſo-verrucoſis, ſtaminibus corollâ longioribus. *Viper's Bugloſs with a rough branching ſtalk, warted leaves, and ſtamina longer than the petal.* Echium Creticum anguſtifolium rubrum. C. B. P. 254. *Narrow-leaved Viper's Bugloſs of Candia, having a red flower.*
7. Echium (*Fruticoſum*) caule fruticoſo. Hort. Cliff. 43. *Viper's Bugloſs with a ſhrubby ſtalk.* This is the Echium Africanum fruticans, foliis piloſis. Hort. Amſt. 2. p. 107. *Shrubby African Viper's Bugloſs, having hairy leaves.*

The firſt ſort grows naturally in Germany and Auſtria, from whence I received the ſeeds. This and our common Viper's Bugloſs, which is the ſecond, have been confounded by moſt of the writers on botany, who have ſuppoſed they were the ſame plant, whereas they are very different; for the leaves of this are ſhorter, and much broader than thoſe of the ſecond; the ſpikes of flowers are much longer, and the ſtamina of the flowers are in this equal in length with the petal; whereas thoſe of the ſecond ſtand out much beyond the petal, which is an eſſential difference.

The ſecond ſort grows naturally upon chalky lands in moſt parts of England: this is what Lobel titles Lycopſis Anglica, and has been generally taken for the common Echium.

The third ſort grows naturally in the ſouth of France, in Italy, and the iſle of Jerſey; this riſes with an upright hairy ſtalk; the flowers are produced in ſhort ſpikes on the ſide of the branches; they are ſmall, and ſcarce appear above the empalements; ſome plants have white flowers, and others are purpliſh; the empalements of the flowers are very hairy, and cut into acute ſegments.

The fourth ſort grows naturally in Portugal and Spain; the lower leaves of this are more than a foot long, and two inches broad in the middle, gradually leſſening to both ends; theſe are covered with ſoft hairs. The ſtalks grow two feet high; the flowers are in ſhort ſpikes coming from the ſide of the ſtalks; the petals of theſe are longer than the ſtamina.

The fifth ſort grows naturally in Crete; this hath trailing hairy ſtalks, which grow about a foot long, and put out ſeveral ſide branches, garniſhed with hairy ſpear-ſhaped leaves about three inches long, and three quarters of an inch broad, ſitting cloſe to the ſtalks. The flowers come out on ſlender ſpikes upon long foot-ſtalks, which come from the wings of the leaves; they are large, of a reddiſh purple colour, which turns to a fine blue when they are dried; theſe ſtand at a diſtance from each other on the ſpike. It is an annual plant, which flowers in July and decays in autumn.

The ſixth ſort hath branching ſtalks which grow a foot and a half long, declining toward the ground; they are covered with ſtinging hairs; the leaves are four inches long, and not more than half an inch broad; theſe are pretty much warted, and are hairy. The flowers grow in looſe ſpikes from the ſide of the ſtalks, and alſo at the end of the branches; they are of a reddiſh purple colour, but not ſo large as thoſe of the former ſort, and the ſtamina of theſe are longer than the petal. This is alſo an annual plant, which grows naturally in Crete.

Theſe are moſt of them biennial plants, except the fifth and ſixth ſorts, which are annual, and are the moſt beautiful of all the kinds: the ſeeds of theſe muſt be ſown every year, in the places where they are deſigned to remain; and the plants require no other culture but to keep them clean from weeds, and thin them where they grow too cloſe. In July they flower, and their ſeeds ripen in five or ſix weeks after. The ſeeds of the other ſorts being ſown in the ſpring, will the ſecond ſummer after produce flowers and ſeeds, after which they ſeldom continue. They all delight in a rubbiſhy gravelly ſoil, and will grow upon the tops of old walls or buildings; where, when once they have eſtabliſhed themſelves, they will drop their ſeeds, and thereby maintain a ſucceſſion of plants without any care, and on theſe places they appear very beautiful.

The ſeventh ſort grows naturally at the Cape of Good Hope, from whence the ſeeds were brought to Holland, where the plants are now preſerved in ſome curious gardens. This riſes with a ſhrubby ſtalk two or three feet high, dividing upward into ſeveral branches, garniſhed with oval leaves placed alternate, whoſe baſe ſits cloſe to the ſtalk; they are hairy, and of a light green colour. The flowers are produced ſingly between the leaves at the end of the branches; they are of a purple colour, and in ſhape much like thoſe of the fifth ſort. Theſe appear in May and June, but the ſeeds do not ripen in England.

It is propagated by ſeeds, when they can be obtained, which ſhould be ſown in pots filled with light ſandy earth ſoon after they are received. Theſe may be expoſed to the open air till the beginning of October, when the pots ſhould be placed under a frame, to guard them from froſt; but in mild weather, they ſhould be opened to have the free air, to prevent the ſeeds from vegetating till the winter is paſt; for if the plants come up at that ſeaſon, their ſtems will be weak and full of juice, and very liable to rot with damps; therefore it is much better if the plants do not come up till toward March, which is the uſual time of their appearing, when the ſeeds are not forced by warmth. When the plants are fit to remove, they ſhould be each planted into a ſmall pot filled with light earth, and placed under a frame to forward their putting out new roots; then they ſhould be gradually inured to bear the open air, and the latter end of May be placed abroad in a ſheltered ſituation, where they may remain till the beginning of October; at which time they muſt be removed into an airy glaſs-caſe, where they may enjoy the ſun and have free air in mild weather. During the winter ſeaſon theſe plants muſt be ſparingly watered; for as their ſtems are ſucculent, ſo much moiſture will cauſe them to rot. In the ſummer they ſhould be ſet abroad in a ſheltered ſituation, and treated in the ſame manner as other plants from the ſame country.

EDERA QUINQUEFOLIA. See Vitis.

EDGINGS. The beſt and moſt durable plant for edgings in a garden is Box; which, if well planted, and rightly managed, will continue in beauty ſeveral years: the beſt ſeaſon for planting this, is either in the autumn, or very early in the ſpring; for if you plant it late, and the ſeaſon ſhould prove hot and dry, it will be very ſubject to miſcarry, unleſs great care be taken to ſupply it with water. The beſt ſort for this purpoſe is the dwarf Dutch Box.

Theſe edgings are only planted upon the ſides of borders next walks, and not (as the faſhion was ſome years ago) to plant the edgings of flower-beds, or the edges of fruit-borders in the middle of gardens, unleſs they have a gravel-walk between them; which renders it proper to preſerve the walks clean, by keeping the earth of the borders from waſhing down into the walks in hard rains.

It was alſo the practice formerly to plant edgings of divers ſorts of aromatic herbs, as Thyme, Savory, Hyſſop, Lavender, Rue, &c. But as theſe very ſoon grow woody, ſo that they cannot be kept in due compaſs, and in hard winters they are often killed in patches, whereby the edgings are rendered incomplete, they are now ſeldom uſed for this purpoſe.

Some people make edgings of Daiſies, Thrift, Catchfly, and other flowering plants; but theſe alſo require

quire to be tranſplanted every year, in order to have them handſome; for they ſoon grow out of form, and are ſubject alſo to decay in patches; ſo that there is not any plant which ſo completely anſwers the deſign as Dwarf Box, which muſt be preferred to all others for this purpoſe.

EFFLORESCENCE, *Lat.* the blowing out of a flower.

To **EGERMINATE**, *Lat.* to bud or ſpring out.

EHRETIA. Trew. tab. 24.

The Characters are,

It hath a ſmall, permanent, bell-ſhaped empalement of one leaf, cut into five points; the flower hath one petal, whoſe tube is longer than the empalement, cut into five ſegments; it hath five awl-ſhaped ſpreading ſtamina the length of the corolla, terminated by roundiſh incumbent ſummits, and a roundiſh germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an obtuſe indented ſtigma; the germen afterward becomes a round berry with one cell, incloſing four angular ſeeds.

This genus of plants is ranged in the firſt order of Linnæus's fifth claſs; intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Ehretia (*Tinifolia*) foliis oblongo-ovatis integerrimis glabris, floribus paniculatis. Amœn. Acad. 5. p. 395. *Ehretia with oblong, oval, entire, ſmooth leaves, and flowers growing in panicles.*
2. Ehretia (*Bourreria*) foliis ovatis integerrimis lævibus, floribus ſubcorymboſis, calycibus glabris. Lin. Sp. 275. *Ehretia with oval entire leaves, flowers growing in a ſort of corymbus, and ſmooth empalements.* Bourreria fructibus ſucculentis. Jacq. Amer.

The ſeeds of the firſt ſort were ſent me from Jamaica in the year 1734, which ſucceeded in the Chelſea garden, where the plants have grown to the height of eight or nine feet, with ſtrong woody ſtems, and have ſeveral times produced their flowers, but have not perfected their ſeeds as yet in England. This is by Dr. Linnæus ſuppoſed to be the ſame plant mentioned by Sir Hans Sloane, under the title of Ceraſo affinis arbor baccifera racemoſa, flore albo pentapetalo, fructu flavo monopyreno eduli dulce. Hiſt. Jam. 2. p. 94. But I differ in my opinion from him, for the leaves of our plant are ſmoother, longer, and more pointed, and the corymbus of flowers is much longer than in Sir Hans's plant.

This hath a rough woody ſtalk, which divides into ſeveral irregular branches, garniſhed with oblong, oval, ſmooth leaves, nine inches long, three broad in the middle, ending in acute points; the flowers are white, and produced in an oblong corymbus toward the end of the branches; they have one petal in each, which is cut at the top into five ſegments which are reflexed. Theſe appear toward the end of July, but fall away without being ſucceeded by ſeeds.

The ſeeds of the ſecond ſort I received from Surinam, which ſucceeded in the Chelſea garden. This hath a woody upright ſtem, covered with a brown bark, ſending out branches regularly toward the top, garniſhed with ſmooth oval leaves placed alternate, having ſhort foot-ſtalks; the leaves are ſix inches long, and more than two broad, ending with blunt oval points. As this ſort hath not produced flowers here, ſo I can give no farther account of them. This Doctor Linnæus ſuppoſes to be the ſame with a plant figured by Mr. Cateſby, under the title of Pittonia ſimilis laureolæ foliis, floribus albis, baccis rubris. But in this he is alſo miſtaken, for there are plants in the Chelſea garden, which were raiſed from ſeeds ſent from the Bahama Iſlands, which are very different from the former.

Theſe plants are too tender to thrive abroad in England, where they require a moderate warm ſtove in winter; but when the plants have acquired ſtrength, they may be placed in the open air during the heat of ſummer; but it ſhould be in a ſheltered ſituation, and when the evenings grow cold in the autumn, they muſt be removed into ſhelter.

They are both propagated by ſeeds when they can be obtained, which ſhould be ſown in ſmall pots plunged into a hot-bed; they may alſo be propagated by laying down their branches, but theſe are long before they put out roots.

ELÆAGNUS. Lin. Gen. Plant. 148. Tourn. Cor. 53. tab. 489. [from 'Ελαία, an Olive, and 'Αγνὸς Vitex; becauſe this plant hath leaves like thoſe of the Chaſte-tree, and a fruit like an Olive.] Oleaſter, or wild Olive.

The Characters are,

The flower hath a bell-ſhaped empalement of one leaf, which is quadrifid, rough on the outſide, but coloured within. It hath no petals, but four ſhort ſtamina which are inſerted in the diviſions of the empalement, and are terminated by oblong proſtrate ſummits. At the bottom is ſituated a roundiſh germen ſupporting a ſingle ſtyle, crowned by a ſingle ſtigma; the germen afterward becomes an obtuſe oval fruit, with a puncture at the top, incloſing one obtuſe nut.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, from the flower having four ſtamina and one ſtyle.

The Species are,

1. Elæagnus (*Spinoſus*) aculeatus, foliis lanceolatis. *Prickly wild Olive with ſpear-ſhaped leaves.* Elæagnus Orientalis latifolius, fructu maximo. Tourn. Cor. App. 52. *Eaſtern broad-leaved wild Olive with a large fruit.*
2. Elæagnus (*Inermis*) inermis, foliis lineari-lanceolatis. *Wild Olive without thorns, and narrow ſpear-ſhaped leaves.* Elæagnus Orientalis anguſtifolius, fructu parvo olivæformi ſubdulci. Tourn. Cor. App. 52. *Eaſtern wild Olive with narrow leaves, and a ſmall, ſweet, Olive-ſhaped fruit.*
3. Elæagnus (*Latifolia*) foliis ovatis. Prod. Leyd. 250. *Wild Olive with oval leaves.* Elæagnus foliis rotundis maculatis. Burm. Pl. Zeyl. 92. *Wild Olive with round ſpotted leaves.*

The firſt and ſecond ſorts Dr. Tournefort found growing naturally in the Levant, and the firſt I take to be the common ſort, which grows naturally in Bohemia, of which I ſaw ſome trees growing in the curious garden of the late Dr. Boerhaave, near Leyden, in Holland. The leaves of this ſort are not more than two inches long, and about three quarters of an inch broad in the middle; they are white, and have a ſoft cottonny down on their ſurface; at the foot-ſtalk of every leaf, there comes out a pretty long ſharp thorn; as the leaves are placed alternate on the branches, ſo the ſpines come out on each ſide the branches; juſt below the foot-ſtalks of the leaves, they are alternately longer: the flowers are ſmall, the inſide of the empalement is yellow, and they have a ſtrong ſcent when fully open.

The ſecond ſort hath no thorns on the branches, the leaves are more than four inches long, and not half an inch broad; they are very ſoft, and have a ſhining appearance like ſattin. The flowers come out at the foot-ſtalks of the leaves, ſometimes ſingly, at other times two, and frequently three at the ſame place; the outſide of the empalement is ſilvery and ſtudded, the inſide of a pale yellow, having a very ſtrong ſcent. This flowers in July, and ſometimes the flowers are ſucceeded by fruit. This is the ſort which is moſt commonly preſerved in the Engliſh gardens.

Theſe plants may be propagated by laying down the young ſhoots in autumn, which will take root in one year, when they may be cut off from the old trees, and either tranſplanted into a nurſery for two or three years to be trained up, or into the places where they are to remain. The beſt ſeaſon for tranſplanting of theſe trees is in the latter end of February, or the beginning of March; though they may be removed at Michaelmas, provided the roots are mulched, to protect them from ſevere froſt in winter. Theſe plants ſhould be placed where they may be ſcreened from ſtrong winds, for they grow very freely, and are very ſubject to be ſplit down by the wind, if they are too much expoſed.

Theſe trees commonly grow to twelve or fourteen feet high, and when they are intermixed with other trees of the ſame growth, make a pretty diverſity; for their leaves being of a ſilver colour, are eaſily diſtinguiſhed at a diſtance.

The third ſort grows naturally at Ceylon, and in ſome other parts of India. This is pretty rare at preſent in the Engliſh gardens, but ſome years paſt there were ſeveral pretty large plants of it growing in the garden at Hampton Court. This riſes with a woody ſtem to the height of eight or nine feet, dividing into many branches, garniſhed with oval ſilvery leaves, which have ſeveral irregular ſpots of a dark colour on their ſurface; they are placed alternately on the branches, and continue all the year. The flowers I have not ſeen, though ſome of the trees at Hampton Court produced flowers, but I was not ſo lucky as to ſee them.

This ſort requires a warm ſtove to preſerve it in this country, for it is too tender to live in the open air, excepting for a ſhort time in the warmeſt part of ſummer.

The two firſt ſorts are extremely hardy, ſo are not injured by the froſt, but the trees are not of very long duration, therefore young plants ſhould be raiſed once in three or four years, to preſerve the kinds.

ELATERIUM. See MOMORDICA.

ELATINE. See LINARIA.

ELECAMPANE. See INULA.

ELEPHANTOPUS. Lin. Gen. Plant. 827. Vaill. Act. Par. 1719. Dill. Hort. Elth. 104. [of 'Ελέφας, an elephant, and Πȣ͂ς, a foot,] Elephant's foot; ſo called by Monſieur Vaillant, becauſe he ſays the under leaves of the firſt ſort ſomewhat reſemble an Elephant's foot.

The CHARACTERS are,

There are many flowers collected together in one common large involucrum which is permanent, and each empalement contains four or five florets; the florets are tubulous and hermaphrodite; they have one petal which is tongue-ſhaped; the brim is narrow, and divided into five equal parts; they have five very ſhort hairy ſtamina, terminated by cylindrical ſummits. In the bottom is ſituated an oval germen, ſupporting a ſlender ſtyle, crowned by two ſlender ſtigmas; the germen afterward becomes a ſingle compreſſed ſeed crowned with briſtles, ſitting on a placenta incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's ſeventeenth claſs, which includes the plants with floſculous flowers, whoſe florets are all hermaphrodite and fruitful.

The SPECIES are,

1. ELEPHANTOPUS (*Scaber*) foliis oblongis ſcabris. Hort. Cliff. 390. *Elephantopus with oblong rough leaves.* Elephantopus conyzæ folio. Vaill. Mem. Acad. Scien. 1719. *Elephant's foot with a Flea-bane leaf.*
2. ELEPHANTOPUS (*Tomentoſus*) foliis ovatis tomentoſis. Gron. Virg. 90. *Elephantopus with oval woolly leaves.* Elephantopus helenii folio, purpuraſcente flore. Houſt. MSS. *Elephantopus with an Elecampane leaf, and a purpliſh flower.*

The firſt ſort grows naturally in both the Indies, I have received it from ſeveral parts of America; this ſends out many oblong rough leaves, which ſpread near the ground; between theſe in the ſpring ariſes a branching ſtalk, little more than a foot high. The ſide branches are ſhort, and are generally terminated by two heads of flowers, each ſtanding upon a ſhort foot-ſtalk. The heads contain ſeveral hermaphrodite florets, included in a common involucrum, compoſed of four oval leaves, ending in acute points. The florets are of a pale purple colour. They appear in July, but are rarely ſucceeded by ſeeds in England.

The ſecond ſort grows naturally in South Carolina; the plants of this have frequently come up in the earth, which has been ſent over from thence with other plants as weeds; this hath ſeveral oval woolly leaves, four inches long, and three inches broad, growing from the root, having many tranſverſe nerves, running from the midrib to the ſides; they ſpread flat on the ground, and between theſe ariſe a ſtiff ſtalk, about a foot high, which divides into ſeveral branches, each being terminated by two flowers, which are compoſed of ſeveral florets, incloſed in a four-leaved involucrum; two of theſe leaves are alternately larger than the other. The involucrum is longer than the florets, ſo they do but juſt appear within the two larger leaves; the flowers make no appearance. They appear in July, but the ſeeds never ripen in this country.

The firſt ſort hath a perennial root, but an annual ſtalk. If this is planted in pots, and ſheltered in the winter from froſt, it may be preſerved ſeveral years, and the plants will annually flower; but the ſecond ſort ſeldom continues longer than two years.

Theſe plants are propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring; and when the plants are come up, they muſt be tranſplanted into pots filled with freſh light earth, and plunged into a hot-bed of tanners bark, obſerving to water and ſhade them until they have taken root; then you ſhould let them have a large ſhare of freſh air in warm weather, and they will require to be frequently refreſhed with water.

ELEPHAS. See RHINANTHUS.

ELICHRYSUM. See GNAPHALIUM.

ELM. See ULMUS.

ELLISIA.

The CHARACTERS are,

The flower has a permanent empalement, compoſed of five ſmall, erect, ſpreading leaves; it is of one petal, funnel-ſhaped the length of the cup, cut into five obtuſe ſegments at top; it hath five ſtamina the length of the tube, terminated by roundiſh ſummits, and a round germen ſupporting a ſhort ſlender ſtyle, crowned by an oblong bifid ſtigma; the germen afterward becomes a roundiſh fleſhy berry with two cells, incloſing two rough ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fiſth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

We know but one SPECIES of this genus, viz.

ELLISIA (*Nyctelea.*) Lin. Sp. 1662. *Tea-leaved Elliſia*

This plant grows naturally in Jamaica, where it forms a buſhy ſhrub about ſix or ſeven feet high. I have raiſed many of the plants from ſeeds, ſome of which are now four or five feet high, but have not as yet produced flowers. It ſends out many branches from the ſtem, ſo as to form a thick buſh; the branches are generally covered with a dark purple bark; the leaves alſo when the plants are expoſed in ſummer turn of the ſame colour, but after they have been ſome time removed into the ſtove, they recover their verdure again. The leaves are placed oppoſite on the branches, which are an inch and a half long, ſpear-ſhaped and indented on their edges, and have commonly two or three ſmall leaves ſitting cloſe to the branches; at the foot-ſtalks of the larger leaves, and at the ſame place, ariſes pretty long black ſpines, generally placed oppoſite toward the lower part of the branches, but upward they are alternate, and the ends of the branches are without thorns. As the plants have not as yet produced flowers in England, ſo I can give no farther account of them.

This plant may be propagated by cuttings, which if planted in ſmall pots filled with light earth, and plunged into a moderate hot-bed, covering them cloſe with a hand-glaſs any time in July, will put out roots in about two months, ſo may then be ſeparated and put into ſmall pots, plunging them again into the hot-bed to promote their taking new root, after which they ſhould be gradually inured to the open air; but the beginning of October they ſhould be removed into the dry ſtove, where, during the winter, they ſhould have a moderate warm air, in which they will thrive better than in a great heat.

When ſeeds of this plant can be procured from abroad, if they are ſown on a hot-bed the plants will riſe eaſily, and may be afterward treated in the ſame way as is directed for thoſe raiſed by cuttings.

EMERUS. Tourn. Inſt. R. H. 650. Coronilla. Lin. Gen. Plant. 789. [this name was given it by Theophraſtus, and reſtored by Cæſalpinus.] Scorpion Sena.

The Characters are,

The flower hath a very ſhort empalement of one leaf, divided into five parts which is permanent. The flower is of the butterfly kind. The tails of the petals are much longer than the empalement. The ſtandard is narrow, and ſhorter than the wings, over which it is arched. The wings are large and concave. The keel is heart-ſhaped and reflexed. There are ten ſtamina in each, one of which ſtands ſeparate, the other nine are joined; theſe are ſituated in the ſtandard. In the empalement is ſituated an oblong ſlender germen, ſupporting a ſlender ſtyle, crowned by a taper ſtigma. The germen afterward becomes a taper cylindrical pod, ſwelling in thoſe parts where the ſeeds are lodged, which are alſo cylindrical.

This genus of plants is ranged in the third ſection of Tournefort's twenty-ſecond claſs, which includes the trees and ſhrubs with a butterfly flower, whoſe leaves are placed by pairs along the midrib. Dr. Linnæus has joined this genus, and alſo the Securidacca of Tournefort to the Coronilla; but hereby the number of ſpecies are increaſed, and therefore it is much better to keep them ſeparate, as there are more eſſential differences between them, than in ſome of the other genera of this claſs which he has ſeparated.

The Species are,

1. Emerus (*Major*) caule fruticoſo, pedunculis longioribus caule angulato. *Scorpion Sena with a ſhrubby ſtalk, longer foot-ſtalks to the flowers, and angular ſtalks.* Emerus. Cæſalp. *Scorpion Sena, vulgò.*
2. Emerus (*Minor*) foliolis obcordatis, pedunculis brevioribus, caule fruticoſo. *Scorpion Sena with long heart-ſhaped leaves, ſhorter foot-ſtalks to the flowers, and a ſhrubby ſtalk.* Emerus minor. Tourn. Inſt. R. H. 650. *Leſſer Scorpion Sena.*
3. Emerus (*Herbacea*) caule erecto, herbaceo, foliolis multijugatis, floribus ſingularibus alaribus, ſiliquis longiſſimis erectis. *Scorpion Sena with an erect herbaceous ſtalk, the leaves compoſed of many pair of lobes, ſingle flowers proceeding from the ſides of the ſtalks, and very long erect pods.* Emerus ſiliquis longiſſimis & anguſtiſſimis. Plum. Cat. 19. *Emerus with very long and narrow pods.*

The firſt of theſe ſhrubs is very common in all the nurſeries near London; this riſes with weak ſhrubby ſtalks to the height of eight or nine feet, dividing into many ſlender branches, garniſhed with winged leaves, compoſed of three pair of lobes (or ſmall leaves) terminated by an odd one. The flowers come out upon long foot-ſtalks from the ſide of the branches, two or three of theſe foot-ſtalks ariſing from the ſame point; each of theſe ſuſtains two, three, or four yellow butterfly flowers; theſe appear in May, and are frequently ſucceeded by long ſlender pods, which are taper, ſwelling in thoſe parts where the ſeeds are lodged, and hang downward; theſe ſhrubs continue long in flower, eſpecially in cool ſeaſons, and frequently flower again in autumn, which renders them valuable.

The ſecond ſort riſes with many ſhrubby ſtalks like the firſt, but not more than half the height; this hath larger leaves, which are of an oblong heart-ſhape. The flowers are rather larger than thoſe of the firſt, and ſtand upon ſhorter foot-ſtalks; theſe differences hold in the plants which are raiſed from ſeeds, therefore I think they may be allowed to ſtand as diſtinct ſpecies, though there is a great likeneſs at firſt ſight in them.

The leaves of theſe ſhrubs, when fermented in a vat, in the ſame manner as is practiſed with the Indigo plants, will afford a dye, very near to that of Indigo; but whether it will anſwer the ſame purpoſes is not yet certain, or whether it may be worth cultivating for that purpoſe, either here or abroad, is what we cannot yet determine; but there is ſo great affinity between theſe plants, and thoſe of the Indigo in their generical characters, that Dr. Tournefort, and ſeveral other botaniſts, have ranged them in the ſame genus.

Theſe ſhrubs are eaſily propagated by ſowing their ſeeds (which they commonly produce in great plenty) in March, upon a bed of light ſandy earth, obſerving to keep the bed clear from weeds; and in very dry weather the bed muſt often be refreſhed with water, which ſhould be given carefully, leſt the ſeeds ſhould be waſhed out of the ground by haſty watering. When the plants are come up, they muſt be kept clean from weeds, and in very dry weather, if they are watered, it will promote their growth; the Michaelmas following (if the plants have thriven well) you may draw out the largeſt, which may be tranſplanted into a nurſery, at three feet diſtance row from row, and one foot aſunder in the rows. This will give room to thoſe plants which are left to grow in the ſeed-bed, in which place they may remain another year, when they will alſo be fit to tranſplant into a nurſery, where they ſhould be two years, when they will be fit to plant out, where they are to remain for good; in doing of which, you ſhould be careful in taking them up, not to break or wound the roots, nor ſhould they remain too long in the nurſery before they are tranſplanted, for they are ſubject to ſhoot downright roots, which, when cut off, oftentimes proves the death of the tree. In all other reſpects it muſt be treated like other flowering ſhrubs, among which this is commonly ſold at the nurſeries. It may alſo be propagated by laying down the tender branches, which will take root in about a year's time, and may then be tranſplanted into a nurſery, and managed in the ſame manner as the ſeedling plants.

The third ſort grows naturally in the Weſt-Indies, where Plumier firſt diſcovered it in the French ſettlements; but it was found growing in plenty at La Vera Cruz, in New Spain, by the late Dr. Houſtoun, who ſent me the ſeeds, which ſucceeded in the Chelſea garden, where the plants flowered, but did not perfect their ſeeds, and the plants being annual, the ſpecies was loſt here. This riſes with a round herbaceous ſtalk three feet high, which is garniſhed at each joint with one long winged leaf, compoſed of about twenty pair of lobes, terminated by an odd one; theſe have obtuſe points, and are of a deep green. The flowers come out ſingly from the ſide of the ſtalk, immediately above the foot-ſtalk of the leaves, ſtanding upon ſlender foot-ſtalks two inches long; they are larger than thoſe of either of the former ſorts, and are of a pale yellow colour; theſe are ſucceeded by ſlender compreſſed pods, which are more than ſix inches long, having a border on each ſide, and a ſwelling where each ſeed is lodged.

This is an annual plant, whoſe ſeeds muſt be ſown upon a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted into a ſeparate ſmall pot filled with light kitchen-garden earth, and plunged into a moderate hot-bed of tanners bark, ſhading them from the ſun until they have taken new root, then they muſt be treated in the ſame manner as other exotic plants from thoſe warm countries. If theſe plants are brought forward in the ſpring, and kept under a deep frame in a tan-bed, or plunged into the bark-bed in the ſtove, when they are grown too tall to remain under common frames, they will ripen ſeeds in England; for thoſe ſeeds which I received did not arrive here till May, and yet thoſe plants flowered well in Auguſt; but the autumn coming on ſoon after, prevented their perfecting ſeeds, and that part of the ſeed which I reſerved till the next year did not grow.

EMPETRUM. Lin. Gen. Plant. 977. Tourn. Inſt. R. H. 579. tab. 421. [Ἔμπετρον, of ἐν, in, and πέτρα, *Gr.* a rock or ſtone, becauſe this tree grows in ſtony places.] Black-berried Heath.

The Characters are,

It hath male and female flowers on different plants; the male flowers have a three-pointed empalement, which is permanent; they have three oblong petals, which are narrow at their baſe, and three long hanging ſtamina which are

are hairy, terminated by ſhort two-pointed ſummits, which ſtand erect. The female flowers have the ſame empalement and petals as the male, but no ſtamina. In the center is ſituated a depreſſed germen, ſupporting nine reflexed ſpreading ſtigma. The germen afterward becomes a depreſſed round berry of one cell, incloſing nine ſeeds placed circularly.

This genus of plants is ranged in the third ſection of Linnæus's twenty-ſecond claſs, which includes thoſe plants whoſe male and female flowers grow on ſeparate plants, and the male flowers have three ſtamina.

We have but one Species of this genus in England, viz.

Empetrum (*Nigrum*) procumbens. Hort. Cliff. 470. *Trailing Berry-bearing Heath.* Empetrum montanum, fructu nigro. Tourn. Inſt. 579. *Black-berried Heath, Crow berries, Crake berries.*

This little ſhrub grows wild upon the mountains of Staffordſhire, Derbyſhire, and Yorkſhire, and is ſeldom propagated in gardens unleſs for variety ſake; but it may be cultivated in ſhady places, and will thrive very well in gardens, where the ſoil is ſtiff. The plants ſhould be procured from the places where they grow naturally, for the ſeeds remain a year in the ground before they vegetate, and afterward are very ſlow in their growth, ſo they are not worth the trouble of cultivating from ſeeds. If the plants are planted on a moiſt boggy ſoil in autumn, they will get roots in the winter, and will require no farther care than to clear them from weeds, provided they have a moiſt ſoil, otherwiſe they will require to be frequently watered; for theſe low ſhrubs commonly grow upon the tops of wild mountains, where the ſoil is generally peaty, and full of bogs. The heath cocks feed much upon the berries of this plant; ſo that wherever there is plenty of theſe low ſhrubs, there are commonly many of theſe fowls to be found.

EMUSCATION, the clearing a tree of moſs, *Lat.*

ENUCLEATION, a taking out the nut or kernel of any fruit, *Lat.*

ENULA CAMPANA. See Inula.

EPHEDRA. Lin. Gen. Plant. 1007. Tourn. Inſt. 663. tab. 477. Shrubby Horſe-Tail, vulgò.

The Characters are,

It hath male and female flowers in different plants; the male flowers are collected in katkins, which are ſcaly; under each ſcale is a ſingle flower; theſe have no petals, but ſeven ſtamina, which are joined in form of a column, and are terminated by roundiſh ſummits. The female flowers have an oval perianthium, compoſed of five ſeries of leaves, which alternately lie over the diviſions of the lower range; theſe have no petals, but have two oval germen ſitting upon the perianthium, ſupporting ſhort ſtyles, crowned by ſingle ſtigma. The germen afterward turn to oval berries, each having two ſeeds.

This genus of plants is ranged in the twelfth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Monadelphia, the plants of this claſs and ſection having male flowers on different plants from the female, and their ſtamina join in form of a column.

We have but one Species of this genus in England, viz.

Ephedra (*Diſtachia*) pedunculis oppoſitis, amentis geminis. Hort. Cliff. 465. *Shrubby Horſe-Tail with oppoſite foot-ſtalks, and twin katkins.* Ephedra maritima minor. Tourn. *Leſſer Sea Horſe-Tail.*

This is a low ſhrubby plant, which grows naturally upon the rocks by the ſea in the ſouth of France, in Spain, and Italy; it is alſo preſerved in ſeveral gardens for the ſake of variety, but has little beauty. This hath a low ſhrubby ſtalk, which puts out a few ſhort branches, riſing about two feet high, which have many protuberant joints, at which come out ſeveral narrow ruſhy leaves, like thoſe of the Horſe-Tail, which continue green all the year, but the plants rarely flower in this country.

It may be propagated by offſets, which the plants ſend forth in great plenty; for the roots creep under ground, and ſend forth ſuckers, which may be taken off to tranſplant in the ſpring. They love a pretty moiſt ſtrong ſoil, and will endure the cold of our ordinary winters very well in the open air. Some of theſe plants were formerly preſerved in pots, and were houſed in winter, but by later experience they are found to thrive better in the full ground.

EPHEMERUM. See Tradescantia.

EPIDENDRUM. Lin. Gen. 1016. Vanilla.

There are near thirty ſpecies of this genus, which grow naturally upon trees in Africa and both Indies; but as the plants cannot, by any art yet known, be cultivated in the ground, it would be to little purpoſe the enumerating of them here; though could the plants be brought to thrive by culture, many of them produce very fine flowers of uncommon forms. I had three ſpecies of them ſent me from America, which were ſtripped from the trees on which they grew; theſe I planted with care in pots, which were placed in a ſtove, where they came ſo far as to ſhew their flowers, but the plants ſoon after periſhed.

EPIGÆA. Lin. Gen. Plant. 486. Memecylum. Mitch. 13. Trailing Arbutus.

The Characters are,

The flower hath a double empalement, which is permanent; the outer is compoſed of three, and the inner of one leaf, divided at the top into five parts. The flower is of the ſalver ſhape, with one petal, having a cylindrical tube, which is longer than the empalement, and hairy within. The brim is cut into five parts, which ſpread open. It hath ten ſlender ſtamina the length of the tube, which are fixed to the baſe of the petal, and are terminated by oblong ſummits. In the center is ſituated a globular hairy germen, crowned by an obtuſe quinquefid ſtigma. The germen afterward becomes a depreſſed, half globular, five-cornered fruit, having five cells, opening with five valves, containing ſeveral ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, the flowers having ten ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Epigæa. Lin. Gen. Plant. 486. Trailing Arbutus.

This plant grows naturally in North America, from whence it has been introduced to the Engliſh gardens. It is a low plant, with a trailing ſhrubby ſtalk, which puts out roots at the joints, and when in a proper ſoil and ſituation, multiplies very faſt. The ſtalks are garniſhed with oblong rough leaves which are waved on their edges. The flowers are produced at the end of theſe branches in looſe bunches; theſe are white, and divided at the top into five acute ſegments, which ſpread open in form of a ſtar. It flowers in July, but doth not produce fruit in England.

The plants are eaſily propagated by their trailing ſtalks, which put out roots at the joints, ſo may be cut off from the old plant, and placed in a ſhady ſituation and a moiſt ſoil: the beſt time for this is in autumn, that the plants may be well rooted before the ſpring. If the winter ſhould prove very ſevere, it will be proper to lay a few dried leaves, or ſome ſuch light covering over them, which will prevent their being injured by froſt; and after they are well rooted, they will require no farther care but to keep them clean from weeds.

EPILOBIUM. Lin. Gen. Plant. 426. Chamænerion. Tourn. R. H. 302. tab. 157. Willow Herb, or French Willow.

The Characters are,

The empalement of the flower is compoſed of four oblong pointed leaves, which are coloured. The flower hath four bordered petals which ſpread open, and eight ſtamina which are alternately ſhorter, terminated by oval compreſſed ſummits. Below the flower is ſituated a long cylindrical germen, ſupporting a ſlender ſtyle, crowned by an obtuſe quadrifid ſtigma. The germen afterward becomes a long, cylindrical, furrowed capſule with five cells, filled with oblong ſeeds, crowned with down.

This genus of plants is ranged in the firſt ſection of Linnæus's eighth claſs, intitled Octandria Monogynia, the flower having eight ſtamina and one ſtyle.

The Species are,

1. Epilobium (*Anguſtifolium*) foliis ſparſis lineari-lanceolatis, floribus inæqualibus. Lin. Sp. 493. *Epilobium with linear ſpear-ſhaped leaves which are placed thinly, and unequal flowers.* Chamænerion latifolium vulgare. Tourn. Inſt. R. H. 302. *Common broad-leaved Willow Herb, or French Willow.*
2. Epilobium (*Hirſutum*) foliis oppoſitis lanceolatis ſerratis decurrenti-amplexicaulibus. Lin. Hort. Cliff. 145. *Epilobium with oppoſite ſpear-ſhaped leaves, which are ſawed on their edges.* Chamænerion villoſum, magno flore purpureo. Tourn. Inſt. R. H. 303. *Hoary Willow Herb with a large flower, commonly called Codlins and Cream.*

There are ſeveral other ſpecies of this genus, ſome of which grow naturally in ſhady woods and moiſt places in moſt parts of England, where they are often very troubleſome weeds, therefore are ſeldom admitted into gardens, ſo I ſhall not trouble the reader with their diſtinctions.

The firſt ſort here mentioned was formerly planted in gardens for the beauty of its flowers; but as it uſually ſpreads far by the creeping roots, whereby it over-runs all the neighbouring plants, it has been generally caſt out of moſt gardens: however, in ſome low moiſt places, or in great ſhade, if there was a place aſſigned for this plant, it will make a good appearance when it is in flower, and theſe flowers are very proper to cut for baſons to adorn chimnies in the ſummer ſeaſon. This uſually grows about four feet high, with ſlender ſtiff branches, which are beſet with leaves, reſembling thoſe of the Willow, from whence it had the name of Willow Herb, or French Willow. On the upper part of the ſtalks the flowers are produced in a long ſpike or thyrſe, which are of a fine Peach colour, and, if the ſeaſon is not very hot, they will continue near a month in beauty. This ſort is found growing wild in divers parts of England, but ſeveral botaniſts have ſuppoſed it was only found in ſuch places where the plants had been caſt out of gardens; however, I think it muſt be allowed to be a native of this country, ſince it is found in great plenty in woods at a great diſtance from any habitation, particularly in Charlton foreſt, and ſeveral other woods in Suſſex. It is a great creeper at the root, ſo may be eaſily propagated.

There is a variety of this with white flowers, which is planted in gardens, but differs from it only in the colour of the flower; however, ſome perſons are fond of propagating theſe varieties, for which reaſon I mentioned it here.

The ſecond ſort is found wild by the ſide of ditches and rivers in many parts of England. This plant grows about three feet high, and produces its flowers on the top of the ſtalks; but theſe are much leſs beautiful than thoſe of the firſt, and the plant being a great rambler at the root, is ſeldom admitted into gardens. The leaves of this plant being rubbed, emit a ſcent like ſcalded Apples, from whence ſome have given the name of Codlins and Cream to this plant.

EPIMEDIUM. Lin. Sp. Plant. 138. Tourn. Inſt. R. H. 232. tab. 117. Raii Meth. Plant. 129. Barrenwort.

The Characters are,

The flower hath a three-leaved empalement which falls off. It hath four obtuſe oval fruit, which are concave, and ſpread open, and four nectariums which are cup-ſhaped, obtuſe at the bottom, and as large as the petals. It hath four ſtamina, terminated by oblong, erect, bilocular ſummits. The oblong germen is ſituated at the bottom, ſupporting a ſhort ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes an oblong pointed pod, with one cell, opening with two valves, incloſing many oblong ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

We know but one Species of this genus, viz.

1. Epimedium (*Alpinum.*) Hort. Cliff. 37. *Alpine Barrenwort.*

This plant hath a creeping root, from which ariſe many ſtalks about nine inches high, divided at the top into three, each of which is again divided into three ſmaller; upon each of theſe ſtands a ſtiff heart-ſhaped leaf, ending in a point, of a pale green on the upper ſide, but gray on the under. A little below the firſt diviſion of the ſtalk comes out the foot-ſtalk of the flowers, which is near ſix inches long, dividing into ſmaller, each of theſe ſuſtaining three flowers; theſe are compoſed of four leaves, placed in form of a croſs; they are of a reddiſh colour, with yellow ſtripes on the border. In the center of the flower ariſes the ſtyle, ſituated upon the germen, which afterward turns to a ſlender pod, containing many oblong ſeeds. It flowers in May, and the leaves decay in autumn. The roots, if planted in a ſhady border, ſhould be every year reduced, ſo as to keep them within bounds, otherwiſe it will ſpread its roots and interfere with the neighbouring plants. It grows naturally on the Alps, but I received ſome plants of it which were found growing naturally in a wood in the North of England.

EPIPHYLLOSPERMOUS PLANTS [of ἐπὶ, upon, Φύλλον, a leaf, and Σπέρμα, *Gr.* ſeed,] ſuch plants as bear their ſeeds on the back of their leaves, the ſame as capillaries.

EQUINOCTIAL, ÆQUINOCTIAL [of equus, equal, and nox, *Lat.* night.] A great and immoveable circle of the ſphere, under which the equator moves in its diurnal motion.

The equinoctial, or equinoctial line, is ordinarily confounded with the equator; but there is a difference, the equator being moveable, and the equinoctial unmoveable, and the equator drawn about the convex ſurface of the ſphere, but the equinoctial on the concave ſurface of the Magnus Orbis.

The equinoctial is conceived, by ſuppoſing a ſemidiameter of the ſphere, produced through a point of the equator, and there deſcribing a circle on the immoveable ſurface of the Primum Mobile, by the rotation of the ſphere about its axis.

Whenever the ſun comes to this circle, in his progreſs through the ecliptic, it makes equal day and night all round the globe; as then ariſing due eaſt, and ſetting due weſt, which he never does at any other times of the year.

The people who live under this circle, have their days and nights conſtantly equal; and the ſun is in their zenith at noon, and caſts no ſhadow.

EQUINOXES are the times when the ſun enters into the equinoctial points, which are the two points where the equator and ecliptic interſect each other; the one being in the firſt point of Aries, called the vernal equinox; and the other in the firſt point of Libra, called the autumnal equinox.

So the equinoxes happen when the ſun is in the equinoctial circle, when, of conſequence, the days are equal to the nights throughout the world, which is the caſe twice a year, viz. about the 21ſt of March, and the 22d of September; the firſt of which is the vernal, and the ſecond the autumnal equinox.

EQUISETUM [of equus, a horſe, and ſeta, a briſtle, becauſe the leaves and branches repreſent the briſtles or hair of a horſe's main or tail. It is by the Greeks called Ἵππουρις, of Ἵππος, a horſe, and Οὐρὰ, a tail; and hippoſeta, of ἵππος and ſeta.] Horſe-Tail.

There are ſeveral ſpecies of this plant, which are found in England, on the ſides of ditches, or in ſhady woods; but as they are plants which are never cultivated in gardens, I ſhall paſs them over in this place.

ERANTHEMUM. See Adonis.

ERICA. Lin. Gen. Plant. 435. Tourn. Inſt. R. H. 602. tab. 373. [Ἐρείκη, of ἐρείκω, or ἐρίκω, *Gr.* to break, becauſe this plant is ſaid to have the virtue of breaking the ſtone in the bladder.] Heath; in French, *Bruyere.*

The Characters are,

The flower hath a coloured permanent empalement of four oval

oval erect leaves. It hath one ſwelling petal, which is erect and quadrifid, and eight hairy ſtamina, which are fixed to the receptacle, and terminated by bifid ſummits. In the bottom is ſituated the roundiſh germen, ſupporting a declining ſtyle, which is longer than the ſtamina, crowned by a four-cornered ſtigma. The germen afterward becomes a round capſule, having four cells, which are filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's eighth claſs, intitled Octandria Monogynia, the flower having eight ſtamina and one ſtyle.

The Species are,

1. Erica (*Vulgaris*) antheris bicornibus incluſis, corollis inæqualibus, campanulatis mediocribus foliis oppoſitis ſagittatis. Lin. Sp. Plant. 352. *Heath with two horns including the ſummits, bell-ſhaped unequal petals, and middling arrow-pointed leaves placed oppoſite.* Erica vulgaris glabra. C. B. 485. *Common ſmooth Heath.*

2. Erica (*Herbacea*) antheris bicornibus incluſis campanulatis mediocribus ſecundis, foliis ternis triquetris patulis. Lin. Sp. Plant. 500. *Heath with a horned ſummit, a bell-ſhaped petal, and five narrow ſpreading leaves.* Erica foliis coridis, multiflora. J. B. vol. 1. p. 356. *Pine-leaved Heath with many flowers.*

3. Erica (*Cinerea*) antheris bicornibus incluſis, corollis ovatis racemoſis, foliis ternis glabris linearibus. Lin. Sp. Plant. 352. *Heath with two horns including the ſummits, oval branchy petals, and three long, narrow, ſmooth leaves.* Erica humilis, cortice cinereo, arbuti flore. C. B. P. 486. *Dwarf Heath with an Aſh-coloured bark, and Strawberry-tree flower.*

4. Erica (*Ciliaria*) antheris ſimplicibus incluſis, corollis ovatis irregularibus, floribus ternoracemoſis, foliis ternis ciliatis. Lœfl. Epiſt. 2. p. 9. Lin. Sp. Plant. 354. *Heath with ſingle ſummits, oval irregular petals, triple branching flowers, and hairy leaves placed by threes.*

5. Erioa (*Arborea*) antheris bicornibus incluſis, corollis campanulatis longioribus, foliis quaternis patentiſſimis, caule ſubarboreo tomentoſo. Lin. Sp. 502. *Tree Heath, whoſe antheræ are included in two horns, a longer bell-ſhaped flower, and four ſpreading leaves at each joint.*

The four firſt ſorts grow wild upon barren uncultivated places in divers parts of England; but notwithſtanding their commonneſs, yet they deſerve a place in ſmall quarters of humble flowering ſhrubs, where, by the beauty and long continuance of their flowers, together with the diverſity of their leaves, they make an agreeable variety.

Theſe are ſeldom propagated in gardens, and ſo not to be had from the nurſeries, but may be taken up, with a ball of earth to their roots, from the natural place of their growth in autumn, and may be tranſplanted into the garden. The ſoil where they are planted ſhould not be dunged, nor ſhould you beſtow any other culture on them than clearing them from weeds; for the leſs the ground is dug, the better theſe will thrive, for they commonly ſhoot their roots near the ſurface, which, in digging, are ſubject to be hurt, whereby the plant is often deſtroyed; theſe may alſo be propagated by ſeeds, but this being a tedious method, the other is much preferable to it.

The fifth ſort grows naturally at the Cape of Good Hope, and alſo in great plenty in Portugal, where it riſes with a ſtrong ligneous ſtem to the height of eight or ten feet, ſending out many branches the whole length, garniſhed with narrow leaves, four coming out from the ſame point; the flowers are produced between the leaves on the upper part of the branches; they are white, with a bluſh of red on their outſide; theſe appear in May, but are not ſucceeded by ſeeds in England.

This plant will live in the open air in England, provided it is planted in a dry ſoil and a warm ſituation, but is generally kept in pots and houſed in winter; however, the plants ſo managed, do not thrive or flower ſo well as thoſe in the full ground, therefore it is much better to be at the trouble of ſheltering the plants in the ground in winter, than to keep them in pots. It is with difficulty propagated here, which is done by laying down the young ſhoots, though theſe are often two years before they put out roots: others plant the young ſlips or cuttings into pots filled with light earth, covering them cloſe with a bell-glaſs, and ſhading them from the ſun; where this is ſkilfully practiſed, the cuttings will put out roots, and make better plants than the layers.

ERICA BACCIFERA. See Empetrum.

ERIGERON. Lin. Gen. Plant. 855. Senecionis. Sp. Dill. Conyzella. Dill. Groundſel.

The Characters are,

It hath a compound radiated flower, compoſed of many hermaphrodite florets which form the diſk, and female half florets which make the rays; theſe are contained in one oblong ſcaly empalement. The hermaphrodite florets are funnel-ſhaped, and cut at the top into five parts; theſe have five ſhort hairy ſtamina, terminated by cylindrical ſummits; they have a ſmall germen, crowned with down, which is longer than the petal. Upon the germen ſits a ſlender ſtyle the length of the down, crowned by two oblong ſtigmas; the germen afterward becomes a ſmall oblong ſeed, crowned with long down. The female half florets, which compoſe the rays, have one ſide of their petals ſtretched out like a tongue; theſe have no ſtamina, but a ſmall downy germen, ſupporting a ſlender ſtyle, which is hairy, crowned by two ſlender ſtigmas. The germen afterward becomes a ſeed like the hermaphrodite florets.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, which includes the plants with a compound flower, compoſed of hermaphrodite and female flowers, which are both fruitful. To this genus Dr. Linnæus has added ſeveral ſpecies of Conyza and Aſter of former botaniſts.

The Species are,

1. Erigeron (*Viſcoſum*) pedunculis unifloris lateralibus foliis lanceolatis denticulatis calycibus ſquarroſis, corollis radiatis. Hort. Upſal. 258. *Groundſel with one flower on a foot-ſtalk, proceeding from the ſide of the ſtalk, ſpear-ſhaped leaves, and a rough empalement.* Conyza mas Theophraſti, major Dioſcoridis. C. B. P. 265. *Male Fleabane of Theophraſtus, and greater Fleabane of Dioſcorides.*

2. Erigeron (*Acre*) pedunculis alternis unifloris. Hort. Cliff. 407. *Groundſel with alternate foot-ſtalks having one flower.* Conyza cærulea acris. C. B. P. 265. *Blue acrid Fleabane.*

3. Erigeron (*Bonarienſe*) foliis baſi revolutis. Lin. Sp. Plant. 863. *Groundſel whoſe leaves are curved at their baſe.* Senecio Bonarienſis purpuraſcens, foliis imis coronopi. Hort. Elth. 344. tab. 257. *Purpliſh Groundſel of Buenos Ayres, with under leaves like Hartſhorn Plantain.*

4. Erigeron (*Canadenſe*) caule floribuſque paniculatis. Hort. Cliff. 407. *Groundſel with a paniculated ſtalk and flowers.* Virga aurea Virginiana annua. Zan. Hiſt. 205. *Annual Virginia Golden Rod.*

5. Erigeron (*Alpinum*) caule ſubbifloro, calyce ſubhirſuto. Lin. Sp. Plant. 864. *Groundſel with two flowers on a ſtalk, and hairy empalements.* Conyza cærulea Alpina. C. B. P. 265. *Blue Alpine Fleabane.*

6. Erigeron (*Graveolens*) ramis lateralibus multifloris, foliis lanceolatis integerrimis, calycibus ſquarroſis. Amœn. Acad. 4. p. 290. *Groundſel with many flowers on the ſide of the ſtalks, entire ſpear-ſhaped leaves, and rough empalements.* Virga aurea minor, foliis glutinoſis & graveolentibus.

7. Erigeron (*Fœtidum*) foliis lanceolato-linearibus retuſis, floribus corymboſis. Lin. Sp. 1213. *Groundſel with linear ſpear-ſhaped leaves, and flowers in a corymbus.* Senecio Africanus folio retuſo. Herm. 661.

The firſt ſort grows naturally in the ſouth of France, and in Italy. This hath a perennial root, from which ariſe ſeveral upright ſtalks near three feet high, garniſhed with oblong oval leaves which are hairy, and ſit cloſe to the ſtalk; they are placed alternate, and are four inches long, and two broad in the middle; theſe in warm weather ſweat out a clammy juice. The flowers are produced ſingle upon pretty long foot-ſtalks; ſome ariſing from the ſide of the ſtalk, and others terminate it; they are yellow, and have an agreeable odour. They flower in July, and the ſeeds ripen in autumn.

This plant is propagated by ſeeds, which, if ſown in autumn, will more certainly ſucceed than thoſe which are ſown in the ſpring. When the plants come up, they ſhould be thinned if they are too cloſe, and kept clean from weeds till autumn, when they ſhould be tranſplanted where they are to remain. They delight in a dry ſoil and a ſunny expoſure. The ſecond year the plants will flower and perfect their ſeeds, but the roots will continue ſeveral years, and annually produce their flowers and ſeeds.

The next four ſorts are preſerved in botanic gardens for the ſake of variety, but are ſeldom admitted into gardens for pleaſure. The fifth ſort is a perennial plant, which grows naturally on the Alps, and may be propagated by ſeeds in the ſame manner as the firſt ſort, but ſhould have a ſhady ſituation and a moiſt ſoil.

The others are annnual plants, which, if once admitted into a garden, and ſuffered to ſcatter their ſeeds, will become very troubleſome weeds there.

The ſixth ſort riſes with ſtiff ſtalks three feet high, garniſhed with narrow ſpear-ſhaped leaves; the flowers are yellow, and are produced in cloſe bunches from the ſide of the ſtalk toward the top; theſe appear in July, and in warm ſeaſons are ſucceeded by ſeeds in England.

It may be propagated by cutting the ſtalk in proper lengths, which, if planted in a ſhady border, and duly watered, will put out roots; and the following autumn, theſe may be taken up and planted in the borders of the flower-garden.

The ſeventh ſort grows naturally in Africa: the roots of this ſend up five or ſix upright ſtalks near four feet high, cloſely garniſhed with linear ſpear-ſhaped leaves which are hairy; the ſtalks are terminated by pretty large bunches of yellow flowers, formed in a corymbus. Theſe appear in October, and frequently continue more than two months, which renders the plant more valuable.

This is too tender to thrive in the open air in this country, ſo the plants ſhould be kept in pots; and if in the winter they are placed in a common frame, where they may have a large ſhare of free air in mild weather, and ſcreened from hard froſts, they will thrive better than with tender treatment. It is eaſily propagated by cuttings, which, if planted in May, will readily put out roots, and the young plants will flower the autumn following.

ERINUS. Lin. Gen. Plant. 689. Ageratum. Tourn. Inſt. R. H. 651. tab. 422.

The CHARACTERS are,

The flower hath a permanent empalement, compoſed of five leaves, which are equal; it hath one petal which is tubulous, and of the ringent kind, cut into five equal ſegments, which ſpread open, three ſtanding upward from the upper lip, and two turn downward. It hath four ſtamina ſituated within the tube, two of which are a little longer than the other, terminated by ſmall ſummits. In the bottom of the tube is ſituated the oval germen, ſupporting a ſhort ſtyle, crowned by a head-ſhaped ſtigma. The germen afterward becomes an oval capſule, covered by the empalement, having two cells filled with ſmall ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, which includes thoſe plants whoſe flowers have two long and two ſhort ſtamina, and their ſeeds growing in a capſule. Tournefort has it in his appendix, but it ſhould be placed in his third claſs, and the fifth ſection, which contains the plants with an anomalous tubulous flower of one leaf.

The SPECIES are,

1. ERINUS (*Alpinus*) floribus racemoſis. Lin. Sp. Plant. 630. *Erinus with branching flowers.* Ageratum ſerratum, Alpinum, glabrum, flore purpuraſcente. Tourn. R. H. 651. *Smooth ſawed Alpine Ageratum, having a purpliſh flower.*
2. ERINUS (*Tomentoſus*) tomentoſus, caulibus procumbentibus, floribus ſeſſilibus axillaribus. *Woolly Erinus with trailing ſtalks, and flowers ſitting cloſe to their ſides.* Ageratum Americanum procumbens, gnaphalii facie, floribus ad foliorum nodos. Houſt. MSS. *Trailing American Ageratum with the appearance of Cudweed, and flowers growing at the knots of the leaves.*
3. ERINUS (*Americanus*) caule erecto, foliis lanceolatis oppoſitis, floribus laxè ſpicatis terminalibus. *Erinus with an upright ſtalk, ſpear-ſhaped leaves placed oppoſite, and flowers growing in looſe ſpikes, terminating the ſtalks.* Ageratum Americanum erectum ſpicatum, flore purpureo. Houſt. MSS. *Upright American Ageratum with ſpikes of purple flowers.*
4. ERINUS (*Fruteſcens*) caule erecto fruticoſo, foliis ovato-lanceolatis ſerratis, alternis, floribus axillaribus. *Erinus with a ſhrubby erect ſtalk, oval, ſpear-ſhaped, ſawed leaves placed alternate, and flowers on the ſides of the ſtalk.* Ageratum fruteſcens, foliis dentatis latioribus, villoſum. Houſt. MSS. *Shrubby hoary American Ageratum with broad indented leaves.*
5. ERINUS (*Verticillatus*) caule ramoſo procumbente, foliis ovatis ſerratis glabris oppoſitis, floribus verticillatis. *Erinus with a branching trailing ſtalk, oval, ſmooth, ſawed leaves placed oppoſite, and flowers growing in whorls round the ſtalks.* Ageratum Americanum procumbens, foliis ſubrotundis ſerratis glabris. Houſt. MSS. *Trailing American Ageratum with roundiſh, ſmooth, ſawed leaves.*
6. ERINUS (*Procumbens*) caulibus procumbentibus, foliis ovatis glabris, floribus ſingulis alaribus, pedunculis longioribus. *Erinus with trailing ſtalks, oval ſmooth leaves, and ſingle flowers on the ſides of the ſtalks, having longer foot-ſtalks.* Ageratum Americanum, procumbens, glabrum, floribus luteis, longis pediculis inſidentibus. Houſt. MSS. *Smooth trailing American Ageratum, with yellow flowers ſitting upon long foot-ſtalks.*

The firſt ſort grows naturally upon the Alps and Helvetian mountains: this is a very low plant, whoſe leaves lie cloſe to the ground, growing in cloſe tufts; they are about half an inch long, and one eighth of an inch broad, ſawed on their edges, and of a dark green; between theſe ariſes the flower-ſtalk, which is ſcarce two inches high, ſupporting a looſe bunch of purple flowers, which ſtand erect. Theſe appear in May, and ſometimes are ſucceeded by ripe ſeeds in July.

It is propagated by parting the roots; the beſt time for this is in autumn; they muſt have a ſhady ſituation and a loamy ſoil without dung, for in rich earth theſe plants are very ſubject to rot.

The ſecond ſort was ſent me by the late Dr. Houſtoun from La Vera Cruz, where he found it growing naturally. This ſends out ſeveral trailing ſtalks about ſix inches long, which are cloſely garniſhed with ſmall oval leaves, placed on every ſide; they are very white and woolly, and at the joints juſt above the leaves come out the flowers, ſitting very cloſe to the ſtalks; theſe are white, and are ſucceeded by round capſules, having two cells, filled with ſmall ſeeds: this plant has great reſemblance at a diſtance to the Sea Cudweed.

The third ſort was diſcovered by Dr. Houſtoun, in the ſame country with the former: this hath an upright ſtalk two feet high, garniſhed with ſpear-ſhaped leaves placed oppoſite; and toward the top of the ſtalk is produced two ſmaller branches placed oppoſite, which ſtand erect; and theſe, as alſo the middle ſtalk, are terminated by looſe ſpikes of purple flowers, which are ſucceeded by oval ſeed-veſſels, filled with ſmall ſeeds.

The fourth ſort riſes with a ſhrubby ſtalk about four feet high, dividing into ſeveral ſmall branches, which are hairy; theſe are garniſhed with oval ſpear-ſhaped leaves, deeply ſawed on their edges; they are placed alternate, and have pretty long foot-ſtalks. The flowers come out from the ſide of the ſtalks, ſometimes ſingle, at other times two or three at a joint, ſitting cloſe to the ſtalks; they are white, and are ſucceeded by round ſeed-veſſels, filled with ſmall ſeeds.

The fifth ſort ſends out many trailing ſmooth ſtalks, which branch out very much on every ſide; they grow about ſeven or eight inches long, and are garniſhed with ſmall oval leaves placed oppoſite. The flowers come out in whorls, ſitting very cloſe to the ſtalks; they are white, and make but little appearance; theſe are ſucceeded by round capſules, filled with ſmall ſeeds.

The ſixth ſort ſends out ſeveral trailing ſtalks about ſix inches long, which divide into many ſmaller branches; theſe are garniſhed with ſmall oval leaves, ſtanding oppoſite. The flowers come out ſingly from the ſide of the ſtalk; they are of a bright yellow, and ſtand on long ſlender foot-ſtalks; theſe are ſucceeded by oval ſeed-veſſels, filled with ſmall ſeeds.

The fourth ſort is a perennial ſhrubby plant, which will continue ſeveral years, if kept in a warm ſtove; but the ſecond, third, fifth, and ſixth ſorts are annual, decaying ſoon after they have perfected their ſeeds.

Theſe are propagated by ſeeds, which ſhould be ſown in pots filled with light earth, and plunged into a moderate hot-bed, where ſometimes the plants will come up in five or ſix weeks, and at other times the ſeeds do not vegetate till the following ſpring; this happens frequently when the ſeeds have been kept long after they were gathered. When the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot filled with light earth, not too rich with dung, and then plunged into a hot-bed of tanners bark. When they have taken new root, they ſhould be treated in the ſame way as other plants from thoſe countries, by admitting proper air to them at all times when the weather is warm, and frequently refreſhing them with water: with this management the annual ſorts will flower in July and Auguſt, and frequently ripen their ſeeds in autumn, if the plants are brought forward early in the ſpring, otherwiſe the winter will come on before their ſeeds ripen.

The ſhrubby kind muſt be placed in the bark-ſtove in autumn, and during the winter the plants ſhould be frequently refreſhed with water, but it muſt not be given them in large quantities, nor too often repeated in cold weather, for moiſture will then deſtroy them; the ſecond year the plants will flower and perfect their ſeeds.

ERIOCEPHALUS. Dill. Hort. Elth. 110. Lin. Gen. Plant. 890.

The Characters are,

It hath a radiated flower, compoſed of female half florets which form the rays, and hermaphrodite florets, which form the diſk; theſe are included in one common ſcaly empalement. The hermaphrodite florets are funnel-ſhaped, and cut into five parts at the brim, which ſpread open; theſe have five ſhort hairy ſtamina, terminated by cylindrical ſummits; they have a ſmall naked germen, ſupporting a ſingle ſtyle, crowned by a pointed ſtigma; theſe are barren. The female florets have their petals ſtretched out on one ſide like a tongue, which is divided at the end into three ſmall lobes; theſe have no ſtamina, but an oval naked germen, with a ſingle ſtyle, crowned by an inflexed ſtigma; theſe have one naked ſeed, ſitting on the naked plain receptacle.

This genus of plants is ranged in the fourth ſection of Linnæus's nineteenth claſs, which includes thoſe plants with compound flowers, whoſe hermaphrodite florets are barren, and the female half florets are fruitful.

We know but one Species of this genus, viz.

Eriocephalus (*Africanus.*) Lin. Sp. Plant. 926. We have no proper title for this in Engliſh. Eriocephalus ſempervirens, foliis faſciculatis & digitatis. Hort. Elth. 132. *Evergreen Eriocephalus with fingered leaves growing in bunches.*

This plant hath a ſhrubby ſtalk, which riſes from four to ſix feet high, putting out many ſide branches the whole length, cloſely garniſhed with woolly leaves, which come out in cluſters; ſome of theſe are taper and entire, others are divided into three or five parts, which ſpread open like a hand; they have a ſtrong ſmell when bruiſed, approaching to that of Lavender Cotton, but not quite ſo rank. The flowers are produced in ſmall cluſters at the extremity of the branches, ſtanding erect; they are tubulous. The female florets which compoſe the rays, form a hollow, in the middle of which the hermaphrodite flowers are ſituated which form the diſk. The border is white, with a little reddiſh caſt on the inſide, and the diſk is of a purpliſh colour. The flowers appear in autumn, but are not ſucceeded by ſeeds in this country.

This plant is propagated by cuttings, which may be planted any time from May to the middle of Auguſt, for if they are planted later in the ſeaſon, there will not be time for them to get good root before the winter; theſe cuttings ſhould be planted in ſmall pots filled with light earth, and plunged into a very moderate hot-bed, where they ſhould be ſhaded from the ſun till they have taken root; theſe muſt be refreſhed with water two or three times a week, but they ſhould not have too much at each time, for much moiſture is very hurtful to theſe plants. When the cuttings have taken root, they ſhould be gradually inured to the open air, to prevent their ſhoots from being drawn up weak; afterward they ſhould be removed into the open air, and placed in a ſheltered ſituation, where they may remain till October, when they muſt be removed into an airy glaſs-caſe, that they may have as much ſun as poſſible, and enjoy the free air in mild weather, but ſecured from froſt and damp air, either of which will ſoon deſtroy them. During the winter they muſt be ſparingly watered, for the reaſon before given; but, in the ſummer, when the plants are placed in the open air, they will require to be frequently refreſhed with water in hot weather.

Theſe plants retain their leaves all the year, ſo they add to the variety of exotics in the winter ſeaſon.

ERUCA. Tourn. Inſt. R. H. 226. tab. 111. Braſſica. Lin. Gen. 734. Rocket; in French, *Roquette*.

The Characters are,

The empalement of the flower is compoſed of four oblong leaves, which ſtand erect, forming a tube. The flower hath four oblong petals, placed in form of a croſs, which are rounded at their ends, where they are broad, but narrow at their baſe, and are much longer than the empalement. It hath ſix ſtamina, four of which are a little longer than the empalement; the other two are ſhorter, terminated by acute ſegments. It hath an oblong taper germen, ſupporting a ſhort ſtyle, crowned by an obtuſe bifid ſtigma. The germen afterward becomes a taper-cornered pod with two cells, filled with roundiſh ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, which includes the plants whoſe flowers have four long and two ſhort ſtamina, and their ſeeds are contained in long pods. Dr. Linnæus has joined the common Rocket to his genus of Braſſica, and ſome of the other ſpecies he has diſtributed under his other genera; but as the common Rocket has been long eſtabliſhed as an officinal plant, I chuſe to continue this genus by its old title.

The Species are,

1. Eruca (*Sativa*) foliis pinnato-laciniatis, laciniis exterioribus majoribus. *Rocket with wing-ſhaped jagged leaves, whoſe outer ſegments are the largeſt.* Eruca ſativa major annua, flore albo ſtriato. J. B. 2. 859. *Greater Garden annual Rocket with a white ſtriped flower.*
2. Eruca (*Bellidis folia*) foliis lanceolatis, pinnato-dentatis, caule nudo ſimplici. *Rocket with ſpear-ſhaped leaves which are indented, and a naked ſingle ſtalk.* Eruca bellidis folio. Mor. Hiſt. 2. 231. *Rocket with a Daiſy leaf.*
3. Eruca (*Perennis*) foliis pinnatis glabris, caule ramoſo, floribus terminalibus. *Rocket with winged ſmooth leaves, and a branching ſtalk terminated by flowers.* Eruca tenuifolia perennis, flore luteo. J. B. 2. 861. *Narrow-leaved perennial Rocket with a yellow flower.*

4. Eruca (*Aſpera*) foliis dentato-pinnatifidis hirſutis, caule hiſpido, ſiliquis lævibus. *Rocket with indented, wing-pointed, hairy leaves, a rough ſtalk, and ſmooth pods.* Eruca ſylveſtris, major, lutea, caule aſpero. C. B. P. 98. *Greater wild Saffron-coloured Rocket with a rough ſtalk.*

5. Eruca (*Tenacetifolia*) foliis pinnatis, foliolis lanceolatis pinnatifidis. Prod. Leyd. 342. *Rocket with winged leaves, whoſe lobes are ſpear-ſhaped and wing-pointed.* Eruca Tenacetifolia. H. R. Par. *Rocket with a Tanſey leaf.*

6. Eruca (*Viminia*) foliis ſinuato-pinnatis, ſeſſilibus, caule ramoſo. *Rocket with wing-ſhaped ſinuated leaves ſitting cloſe to the ſtalks, which are branching.* Eruca Sicula burſæ paſtoris folio. C. B. P. 98. *Sicilian Rocket with a Shepherd's Purſe leaf.*

The firſt ſort is an annual plant, which was formerly much cultivated in the gardens as a ſallad herb, but at preſent is little known here, for it has been long rejected on account of its ſtrong ungrateful ſmell. It ſtands in the liſt of medicinal plants, but at preſent is ſeldom uſed, though it is reckoned a provocative and a good diuretic. If it is propagated for ſallads, the ſeeds ſhould be ſown in drills, in the ſame manner as is uſually practiſed for other ſmall ſallad herbs; for it muſt be eaten young, otherwiſe it will be too ſtrong for moſt palates. The winter and ſpring ſeaſons are the times when this herb is uſed; for when it is ſown in the ſummer, the plants ſoon run up to ſeed, and are then too rank. Where it is cultivated for the ſeed, which is ſometimes uſed in medicine, they ſhould be ſown in March, on an open ſpot of ground; and when the plants have put out four leaves, the ground ſhould be hoed to deſtroy the weeds, and the plants muſt be thinned, ſo as to leave them three or four inches aſunder; and in about five or ſix weeks after, the ground ſhould be a ſecond time hoed to deſtroy the weeds, which, if well performed, will prevent them from growing to injure the plants, till the ſeeds are ripe; when the plants ſhould be drawn up, and ſpread upon a cloth in the ſun for two or three days to dry, then the ſeeds may be beaten out of the pods, and put up for uſe.

The ſecond ſort grows naturally in the ſouth of France and Italy, where it is often eaten as a ſallad herb; this hath many ſpear-ſhaped leaves ariſing from the root, which are four or five inches long, and one inch broad in the middle, regularly indented on their edges, and ſpread on the ground; the ſtalks are ſingle, and riſe about a foot high; they are naked, ſeldom having more than one leaf, which is ſituated at the bottom; the flowers grow in looſe bunches on the top of the ſtalks, which are ſucceeded by pods two inches long, having two cells filled with ſmall round ſeeds. This is an annual plant, which may be propagated by ſeeds in the ſame manner as the former.

The third ſort grows naturally about Paris, and in many other parts of Europe; the leaves of this are narrow, and regularly divided like a winged leaf; the ſtalks branch out upward, and are terminated by looſe ſpikes of yellow flowers. This hath a perennial root, and an annual ſtalk.

The fourth ſort grows naturally upon old walls and buildings in many parts of England, where it continues flowering all the ſummer, but is rarely admitted into gardens. It is ſometimes uſed in medicine, for which reaſon I have here mentioned it.

The fifth ſort grows naturally about Turin, from whence I received the ſeeds. This hath fine divided leaves, ſomewhat like thoſe of Tanſey, but are of a hoary green colour; the ſtalks riſe a foot and a half high, which are fully garniſhed with leaves of the ſame form, but gradually diminiſh in their ſize upward; the flowers are produced in cluſters at the top of the ſtalks, they are ſmall, and of a pale yellow colour; theſe are ſucceeded by ſlender taper pods two inches long, which contain two rows of ſmall round ſeeds.

The ſixth ſort grows naturally in Italy and Spain; this is an annual plant, with many oblong leaves, which are ſmooth and regularly ſinuated on their ſides, in form of a winged leaf; they are five or ſix inches long, and one inch and a half broad, of a light green, having a hot biting taſte; the ſtalks riſe about a foot high, they are ſtrong, and divide into ſeveral branches; theſe are garniſhed with a ſingle leaf at each joint, ſhaped like thoſe below, but ſmaller. The flowers are produced in looſe cluſters at the end of the branches; theſe are white, and near as large as thoſe of the Garden Rocket, and are ſucceeded by taper pods three inches long, containing two rows of round ſeeds. Theſe plants are preſerved in ſome gardens for the ſake of variety, therefore they are here mentioned; and thoſe who are inclined to cultivate them, may do it by ſowing their ſeeds on a bed of light earth in an open ſituation; and when the plants come up, they will require no other culture but to thin them, and keep them clear from weeds. They flower in June and July, and their ſeeds ripen in Auguſt.

ERUCAGO. See Bunias.

ERVUM. Lin. Gen. Plant. 784. Tourn. Inſt. R. H. 398. tab. 221. *Bitter Vetch.*

The Characters are,

The empalement of the flower is divided into five equal parts, which end in acute points; the flower is of the butterfly kind, having a large, roundiſh, plain ſtandard, two obtuſe wings half the length of the ſtandard, and a ſhorter keel which is pointed. It hath ten ſtamina, nine joined, and one ſtanding ſeparate, terminated by ſingle ſummits. It hath an oblong germen, ſupporting a riſing ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes an oblong taper pod, jointed between each ſeed.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, which includes thoſe plants with a butterfly flower, with ten ſtamina ſeparated in two bodies. To this genus Dr. Linnæus has joined the Lens of Tournefort, and ſome ſpecies of Vicia. The difference which he makes between Vicia and Ervum is only in their ſtigmas, that of Vicia having an obtuſe ſtigma, bearded on the under ſide, and that of the Ervum is ſmooth.

The Species are,

1. Ervum (*Ervilia*) germinibus undato-plicatis foliis impari pinnatis. Hort. Upſal. 224. *Ervum whoſe germens are waved and folded, and unequal winged leaves.* Ervum verum. Camer. Hort. *The true Bitter Vetch.*

2. Ervum (*Lens*) pedunculis ſubbifloris ſeminibus compreſſis convexis. Lin. Sp. Plant. 738. *Ervum with foot-ſtalks having two flowers, and compreſſed ſeeds which are convex.* Lens vulgaris. C. B. P. 346. *Common Lentils.*

3. Ervum (*Monanthos*) pedunculis unifloris. Lin. Sp. Plant. 738. *Ervum with one flower on each foot-ſtalk.* Lens monanthos. H. L. 360. *One flowered Lentil.*

4. Ervum (*Tetraſpermum*) pedunculis ſubbifloris, ſeminibus globoſis quaternis. Flor. Suec. 606. *Ervum with two flowers on each foot-ſtalk, and four globular ſeeds in each pod.* Vicia ſegetum ſingularibus ſiliquis glabris. C. B. P. 345. *Corn Vetch with ſingle ſmooth pods.*

5. Ervum (*Hirſutum*) pedunculis multifloris, ſeminibus globoſis binis. Lin. Sp. Plant. 738. *Ervum having many flowers on a foot-ſtalk, and two globular ſeeds in each pod.* Vicia ſegetum, cum ſiliquis plurimis hirſutis. C. B. P. 345. *Corn-Vetch having many hairy pods.*

The firſt ſort grows naturally in Italy and Spain: it is an annual plant, which riſes with angular weak ſtalks a foot and a half high, garniſhed at each joint with one winged leaf, compoſed of fourteen or fifteen pair of lobes, very like thoſe of the Vetch, but narrower; the flowers come out from the ſide of the ſtalks, on foot-ſtalks an inch long, each ſuſtaining two pale-coloured flowers, which are ſucceeded by ſhort pods a little compreſſed, each having three or four round ſeeds; the pods ſwell at the place where each ſeed is lodged, ſo that it is called a jointed pod by many. The ſeeds of this plant ground to flour is ſometimes uſed in medicine; and the green herb is uſed for feeding of cattle in ſome countries, but it is not worth cultivating for that purpoſe in England.

The ſecond ſort is the common Lentil, which is cultivated in many parts of England, either as fodder for cattle, or for the ſeeds, which are frequently uſed for meagre ſoups. This is alſo an annual plant, and is one of the leaſt of the pulſe kind, which is cultivated: it riſes with weak ſtalks a foot and a half high, garniſhed with winged leaves at each joint, compoſed of ſeveral pair of narrow lobes, terminated by a tendril or claſper, which faſtens to any neighbouring plant, and is thereby ſupported; the flowers come out upon ſhort foot-ſtalks from the ſide of the branches; they are ſmall, of a pale purple colour, three or four ſtanding upon a foot-ſtalk; theſe are ſucceeded by ſhort flat pods, containing two or three ſeeds, which are flat, round, and a little convex in the middle. The flowers appear in May, and the ſeeds ripen in July. The ſeeds of this plant are commonly ſown in March, where the land is dry, but in moiſt ground the beſt time is in April. The uſual quantity of ſeed allowed to an acre of land, is from one buſhel and a half to two buſhels. If theſe are ſown in drills in the ſame manner as Peas, they will ſucceed better than when they are ſown in broad caſt: the drills ſhould be a foot and a half aſunder, to allow room for the Dutch hoe to clean the ground between them; for if the weeds are permitted to grow among them, they will get above the Lentils and ſtarve them. The ſeeds of theſe will ripen in July, when the plants ſhould be cut and dried, and afterward the ſeeds ſhould be threſhed out for uſe.

The ſeeds of Lentils are frequently the common food of the poorer ſort of people in ſome of the iſlands of the Archipelago, and other warm countries, when they can meet with no better fare; for theſe they loath, when they have better food, from whence came the proverb, *Dives factus jam diſit gaudere lente*; which is applied to thoſe who ſpurn at thoſe things in eaſy circumſtances, which they were glad of in a low condition.

There is another ſort of Lentil which has been cultivated of late years in England, by the title of French Lentil. This is the Lens major of Caſpar Bauhin, and is undoubtedly a different ſpecies from the common, being twice the ſize, both in plant and ſeed, and conſtantly produces the ſame from ſeeds, though they do not differ much in their characters, but this is much better worth cultivating than the other. This pulſe is frequently called Tills in many parts of England.

The third ſort is very like the common Lentil, but differs from it, in having but one flower on each foot-ſtalk, whereas the other has three or four, but in other reſpects is the ſame, ſo may be cultivated in the ſame manner.

The fourth and fifth ſorts are ſmall annual Vetches, which grow naturally among the Wheat and Rye in many parts of England, ſo are not admitted into gardens; they are only mentioned here as weeds, which may be eaſily rooted out of the fields, if they are cut up when they begin to flower, and not permitted to ripen their ſeeds; for as they have annual roots, ſo if they do not ſcatter their ſeeds, they may be ſoon deſtroyed.

ERVUM ORIENTALE. See Sophora.

ERYNGIUM. Lin. Gen. Plant. 287. Tourn. Inſt. R. H. 327. tab. 173. Sea Holly, or Eryngo.

The Characters are,

It hath many ſmall flowers ſitting upon one common conical receptacle, whoſe involucrum is compoſed of ſeveral plain leaves; the flowers have a five-leaved erect empalement, coloured on the upper ſide, ſitting upon the germen; theſe form a roundiſh general umbel, which is uniform. The flowers have five oblong petals, which are turned inward at top and bottom, and five erect hairy ſtamina, ſtanding above the flowers, terminated by oblong ſummits; under the empalement is ſituated a prickly germen, ſupporting two ſlender ſtyles, crowned by ſingle ſtigmas. The germen afterward becomes an oval fruit divided in two parts, each having one oblong taper ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and two ſtyles.

The Species are,

1. Eryngium (*Maritimum*) foliis radicalibus ſubrotundis plicatis ſpinoſis, capitulis pedunculatis. Hort. Cliff. 87. *Sea Holly whoſe lower leaves are folded, roundiſh, and prickly, and flower-heads having foot-ſtalks.* Eryngium maritimum. C. B. P. 386. *Sea Holly, or Eryngo.*
2. Eryngium (*Campeſtre*) foliis amplexicaulibus pinnato laciniatis. Hort. Cliff. 87. *Sea Holly whoſe leaves embrace the ſtalks, and are cut like winged leaves.* Eryngium vulgare. C. B. P. 386. *Common Eryngo.*
3. Eryngium (*Planum*) foliis radicalibus ovalibus planis crenatis, capitulis pedunculatis. Hort. Cliff. 87. *Sea Holly whoſe lower leaves are plain, oval, and crenated, with flower-heads having foot-ſtalks.* Eryngium latifolium planum. C. B. P. 386. *Broad-leaved plain Eryngo.*
4. Eryngium (*Amethyſtinum*) foliis trifidis baſi ſubpinnatis. Lin. Sp. Plant. 337. *Eryngo with trifid leaves, and thoſe at the baſe winged.* Eryngium montanum amethyſtinum. C. B. P. 386. *Purple Violet-coloured Mountain Eryngo.*
5. Eryngium (*Palleſcente*) foliis radicalibus rotundato-multifidis, capitulis pedunculatis. *Eryngo whoſe lower leaves are roundiſh and multifid, having foot-ſtalks to the heads of flowers.* Eryngium Alpinum amethyſtinum, capitulo majore palleſcente. Tourn. Inſt. 328. *Alpine Eryngo with a large pale-coloured head.*
6. Eryngium (*Orientale*) foliis radicalibus pinnatis, ſerrato-ſpinoſis, foliolis trifidis. *Eryngo whoſe lower leaves are winged, ſpiny indented, and the ſmaller ones trifid.* Eryngium Orientale, foliis trifidis. T. Cor. 23. *Oriental Eryngo with trifid leaves.*
7. Eryngium (*Aquaticum*) foliis gladiatis ſerrato-ſpinoſis, floralibus indiviſis caule ſimplici. Lin. Sp. Plant. 336. *Eryngo with ſword-ſhaped leaves which are ſpiny and indented, and the upper ones entire.* Eryngium foliis gladiolatis utrinque laxè ſerratis, denticulis ſubulatis. Lin. Hort. Cliff. 88. *American Sea Holly with leaves like the Aloe, lightly ſawed, commonly called Rattleſnake Weed in America.*
8. Eryngium (*Puſillum*) foliis radicalibus oblongis inciſis, caule dichotomo, capitulis ſeſſilibus. Hort. Cliff. 87. *Eryngo with oblong lower leaves which are cut, a ſtalk divided by pairs, and heads ſitting cloſe.* Eryngium planum minus. C. B. P. 386. *Leſſer plain Eryngo.*
9. Eryngium (*Alpinum*) foliis radicalibus cordatis oblongis, caulinis pinnatifidis, capitulo ſubcylindrico. Lin. Sp. Plant. 233. *Eryngo with oblong, heart-ſhaped, lower leaves, thoſe upon the ſtalks wing-pointed, and cylindrical heads.* Eryngium Alpinum cæruleum, capitulis diſpaci. C. B. P. 386. *Blue Alpine Eryngo with heads like the Teaſel.*
10. Eryngium (*Fœtidum*) foliis radicalibus ſubenſiformibus ſerratis floralibus multifidis caule dichotomo. Lin. Sp. Plant. 336. *Eryngo with ſword-ſhaped lower leaves having ſpiny ſaws, the upper leaves ending in many points.* Eryngium foliis anguſtis ſerratis fœtidum. Sloan. Cat. Jam. 127. *Stinking Eryngo having narrow ſawed leaves, commonly called Feverweed.*

The firſt of theſe ſpecies grows in great plenty on the ſandy and gravelly ſhores in divers parts of England, the roots of which are candied, and ſent to London for medicinal uſe, and is the true Eryngo. This hath creeping roots, which run deep into the ground; the leaves are roundiſh, ſtiff, and of a gray colour, ſet with ſharp ſpines on the edges. The ſtalks riſe a foot high, and divide upward into two or three ſmaller branches; they are ſmooth, and garniſhed at each joint with leaves of the ſame form as the lower, but ſmaller, which embrace the ſtalks with their baſe; at the end of the branches come out the flowers in roundiſh prickly heads; under each is ſituated a range of narrow, ſtiff, prickly leaves, ſpreading like the rays of a ſtar; the flowers are of a whitiſh blue colour. They appear in July, and the ſtalks decay in autumn.

This ſort will grow in a garden, if the roots are planted in a gravelly ſoil, and produce their flowers annually; but the roots will not grow near ſo large or fleſhy as thoſe which grow on the ſea-ſhore, where they are flowed with ſalt water. The beſt time to tranſplant the roots is in autumn, when their leaves decay; the young roots are much better to remove than the old, becauſe they are furniſhed with fibres, ſo will readily take root: when theſe are fixed in the ground, they ſhould remain unremoved; and if they are kept clean from weeds, it is all the culture they will require.

The ſecond ſort grows naturally in ſeveral parts of England, where it is a very troubleſome weed, for the roots run deep into the ground, ſo are not eaſily deſtroyed by the plough; and they ſpread and multiply greatly in the ground, to the prejudice of whatever is ſown or planted on the land, therefore it is not admitted into gardens.

The third ſort makes a very pretty appearance when it is in flower, eſpecially that with the blue ſtalks and flowers, for there is a variety of this with white flowers and ſtalks; but as this doth not ſpread at the root, but keeps within bounds, ſo a few of the plants ſhould be allowed a place in the pleaſure-garden. This is propagated by ſeeds, which, if ſown in the autumn, will more certainly ſucceed than when it is ſown in the ſpring, for the latter commonly remains in the ground a year before they vegetate; and if the ſeeds are ſown where the plants are to remain, they will flower ſtronger than thoſe which are tranſplanted; for as they have long downright roots, ſo theſe are commonly broken in taking out of the ground, which greatly weaken the plants. The culture they require is to thin them where they are too near, keep them clean from weeds, and dig the ground about them every ſpring before they ſhoot.

The ſtalks of this ſort will riſe from two to three feet high, the lower leaves are oval and plain; thoſe of the white ſort are of a lighter green than thoſe of the blue; the upper part of the ſtalks of the white are of that colour, thoſe of the blue are of the colour of amethyſt; the ſtalks divide upward, where they are garniſhed with leaves divided into many points ending with ſpines; the flowers are produced in oval heads at the top of the ſtalk, ſtanding upon ſeparate foot-ſtalks. The flowers come out in July, and the ſeeds ripen in September.

The fourth ſort grows naturally upon the mountains of Syria, and alſo upon the Apennines. The lower leaves of this ſort are divided like the fingers of a hand, into five or ſix ſegments, which are very much cut at their extremities into many parts, and have ſmall ſpines; the ſtalk riſes about two feet high, garniſhed with ſmaller and more divided leaves; the upper part of the ſtalk, and alſo the heads of flowers, are of the fineſt amethyſt colour, ſo that they make a very fine appearance. This ſort flowers in July, and when the autumn proves dry, their ſeeds will ripen in September, but in wet ſeaſons the ſeeds never ripen in England. This is propagated by ſeeds in the ſame manner as the former ſort.

The fifth ſort has been ſuppoſed by many, to be only a variety of the fourth; but I have propagated it by ſeeds more than thirty years, without finding the leaſt alteration, ſo that I make no doubt of its being a diſtinct ſpecies. The lower leaves of this are very much divided, and the extremity of the ſegments form an oval or circle; theſe are divided into many fine parts, which end in ſpines; they are of a whitiſh gray in the middle, and green on the borders. The ſtalks riſe about two feet high, garniſhed at the joints with ſmaller leaves which are finely cut; the flowers terminate the ſtalk, they are of a light blue colour, and grow in larger heads than either of the former ſorts. It flowers in June and July, and the ſeeds ripen in autumn. This grows naturally on the Alps; it is a perennial plant, and may be propagated by ſeeds in the ſame manner as the former.

The ſixth ſort was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the royal garden at Paris. This hath a perennial root, the lower leaves are regularly divided into ſeven or nine parts to the midrib, as the other winged leaves; theſe ſegments are ſawed on their edges, which end in ſharp thorns. The ſtalks riſe two feet high, ſending out ſide branches, garniſhed with ſtiff leaves, which are divided into narrower ſegments than the lower, and are terminated by three points. The flowers terminate the ſtalks, ſitting cloſe among the leaves, and are of a fine blue, as are alſo the leaves on the upper part of the ſtalks, ſo they make a pretty appearance. This flowers in July, but ſeldom ripens ſeeds in England. It is propagated in the ſame manner as the three former ſorts, and the plants require the ſame treatment.

The ſeventh ſort grows naturally in Virginia and Carolina, where it is titled Rattleſnake Weed, from its virtues of curing the bite of that venomous reptile. This hath a perennial root, from which ariſe ſeveral long leaves, which are ſawed on their edges, ending in ſpines; theſe leaves are diſpoſed round the root, after the ſame form of the Aloe or Yucca; they are of a gray colour, a foot long or more, and one inch and a half broad, ſtiff, and end in ſpines. The ſtalk is ſtrong, grows two feet high, dividing upward into ſeveral foot-ſtalks, each being terminated by an oval head of flowers, ſhaped like thoſe of the former ſorts; they are white, with a little caſt of pale blue. This ſort flowers in July, but unleſs the ſeaſon is very warm, the ſeeds will not ripen in England.

This ſort is propagated by ſeeds, which, if ſown in pots and plunged into a moderate hot-bed, the plants will come up much ſooner than thoſe which are ſown in the full ground, whereby they will be much ſtronger before the winter. When the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, filled with light earth; and if they are plunged into a moderate hot-bed, it will forward their taking root; then they muſt be gradually inured to bear the open air, into which they may be removed toward the latter end of May, and placed among other hardy exotic plants. When the plants have filled theſe pots with their roots, ſome of them may be ſhaken out, and planted in a warm border; the others may be put into larger pots, and in the autumn placed under a common frame, where they may be expoſed to the free air in mild weather, but ſheltered from ſevere froſt: the following ſpring theſe may be turned out of the pots, and planted in a warm ſituation, where they will endure the cold of our ordinary winters very well; and if in ſevere froſt they are covered with Straw, Peas-haulm, or any ſuch light covering, it will ſecure them from injury.

The eighth ſort grows naturally in Spain and Italy. This puts out oblong plain leaves from the root, which are cut on their edges; the ſtalks riſe about a foot high, and branch out into many forked diviſions, which are regular, and at each of theſe diviſions is ſituated a ſmall head of flowers, ſitting very cloſe between the branches. Theſe have no great beauty, ſo the plants are ſeldom cultivated in gardens, except for the ſake of variety.

The ninth ſort grows naturally on the mountains of Helvetia and Italy. The root is perennial, the lower leaves are oblong, heart-ſhaped, and plain; the ſtalks riſe from two to three feet high, branching out on their ſides upward; theſe are garniſhed with ſtiff leaves, which are deeply divided, ending in many points with ſharp ſpines; the flowers terminate the ſtalks, they are collected into conical heads, and are of a light blue colour, as are alſo the upper part of the ſtalks. This flowers in July, and the ſeeds are ripe in September; it is propagated by ſeeds in the ſame manner as the other ſorts.

The tenth ſort grows naturally in the Weſt-Indies, where it is much uſed in medicine, being accounted of great ſervice in the cure of fevers, from whence it hath the appellation of Feverweed in thoſe countries. The roots of this plant are compoſed of many ſmall fibres, which ſpread near the ſurface; the lower leaves are ſix or ſeven inches long; they are narrow at their baſe, and enlarge upward to an inch in breadth near the top, where they are rounded off on one ſide like a ſcymitar; they are finely ſawed on their edges, and are of a light green colour; the ſtalk riſes about a foot high, and ſpreads out into many branches, garniſhed with ſmall leaves, which end in many points; the flowers are produced in ſmall heads which ſit cloſe to the ſtalks, coming out at every diviſion of the ſtalks, and at the end of the branches; theſe are of a dull white colour, ſo make little appearance. They appear in June and July, and the ſeeds ripen in autumn. As this plant is a native of hot countries, ſo it will not thrive in England, but in a warm ſtove. It is propagated by ſeeds, which muſt be ſown on a hot-bed; and when the plants are fit to remove, they ſhould be each planted into a ſmall pot, and plunged into the bark-bed, and afterward treated like other tender plants from the ſame country; the ſecond year they will produce flowers and ſeeds, ſoon after which they commonly decay.

ERYSIMUM. Lin. Gen. Plant. 729. Tourn. Inſt. R. H. 228. tab. 111. ['Ερύσιμον, of ἐρύω, *Gr.* to draw out, becauſe this plant, by means of its hot quality, has the quality of drawing any thing out of the body in which it lies hid.] Hedge-Muſtard; in French, *Velar*, or *Tortelle*.

The CHARACTERS are,

The empalement of the flower is compoſed of four oblong, oval, coloured leaves; the flower hath four petals, placed in form of a croſs; theſe are oblong, plain, and obtuſe; it hath two nectarious glands, ſituated between the ſtamina. It hath ſix ſtamina, four of which are the length of the empalement, the other two are a little ſhorter, terminated by ſingle ſummits. It hath a very narrow four-cornered germen as long as the ſtamina, with a ſhort ſtyle, crowned by a ſmall permanent ſtigma; the germen afterward becomes a long, narrow, four-cornered pod with two cells, filled with ſmall round ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, which includes thoſe plants whoſe flowers have four long and two ſhort ſtamina, and the ſeeds are included in long pods.

The SPECIES are,

1. ERYSIMUM (*Officinale*) ſiliquis ſpicæ adpreſſis foliis runcinatis. Hort. Cliff. 337. *Hedge Muſtard whoſe pods are preſſed cloſe to the ſpikes.* Eryſimum vulgare. C. B. P. 100. *Common Hedge Muſtard.*
2. ERYSIMUM (*Barbarea*) foliis lyratis extimo ſubrotundo. Flor. Suec. 557. *Hedge Muſtard with harp-ſhaped leaves, the outer ſegment being roundiſh.* Siſymbrium erucæ folio glabro flore. Tourn. Inſt. 226. *Winter Creſs with a Rocket leaf and yellow flower.*
3. ERYSIMUM (*Vernum*) foliis radicalibus lyratis, caulinis pinnato-ſinuatis, floribus laxè ſpicatis. *Hedge Muſtard with lower leaves ſhaped like a harp, thoſe on the ſtalks ſinuated and winged, and flowers growing in looſe ſpikes.* Siſymbrium erucæ folio glabro minus & præcocius. Tourn. Inſt. 226. *Smaller early Winter-Creſs with a ſmooth Rocket leaf.*
4. ERYSIMUM (*Orientale*) foliis radicalibus ovatis integerrimis, petiolis decurrentibus, caulinis oblongis dentatis ſeſſilibus. *Hedge Muſtard with lower leaves oval and entire, a winged foot-ſtalk, and the leaves upon the ſtalks oblong, indented, and ſitting cloſe.* Siſymbrium Orientale barbareæ facie, plantaginis folio. Tourn. Cor. 16. *Oriental Siſymbrium with the appearance of Water-Creſs and a Plantain Leaf.*
5. ERYSIMUM (*Minus*) foliis inferioribus pinnato-ſinuatis, ſuperioribus oblongis dentatis, floribus ſolitariis alaribus. *Hedge Muſtard whoſe lower leaves are winged and ſinuated, the upper oblong and indented, and ſingle flowers proceeding from the ſides of the ſtalks.* Siſymbrium minus erucæ folio glabro nigro, craſſo lucido. Boerh. Ind. alt. 2. 16. *Smaller Winter Creſs, with a ſmooth, dark, thick, ſhining Rocket leaf.*
6. ERYSIMUM (*Alliaria*) foliis cordatis. Hort. Cliff. 338. *Hedge Muſtard with heart-ſhaped leaves.* Heſperis allium redolens. Mor. Hiſt. 2. 252. *Dames Violet ſmelling like Garlick, commonly called Alliaria, Sauce alone, or Jack by the Hedge.*
7. ERYSIMUM (*Cheiranthoides*) foliis lanceolatis integerrimis. Flor. Lapp. 263. *Hedge Muſtard with entire ſpear-ſhaped leaves.* Leucoium heſperidis folio. Tourn. Inſt. 221. *Gilliflower with a Dames Violet leaf.*

The firſt ſort is uſed in medicine; this grows naturally on the ſide of foot-paths, and upon old walls in moſt parts of England, ſo is rarely cultivated in gardens, where, if it is once admitted, will ſoon become a troubleſome weed.

The ſecond and third ſorts alſo grow naturally on the banks in moſt parts of England; theſe were formerly eaten in winter ſallads, before the Engliſh gardens were furniſhed with better plants; ſince when they have been rejected, for they have a rank ſmell, and are diſagreeable to the palate.

The fourth and fifth ſorts are not natives of this country, but ſince they have been introduced into ſome Engliſh gardens, they have propagated themſelves by their ſcattered ſeeds in ſo plentiful a manner, as to become troubleſome weeds. Theſe have a reſemblance of the common Winter Creſs, but the lower leaves of the fourth ſort are entire, and of an oblong form; the upper leaves are oblong and indented, in which this differs.

The fifth ſort hath thicker leaves, which are of a dark lucid green colour, and the flowers come out ſingle from the wings of the ſtalk the whole length. Theſe differences are laſting, and do not alter.

The ſixth ſort grows naturally on the ſides of banks in many parts of England, ſo is not ſuffered to have a place in gardens. This was formerly eaten as a ſallad herb by the poorer ſort of people, who gave it the title of Sauce alone. This hath a rank ſmell and taſte of Garlick, and is very biting and hot on the palate; it is frequently preſcribed in medicine.

The ſeventh ſort is ſometimes found growing naturally upon old walls in ſome parts of England, particularly at Cambridge and Ely, at both which places I have obſerved it. This hath pretty long, hairy, ſoft leaves at the root; the ſtalks riſe near a foot high, their upper part being garniſhed with ſmall greeniſh white flowers in looſe ſpikes; theſe are ſucceeded by long compreſſed pods which hang downward. It flowers in May, and the ſeeds ripen in July and Auguſt; but the roots will abide ſeveral years, if they have a dry lean ſoil, or grow upon a wall, for in rich land they ſoon decay.

The other ſorts are ſometimes kept in botanic gardens for the ſake of variety; they are biennial plants, which periſh after they have perfected their ſeeds. Theſe may be propagated by ſowing their ſeeds in the autumn, in the places where they are to remain, and require no other culture but to thin them, and keep them clear from weeds.

ERYTHRINA. Lin. Gen. Plant. 762. Corallodendron. Tourn. Inſt. R. H. 661. tab. 446. Coral-tree.

The CHARACTERS are,

The flower hath a tubulous empalement of one leaf, which is entire and indented at the brim. The flower is of the butterfly kind, compoſed of five petals; the ſtandard is ſpear-ſhaped, and deflexed on the ſtyles; it is very long, and riſes upward; the two wings are ſcarce longer than the empalement, and are oval; the keel is compoſed of two petals which are no longer than the wings, and are indented at the top; it hath ten ſtamina which are joined below, and are a little curved, about half as long as the ſtandard, and are unequal in their length, terminated by arrow-pointed ſummits; it hath an awl-ſhaped germen with a foot-ſtalk, narrowed at the ſtyle, which is the length of the ſtamina, terminated by a ſingle ſtigma. The germen afterward becomes a long ſwelling pod ending in an acute point, having one cell, filled with kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, which includes the plants with a butterfly flower, having ten ſtamina joined in two bodies.

The SPECIES are,

1. ERYTHRINA (*Herbacea*) foliis ternatis, caule ſimpliciſſimo inermi. Hort. Cliff. 354. *Erythrina with trifoliate leaves, and a ſingle ſmooth ſtalk.* Corallodendron humile, ſpicâ florum longiſſimâ, radice craſſiſſimâ. Cateſb. Carol. 49. tab. 49. *Low Coral-tree with a very*

long ſpike of flowers and thick root, commonly called the Carolina Coral-tree.

2. **Erythrina** (*Corallodendron*) inermis, foliis ternatis, caule arboreo. *Smooth Erythrina with trifoliate leaves, and a tree-like ſtalk.* Coral arbor Americana. Hort. Amſt. 1. p. 211. *Smooth American Coral-tree.*
3. **Erythrina** (*Spinoſa*) foliis ternatis, caule arboreo aculeato. Hort. Cliff. 354. *Erythrina with trifoliate leaves, and a tree-like prickly ſtalk.* Corallodendron triphyllum Americanum, ſpinoſum, flore ruberrimo. Tourn. Inſt. R. H. 661. *Prickly three-leaved American Coral-tree, with a very red flower.*
4. **Erythrina** (*Picta*) foliis ternatis aculeatis caule arboreo aculeato. Lin. Sp. 993. *Erythrina with trifoliate prickly leaves, and a prickly tree-like ſtalk.* Corallodendron triphyllon Americanum, minus ſpinis & ſeminibus nigricantibus. Tourn. Inſt. R. H. 661. *Smaller three-leaved American Coral-tree, with blacker ſpines and ſeeds.*
5. **Erythrina** (*Americana*) foliis ternatis acutis, caule arboreo aculeato, floribus ſpicatis longiſſimis. *Erythrina with trifoliate acute-pointed leaves, a prickly tree-like ſtalk, and very long ſpikes of flowers.* Corallodendron triphyllon Americanum, foliis mucronatis, ſeminibus coccineis. Houſt. MSS. *Three-leaved American Coral-tree, with acute-pointed leaves and ſcarlet ſeeds.*
6. **Erythrina** (*Inermis*) foliis ternatis acutis, caule fruticoſo inermi, corollis longioribus clauſis. *Erythrina with acute trifoliate leaves, a ſhrubby unarmed ſtalk, and longer flowers which are cloſed.* Coral arbor non ſpinoſa, flore longiore & magis clauſo. Sloan. Cat. Jam. 142. *Coral-tree without ſpines, having a longer cloſer flower.*

The firſt ſort grows naturally in South Carolina, from whence Mr. Cateſby ſent the ſeeds in the year 1724, and many of the plants were then raiſed in ſeveral curious gardens. This hath a very large woody root, which ſeldom riſes more than a foot and a half high, from which come out freſh ſhoots every ſpring; theſe grow about two feet high, their lower part being garniſhed with trifoliate leaves, of a deep green colour, which are ſhaped like the point of an arrow; the upper part of the ſtalks are terminated by a long ſpike of ſcarlet flowers, compoſed of five petals, the upper petal being much longer than the other, ſo that at a ſmall diſtance the flowers appear to have but one petal. After the flowers are paſt, the germen turns to a taper pod five or ſix inches long, ſwelling in every part where the ſeeds are lodged, opening in one cell, containing five or ſix kidney-ſhaped ſcarlet ſeeds. Theſe plants flower in England, but they never produce ſeeds here.

The ſecond ſort hath a thick woody ſtem, which riſes about ten or twelve feet high in this country, but in its native country grows to twice that height, ſending out many ſtrong irregular branches, which are covered with a brown bark, garniſhed with trifoliate leaves ſtanding upon long foot-ſtalks, the middle lobe which terminates the leaf, being much larger than the other two; they are all heart-ſhaped, ſmooth, and of a deep green colour; the flowers come out at the end of the branches, in ſhort, thick, cloſe ſpikes; they are of a deep ſcarlet colour, and make a fine appearance. Theſe commonly are in beauty in May and June in this country, but are not ſucceeded by pods here; but in America, where the trees grow naturally, they have thick, ſwelling, crooked pods, which contain large kidney-ſhaped ſeeds, of a reddiſh purple colour. The leaves of this tree decay in the ſpring and fall off, ſo that in ſummer they appear to have no life; but in the autumn it puts out new leaves, which continue green all the winter. The flowers do not appear till the leaves drop, ſo that the branches are often naked at the time when the flowers are out.

The third ſort chiefly differs from the ſecond, in having its trunk, branches, and the foot-ſtalks of the leaves, armed with ſhort crooked ſpines, the leaves and flowers being very like thoſe of the ſecond ſort.

The fourth ſort hath ſhrubby ſtalks, which divide into branches, and ſeldom riſe above eight or nine feet high; theſe are armed in every part with ſtrong, crooked, black ſpines; the leaves are ſmaller than thoſe of the two laſt ſorts, and have a nearer reſemblance of the firſt; the foot-ſtalks of the leaves are armed with the ſame ſort of ſpines, and the midrib of the leaves have alſo ſome which are ſmaller and not ſo black; the flowers are of a paler ſcarlet, and grow in looſer ſpikes. The ſeeds are as large as thoſe of the ſecond ſort, but are of a dark purple colour.

This tree is generally planted in the Eaſt-Indies for a ſupport to the Pepper plants, which twine round the ſtem and branches, whereby they are prevented trailing on the ground; and as the branches of this tree will put out roots and grow, ſo they are preferable to any dead props, which in thoſe hot countries, where there is much rain, would ſoon rot.

The ſeeds of the fifth ſort were ſent me from La Vera Cruz, where the plants grow naturally; and ſince I have received ſeeds of the ſame ſort from the Cape of Good Hope, ſo that it is a native of both countries. The ſeeds of this are not half ſo large as thoſe of the ſecond or third ſorts, and are of a bright ſcarlet colour; the leaves are alſo much ſmaller, and have long acute points; the branches are very cloſely armed with crooked greeniſh ſpines, as are alſo the ribs and foot-ſtalks of the leaves. The flowers grow in very long cloſe ſpikes, and are of a beautiful ſcarlet colour.

I have alſo raiſed a variety of this with paler flowers and ſeeds, and the plants were leſs thorny; but as I was doubtful of its being a diſtinct ſpecies, ſo I only mention it here.

The ſixth ſort grows in Jamaica, and ſome of the other iſlands in America, from whence I have received the ſeeds. The pods of this ſort are longer, and not more than half ſo thick as thoſe of the ſecond ſort; the ſeeds are of a bright ſcarlet colour, they are longer and ſlenderer than thoſe of the other ſorts; the leaves are ſmall and acute-pointed, and the ſtalks are ſmooth and without ſpines: this doth not grow very large, but ſhoots out into branches at a little diſtance from the ground, which grow erect, ſo form a buſhy ſhrub. The flowers come out at the end of the branches in ſhort ſpikes; the ſtandard of the flower is long, and the ſides turn down over the wings, which are alſo longer than thoſe of the other ſpecies, and the whole flower is more cloſed.

I have alſo received ſpecimens of a variety of the third ſort from the iſland of Barbuda, with very ſhort flowers and pods; they came by the title of Bean-tree, which is the common appellation given to theſe trees in America; but the flowers were ſeparated from the ſtalks, ſo that I can give no account in what manner they grow, whether in long or ſhort ſpikes; but the ſtamina of theſe are much longer than the petals, in which it differs from all the other; the pods are very ſhort and crooked, but are rather thicker than thoſe of the third ſort; the leaves have the ſame appearance, and are armed with ſpines, as are alſo the ſtalks and branches, but the plants have not as yet produced any flowers here.

A few years ago I received a few very ſmall ſeeds of a Coral-tree from the Cape of Good Hope, which were of a bright ſcarlet colour; the plants have no ſpines on them, the leaves are much larger than the other ſorts, their ſtems are ſtrong, and have the appearance of growing to large trees; but as they are young, ſo there is no determining how they may differ from the other ſpecies.

There are two other ſorts of Coral-tree mentioned by Sir Hans Sloane, in his Hiſtory of Jamaica: one of which is by its characters a Sophora, under which genus we ſhall place it; and the other will be put under Robinia, to which genus it properly belongs.

Theſe plants when they produce their flowers, are ſome of the greateſt ornaments to the ſtoves we yet know; for their flowers are produced in large ſpikes, and are of a beautiful ſcarlet, ſo they make a fine appearance; but it is ſeldom they flower here, or in any of the northern parts of Europe; yet in the countries where they naturally grow, they produce flowers in great plenty every year; ſo that it is very common there to ſee moſt of their branches terminated by large ſpikes of flowers, when they have no leaves upon them; and the firſt ſort, which grows in Carolina, is equally productive of flowers there, tho' here they do not flower oftener than once in two or three years, and the other ſorts not ſo frequent. I have tried by various methods to get them to flower; ſome I have treated hardily, by expoſing them to the open air during the ſummer ſeaſon, and in the winter kept them in a very moderate temperature of warmth; others I have kept plunged all the year in the tan-bed of the ſtove, and ſome have remained in a dry ſtove all the year, where in warm weather they had a large ſhare of air admitted to them, and in winter the air was kept to the temperate point. In this laſt place the plants have ſucceeded beſt, yet with this treatment they ſeldom flower; and this is the general complaint of every one who is poſſeſſed of theſe plants, not only in England, but alſo in Holland and France.

The firſt ſort may be kept through the winter in a warm green-houſe, but the plants ſo kept rarely flower; and the two ſorts which I have received from the Cape of Good Hope, have lived through the winter in a warm glaſs-caſe, without fire; but theſe have not made ſo good progreſs, as thoſe plants which were kept in a temperate warmth; ſo that in this country, it is much the beſt method of treating theſe plants, eſpecially while they are young.

Theſe plants are beſt propagated by ſeeds, when they can be procured from the countries where they naturally grow, for they do not produce any here, tho' they are annually brought to England in plenty. The ſeeds ſhould be ſown in ſmall pots, and plunged into a moderate hot-bed; where, if the ſeeds are good, the plants will come up in a month or five weeks; when they are two inches high, they ſhould be carefully ſhaken out of the pots, and each planted in a ſeparate ſmall pot, filled with light earth, and plunged into a moderate hot-bed of tanners bark, where they muſt be ſhaded from the ſun till they have taken new root; then they ſhould have a large ſhare of air admitted to them at all times when the weather is warm, to prevent their being drawn up weak; and as the plants increaſe in ſtrength, ſo they muſt have a larger ſhare of air. They muſt be frequently refreſhed with water, but not given to them in great plenty, for too much moiſture will rot the fibres of their roots. In the autumn the plants ſhould be removed into the ſtove; and for the two or three firſt winters, while the plants are young, they will require more warmth than when they have acquired more ſtrength. During the time the leaves continue in vigour, the plants will require to have water two or three times a week; but when they are deſtitute of leaves, it muſt be ſparingly given, for moiſture then is very hurtful to them. As the plants grow in ſtrength, ſo they muſt be more hardily treated; and by managing them differently, there will be a greater chance of getting them to flower.

The third ſort is frequently planted in the gardens near Liſbon, where they annually flower and ripen their ſeeds, which have been brought me by perſons who gathered the pods from the trees.

Theſe plants may alſo be propagated by cuttings, which, if planted in pots during the ſummer months, and plunged into a hot-bed, will take root, but the ſeedling plants are beſt.

ERYTHRONIUM. Lin. Gen. Plant. 375. Dens canis. Tourn. Inſt. R. H. 378. tab. 202. Dog's Tooth, or Dog's Tooth Violet.

The CHARACTERS are,

The flower has no empalement; it is bell-ſhaped, and compoſed of ſix oblong petals, which ſpread open to their baſe. It hath ſix ſtamina joined to the ſtyle, terminated by oblong, erect, quadrangular ſummits. In the center is ſituated an oblong, obtuſe, three-cornered germen, ſupporting a ſingle ſtyle which is longer than the ſtamina, crowned by a triple, obtuſe, ſpreading ſtigma. The germen afterward becomes an oblong obtuſe capſule with three cells, filled with flat ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, in which he places thoſe plants whoſe flowers have ſix ſtamina and one ſtyle.

The SPECIES are,

1. ERYTHRONIUM (*Dens Canis*) foliis ovatis. *Erythronium with oval leaves.* Dens canis latiore rotundioreque folio, flore ex purpurâ rubente. C. B. P. 87. *Dog's Tooth Violet with a broader and rounder leaf, and a purple red flower.*
2. ERYTHRONIUM (*Longifolium*) foliis lanceolatis. *Erythronium with ſpear-ſhaped leaves.* Dens canis anguſtiore longioreque folio, flore ex albo purpuraſcente. C. B. P. 87. *Dog's Tooth Violet, with a longer and narrower leaf, and a purpliſh white flower.*

Theſe are the only diſtinct ſpecies which I have ſeen, but there are ſome varities of them, which are preſerved in curious gardens. Of the firſt ſort there is a white flower, which is pretty common in the gardens; another with a pale purple, and a third with yellow flowers, which are rare in England: and of the ſecond ſort there is one with a white, and another with a ſoft red flower, both which are now very rare in the gardens.

The firſt ſort ſends out two oval leaves, which are joined at their baſe: they are three inches long and one and a half broad in the middle, gradually leſſening toward the end; theſe at firſt embrace each other incloſing the flower, but afterward they ſpread flat upon the ground; they are ſpotted with purple and white ſpots all over their ſurface; between theſe riſes a ſingle naked ſtalk about four inches high, which is ſmooth, of a purple colour; this ſuſtains one flower, compoſed of ſix ſpear-ſhaped petals, which in this are purple, but in ſome they are white; the flower hangs downward, and the petals reflex and ſpread open to their baſe. In the center is ſituated the oblong three-cornered germen, ſupporting a ſingle ſtyle which is longer than the ſtamina, crowned by a triple ſtigma; the purple ſtamina ſtand cloſe about the ſtyle, and the ſtigma ſtands farther out. This plant flowers early in April, but ſeldom produces ſeeds in England. The root of this plant is white, oblong, and fleſhy, and ſhaped like a tooth; from whence it had the title of Dog's Tooth.

The ſecond ſort differs from the firſt in the ſhape of its leaves, which are longer and narrower, and the flowers are a little larger but not ſo well coloured. They grow naturally in Hungary, and in ſome parts of Italy. They are propagated by offſets from their roots, which they do not ſend out very plentifully, ſo they are not ſo commonly ſeen in the gardens, as moſt other flowers of the ſame ſeaſon: they love a ſhady ſituation and a gentle loamy ſoil, but ſhould not be too often removed. They may be tranſplanted any time after the beginning of June, when their leaves will be quite decayed, till the middle of September; but the roots ſhould not be kept very long out of the ground, for if they ſhrink, it will often cauſe them to rot. The roots of theſe flowers ſhould not be planted ſcattering in the borders of the flower-garden, but in patches near each other, where they will make a good appearance.

ESCHYNOMENE. See ÆSCHYNOMENA.

ESCHYNOMENOUS, ÆSCHYNOMENOUS PLANTS [Αἰσχυνόμενοι, of αἰσχύνομαι, *Gr.* to be aſhamed,] the ſenſitive plants; which, when one touches them, will ſhrink in, or let their leaves fall down.

ESCULENT PLANTS [of eſculentus, *Lat.* eatable,] ſuch plants, or the roots of them, as may be eaten; as Beets, Carrots, Leeks, Onions, Parſneps, Potatoes, Radiſhes, Horſe-radiſh, Scorzonera, &c.

ESPALIERS, are either rows of trees planted about a whole garden or plantation, or in hedges, ſo as to incloſe quarters or ſeparate parts of a garden, which are trained up flat in a cloſe hedge, for the defence of tender plants againſt the violence and injury of wind and weather.

The moſt commonly received notion of Epaliers are hedges of fruit-trees, which are trained up regularly to a lattice of wood work, formed either of Aſh-poles, or ſquare long timbers cut out of Fir, &c. and it is of this ſort of Eſpalier that I ſhall treat in this place.

Eſpaliers of fruit-trees are commonly planted to ſurround the quarters of a kitchen-garden, for which purpoſe they are of admirable uſe and beauty; for by laying out the walks of this garden regularly, which are bounded on each ſide by theſe hedges, when they are handſomely managed, they have a wonderful effect in ſheltering the kitchen-plants in the quarters, and alſo ſcreening them from the ſight of perſons in the walks; ſo that a kitchen-garden well laid out in this manner, and properly managed, will be equal to the fineſt regular parterre for beauty.

The trees chiefly planted for Eſpaliers are Apples, Pears, and ſome Plums; but the two former are moſtly uſed: ſome plant Eſpaliers of Apples grafted upon Paradiſe-ſtocks; but theſe being of humble growth, and a ſhort duration, are not ſo proper for this purpoſe, unleſs for very ſmall gardens; therefore I ſhould rather adviſe the having them upon Crab-ſtocks, or (if in ſmaller gardens, where the trees cannot be allowed to grow ſo high) upon what the gardeners call the Dutch-ſtock; which will cauſe them to bear ſooner, and prevent their growing too luxuriantly, and theſe will continue many years in vigour.

In chuſing the trees for an Eſpalier, endeavour as near as poſſible, to plant the ſeveral ſorts which are nearly of the ſame growth in one line, that the Eſpalier may be the more regular, and of an equal height, which greatly adds to their beauty; for if you plant trees which ſhoot very unequally in the ſame line, it will be impoſſible to make the Eſpalier regular: beſides, the diſtance of the trees muſt be in proportion to their growth; for ſome trees, viz. thoſe of a larger growth, ſhould be planted thirty or thirty-five feet aſunder; whereas thoſe of ſmaller growth, need not be above twenty-five feet diſtance from each other.

The width of the walks and borders between theſe Eſpaliers ſhould (in a large garden) be fourteen or ſixteen feet at leaſt; and if the trees are deſigned to be carried up pretty high, the diſtance ſhould be greater, that each ſide may receive the advantage of the ſun and air, which is abſolutely neceſſary, if you would have the fruit well taſted. And if your ground is ſo ſituated, that you are at full liberty which way to make the Eſpaliers, I would adviſe the placing the lines from the eaſt a little inclining to the ſouth, and toward the weſt a little inclining to the north, that the ſun may ſhine between the rows in the morning and evening when it is low; for in the middle of the day, when the ſun is advanced far above the horizon, it will ſhine over the tops of the Eſpaliers, and reach the ſurface of the earth about their roots, which is a matter of more conſequence than many people are aware of.

The ſorts of Apples proper for Eſpaliers, are the Golden Pippin, Nonpareil, Rennette Griſe, Aromatick Pippin, Holland Pippin, French Pippin, Wheeler's Ruſſet, Pile's Ruſſet, with ſome others. The ſeaſon for planting, and the method of pruning and training theſe trees, you will ſee under the articles of APPLES and PRUNING.

The ſorts of Pears proper for an Eſpalier, are chiefly the ſummer and autumn fruits, for ſome of the winter Pears ſeldom ſucceed well in an Eſpalier. Theſe trees, if deſigned for a ſtrong moiſt ſoil, ſhould be upon Quince-ſtocks; but if for a dry ſoil upon free-ſtocks. Their diſtance of planting muſt alſo be regulated by the growth of the trees, which are more unequal in Pears than Apples, and ſhould therefore be more carefully examined before they are planted. As for thoſe Pears upon free-ſtocks, the diſtance ſhould never be leſs than thirty feet for moderate growing trees; but for vigorous ſhooters, the ſpace of forty feet is little enough; eſpecially if the ſoil be ſtrong, in which caſe they ſhould be planted at a greater diſtance.

The particular ſorts of Pears I would recommend for an Eſpalier, are the Jargonelle, Blanquette, Poire ſans Peau, Summer Boncretien, Hamden's Bergamot, Autumn Bergamot, L'ambrette, Gros Rouſſelet, Chaumontelle, Beurre du Roy, Le Marquis, Creſſane, with ſome others of leſs note; always remembering, that thoſe Pears which are of the melting kind, will do better in Eſpalier than the breaking Pears, which ſeldom ripen well on an Eſpalier; as alſo that many ſorts of Pears will ripen well on an Eſpalier in a warm ſoil and ſituation, which require a wall in other places; you ſhould alſo be careful of the ſtocks theſe are grafted on; for if the breaking Pears are grafted upon Quince-ſtocks, the fruit will be ſtony, but the melting Pears will be improved by them. As to the method of planting, ſee the article PEAR; and for pruning and managing, ſee PRUNING.

I ſhall now give directions for making the Eſpalier, to which the trees are to be trained; but this ſhould not be done until the third year after the trees are planted; for while they are young, it will be ſufficient to drive a few ſhort ſtakes into the ground on each ſide of the trees, in a ſtrait line, to which the branches ſhould be faſtened in an horizontal poſition, as they are produced, in order to train them properly for the Eſpalier; which ſtakes may be placed nearer, or at a farther diſtance, according as the ſhoots produced may require; and theſe will be ſufficient for the three firſt years; for ſhould you frame the Eſpalier the firſt year the trees are planted, many of the ſtakes would rot before the Eſpalier is covered. The cheapeſt method to make theſe Eſpaliers is with Aſh-poles, of which you ſhould have two ſorts; one of the largeſt ſize, which contains thirteen poles in a bundle, and the other ſize thoſe of half a hundred. The firſt or largeſt ſize poles, ſhould be cut about ſeven feet and a half long; theſe are intended for upright ſtakes, and muſt be ſharpened at the largeſt end, that they may, with more eaſe, be driven into the ground; and if their bottoms are burred, or rubbed over with that compoſition mentioned in the article of COVERINGS, they may be preſerved a long time ſound; theſe ſhould be placed at a foot diſtance from each other in a direct line, and of an equal height, about ſix feet above ground; then you ſhould nail a row of ſtrait ſlender poles along upon the tops of the upright ſtakes, which will keep them exactly even, and continue to croſs the ſtakes with the ſmaller poles, and alſo with the tops which were cut off from the larger ſtakes, at about nine inches diſtance, row from row, from the top to the bottom of the ſtakes. Theſe rows of poles ſhould be faſtened with wire to the ſtakes, which if made of Fir, and painted over, will laſt a long time; and the largeſt end of the poles ſhould be cut flat, and nailed to the upright ſtakes, which will ſecure the Eſpalier almoſt as long as the poles will endure; whereas, if your faſtening is not ſtrong, the poles will be continually diſplaced with every ſtrong wind.

When your Eſpalier is thus framed, you muſt faſten the branches of the trees thereto either with ſmall Oſier-twigs, rope-yarn, or ſome ſuch binding, obſerving to train them in a horizontal poſition, and at equal diſtances; being careful not to croſs any of the branches, nor to lay them in too thick. The diſtance which ſhould be allowed for the branches of Pears and Apples, muſt be proportioned according to the ſize of their fruit; ſuch of them whoſe fruit is large, as the Summer Boncretien, Monſieur John, and Beurre du Roy Pears, and the Rennet Griſe, Holland Pippin, French Pippin, and other large Apples, ſhould have their branches ſix or eight inches diſtance at leaſt; and to thoſe of leſſer growth, four or five inches will be ſufficient. But for farther directions, I ſhall refer to the articles of the ſeveral fruits: as alſo that of PRUNING, where theſe particulars will be ſufficiently explained.

But beſides this ſort of Eſpalier made with Aſh-poles, there is another ſort that is by many people preferred; which is framed with ſquare timbers cut to a proper ſize, according to the ſtrength thereof, or the expence the owner is willing to go to. Theſe, though they appear more ſightly, when well fixed and painted, are not of longer duration than one of the former, provided it is well made, and the poles are ſtrong which are ſet upright; nor will they anſwer the purpoſe better, though they are vaſtly more expenſive; for the greateſt beauty conſiſts in the diſpoſing of the branches of tree; which, eſpecially in ſummer, when the leaves are on, will entirely hide from the ſight the frame of the Eſpalier; therefore all expence in erecting theſe is needleſs, farther than making proviſion to ſecure the branches of the trees in a regular order.

Fruit-trees thus planted, and well managed, are much preferable to thoſe trained up in any other figure, upon ſeveral accounts; as firſt, theſe take up very little room in a garden, ſo as not to be hurtful to the plants which grow in the quarters; and, ſecondly, the fruit upon theſe are better taſted than thoſe which grow upon dwarfs, the ſun and air having freer acceſs to every part of the tree; whereby the dampneſs ariſing from the ground is ſooner diſſipated, which is of ſingular advantage to fruit-trees (as hath been already ſhewn.) And as the trees againſt an Eſpalier are kept low, and the branches being faſtened to the Eſpalier, the fruit will not be blown down ſo ſoon by the wind; ſo that upon the whole, Eſpaliers muſt be allowed to be of great uſe and beauty.

EVER-GREEN THORN. See Pyracantha.

EVERLASTING PEA. See Lathyrus.

EUGENIA. Michel. 108.

The Characters are,

The flower hath a permanent empalement of one leaf, cut into four ſegments: the flower hath four oblong obtuſe petals, twice as large as the empalement. It hath many ſtamina which are inſerted in the empalement, terminated by ſmall ſummits, and a turbinated germen ſituated under the flower, ſupporting a ſimple ſtyle the length of the ſtamina, crowned by a ſingle ſtigma. The germen afterward becomes a quadrangular plumb-ſhaped fruit crowned, having one cell incloſing one ſmooth roundiſh nut.

This genus of plants is ranged in the firſt ſection of Linnæus's twelfth claſs, intituled Icoſandria Monogynia, the flower having many ſtamina inſerted in the empalement, and one ſtyle.

The Species are,

1. Eugenia (*Malaccenſis*) foliis integerrimis, pedunculis racemoſis lateralibus. Flor. Zeyl. 187. *Eugenia with entire leaves and branching foot-ſtalks of flowers.* Jamboſa domeſtica. Rump. Amb. 1. p. 121.
2. Eugenia (*Jamboo*) foliis integerrimis, pedunculis racemoſis terminalibus. Flor. Zeyl. 188. *Eugenia with entire leaves, and branching foot-ſtalks of flowers terminiating the branches.* Jamboſa ſylveſtris alba. Rump. Amb. 1. 127.

There are ſome other ſpecies of this genus which grow naturally in India, but thoſe here mentioned are the only ſorts which I have ſeen in the Engliſh gardens. Some plants of the firſt ſort I received from Dr. Heberden with ſome other plants, which were ſent by his brother from the Braſils, where it is cultivated for the table; ſo that the plants of this kind are common in moſt parts of the Eaſt-Indies.

This riſes with a tree-like ſtem, covered with a brown bark, which, in the countries where it grows naturally, riſes from twenty to thirty feet high, ſending out many branches, garniſhed with oblong entire leaves, ending in acute points: theſe are placed oppoſite, and when young, are of a bright purple colour; but as they grow older, become of a light green. The flowers are produced on the ſide of the branches, each foot-ſtalk branching into three or four others, each ſupporting one flower. Theſe are ſucceeded by irregular-ſhaped ſucculent fruit, incloſing one nut.

The ſecond ſort riſes to the ſame height as the firſt, but the leaves are longer and narrower. The flowers do, for the moſt part, terminate the branches, though there are ſome which come on their ſides. The fruit of this is ſmaller, rounder, and not ſo much eſteemed as thoſe of the firſt.

Theſe plants are preſerved in the gardens of the curious for the ſake of variety, though there is little hopes of their producing fruit in England. They may be propagated by their ſtones, if they can be obtained freſh from the countries of their natural growth. The ſtones ſhould be planted in ſmall pots filled with light earth, and plunged into a hot-bed, obſerving to keep the earth moiſt but not wet; in about ſix weeks the plants will appear; and when grown four inches high, they ſhould be carefully ſeparated, planting each into a ſmall pot, plunging them into the hot-bed again, being careful to ſhade them till they have taken new root; after which, they ſhould be treated in the ſame way as other tender plants from the ſame country, always plunging them into the tan-bed in the ſtove; and in winter be ſparing in water to them, for much wet will kill them.

EUONYMUS. Lin. Gen. Plant. 240. Tourn. Inſt. R. H. 617. tab. 388. [Εὐώνυμος, of εὐ, good, and ὄνομα, a name; ſo called by way of antiphraſis, becauſe it is hurtful to animals.] The Spindle-tree, or Prickwood; in French, *Fuſain.*

The Characters are,

It hath a ſhort empalement to the flower of one leaf, which is divided into four or five ſegments. The flower hath four or five oval petals, which ſpread open. It hath five ſhort ſtamina, which are joined at their baſe to the germen, terminated by twin ſummits. In the center is ſituated a large oval germen, ſupporting a ſhort ſtyle, crowned by an obtuſe ſtigma. The germen afterwerd becomes a ſucculent four-cornered coloured capſule, having as many cells as angles, each containing one oval ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

The Species are,

1. Euonymus (*Vulgaris*) foliis lanceolatis, floribus tetrandriis, fructu tetragono. *Spindle-tree with ſpear-ſhaped leaves, flowers having four ſtamina, and quadrangular fruit.* Euonymus vulgaris, granis rubentibus. C. B. P. 428. *The common Spindle-tree.*
2. Euonymus (*Latifolius*) foliis ovato-lanceolatis, floribus pentandris, fructu pentagono, pedunculis longiſſimis. *Spindle-tree with oval ſpear-ſhaped leaves, flowers having five ſtamina, a five-cornered fruit, and very long foot-ſtalks.* Euonymus latifolius. C. B. P. 428. *Broad-leaved Spindle-tree.*
3. Euonymus (*Americanus*) floribus omnibus quinquefidis. Lin. Sp. Plant. 197. *Spindle-tree whoſe flowers are all divided into five points.* Euonymus Virginianus, pyracanthæ foliis, ſempervirens, capſulâ verrucarum inſtar aſperatâ rubente. Pluk. Phyt. 115. f. 5. *Virginian evergreen Spindle-tree with rough, warted, red ſeed-veſſels.*
4. Euonymus (*Pinnatis*) foliis pinnatis, fructu racemoſo trigono. *Spindle-tree with winged leaves, and three-cornered fruit growing in bunches.* Euonymus caudice non ramoſo, folio alato, fructu rotundo tripyreno. Sloan. Cat. Jam. 171. *Spindle-tree with an unbranching ſtalk, a winged leaf, and a round fruit having three ſeeds.*

The firſt ſort grows naturally in England. It is very common in hedges, and is ſometimes found growing in woods. This, when growing in hedges, is ſeldom ſeen of any conſiderable ſize, but rather appears like a ſhrub; but if planted ſingle, and trained up like other trees, will have a ſtrong woody ſtem, and riſe more than twenty feet high, dividing into many branehes, garniſhed with ſpear-ſhaped leaves about three inches long, and one inch and a quarter broad in the middle, gradually diminiſhing to both ends; they are entire, of a deep green colour, and are placed oppoſite. The flowers come out in ſmall bunches from the ſide of the ſtalks, ſtanding upon ſlender foot-ſtalks; they are compoſed of four whitiſh petals, which are expanded in form of a croſs. The empalement is divided into four parts. The flowers have four ſtamina, and the fruit is four-cornered, and opens into four cells. This tree flowers the latter part of May and the beginning of June, and the fruit ripens in October, at which time the ſeed-veſſels ſpread open and expoſe the ſeeds, which are of a beautiful red colour; ſo that when the branches are well ſtored with them, the trees make a good appearance at that ſeaſon, when growing among other ſorts. The wood of this tree is uſed by the muſical inſtrument-makers for toothing of organs and virginal keys; the branches are cut into tooth-pickers, and for making of ſkewers; and ſpindles are made of the wood, from whence the tree was titled Spindle-tree; but in ſome counties it is called Dogwood.

The ſecond ſort grows naturally in Auſtria and Hungary; this was very ſeldom ſeen in England till of late years, ſince I procured it from France, and from the ſeeds of thoſe plants great numbers have been ſince raiſed, ſo it is now pretty common in ſeveral of the nurſeries near London; this riſes with a ſtronger ſtem than the firſt, and grows to a larger ſize. The leaves are oval and ſpear-ſhaped, about four inches long, and two inches broad in the middle, of a light green colour, and entire; they are placed oppoſite on the branches, with ſhort foot-ſtalks. The flowers come out from the ſide of the branches, upon very ſlender foot-ſtalks, which are two inches and a half long; theſe branch out into a looſe bunch, ſo that the flowers ſtand upon ſeparate foot-ſtalks. The flowers have five petals, which at firſt are white, but afterward change to a purple colour; the empalement of the flower is divided into five parts. It hath five ſtamina, and the fruit is frequently five-cornered; the fruit is much larger than that of the common ſort, and the foot-ſtalks being weak, the fruit always hang down. Dr. Linnæus has ſuppoſed theſe to be but one ſpecies, and has taken the characters of this genus from the ſecond ſort, whoſe flowers have five ſtamina and five petals, and the fruit five corners; but all thoſe of the common ſort which I have examined have but four, and theſe differences are permanent in thoſe plants which riſe from ſeeds; for I have raiſed many of both ſorts from ſeeds, but have never found either of them alter.

The third ſort grows naturally in Virginia, Carolina, and other parts of North America; this riſes with a ſhrubby ſtalk to the height of eight or ten feet, dividing into many branches, which come out oppoſite from the joints of the ſtem; theſe are garniſhed with ſpear-ſhaped leaves, which are two inches long, and about three quarters of an inch broad in the middle, ending in acute points; they are placed oppoſite, and continue green all the year. The flowers are produced at the end of the branches, and alſo from the ſides, in ſmall cluſters, which are ſucceeded by round capſules, which are cloſely armed by rough protuberances. This flowers in July, but ſeldom produces ripe fruit in England.

As this is an evergreen ſhrub, ſo it merits a place in every curious garden, and particularly in all plantations of evergreen trees and ſhrubs; there is a variety of this with variegated leaves, which is preſerved in the nurſery-gardens.

The fourth ſort grows naturally in Jamaica, and ſome of the other iſlands in the Weſt-Indies; this riſes with an upright woody ſtalk, to the height of ten or twelve feet; at the top it divides into two or three ſhort branches, which are garniſhed by winged leaves, compoſed of ſix or ſeven pair of ſmall leaves (or lobes) about two inches long, and one inch broad; theſe leaves come out without order, ſtanding upon long foot-ſtalks. The flowers come out in cluſters from the ſide of the branches, toward their end; theſe are ſucceeded by roundiſh capſules, having a thick brown cover, which open in three cells, each containing a ſingle hard ſeed.

The two firſt ſorts may be propagated either by ſeeds, or layers; if by ſeeds, they ſhould be ſown in autumn, ſoon after they are ripe; then the plants will come up the ſpring following; but if the ſeeds are not ſown till ſpring, the plants will not appear till the following ſpring, whereby a whole year is loſt. The ſeeds ſhould be ſown upon a ſhady border, where they will ſucceed better than when they are more expoſed to the ſun. When the plants come up, they will require no other care but to keep them clean from weeds till the following autumn, when, as ſoon as their leaves decay, the plants ſhould be taken up and tranſplanted into a nurſery, in rows two feet diſtant, and the plants one foot aſunder in the rows; in this place they may remain two years, and then they may be removed to the places where they are to remain.

When theſe are propagated by layers, the young ſhoots ſhould be laid down in antumn; and if the joint which is laid deepeſt in the ground is ſlit, as is practiſed for Carnations, it will cauſe them to put out roots much ſooner than they otherwiſe would do; theſe layers will be ſufficiently rooted in one year to bear tranſplanting, when they ſhould be taken from the old plants, and treated in the ſame way as the ſeedlings. The cuttings of theſe ſorts, planted in a ſhady border, will take root, but they ſhould be planted in autumn, as ſoon as their leaves begin to fall; they ſhould be the ſhoots of the ſame year, with a knot of the former year at bottom.

The third ſort, which grows naturally in North America, is ſo hardy as rarely to ſuffer by cold in England, provided it is not planted in places very much expoſed. This may be propagated by laying down the young branches in the autumn, obſerving to tongue them in the ſame manner as is practiſed in laying of Carnations: theſe will have made good roots in one year, when they may be cut from the old plants, and planted in a nurſery for two years to get ſtrength; after which, they ſhould be planted where they are deſigned to remain.

The fourth ſort is a native of warmer countries, ſo cannot be preſerved in England, unleſs it is placed in a ſtove in winter: this is generally propagated by ſeeds, which muſt be ſown in pots, and plunged into a hot-bed; and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, and plunged into the hot-bed again, being careful to ſhade them until they have taken new root; after which they muſt be treated in the ſame way as other tender plants of the ſame countries. This ſort may alſo be propagated by cuttings during any of the ſummer months.

EUPATOROIPHALACRON. See VERBESINA.

EUPATORIUM. Lin. Gen. Plant. 842. Tourn. Inſt. R. H. 455. tab. 259. [Εὐπατώριον, of king Eupator, who firſt brought this plant into uſe.] Hemp Agrimony; in French, *Eupatoire*.

The CHARACTERS are,

It hath a compound flower, compoſed of ſeveral hermaphrodite florets, which are funnel-ſhaped, cut into five parts at the brim, which ſpread open; theſe are included in one common ſcaly empalement, whoſe ſcales are narrow, erect, and unequal. The florets have each five ſhort hairy ſtamina, terminated by cylindrical ſummits. In the bottom is ſituated a ſmall germen, ſupporting a long ſlender ſtyle, which is bifid, crowned by a narrow ſtigma. The germen afterward becomes an oblong ſeed, crowned with down, ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, which includes thoſe plants with compound flowers, which have only hermaphrodite fruitful flowers.

The SPECIES are,

1. EUPATORIUM (*Cannabinum*) foliis digitatis. Hort. Cliff. 396. *Eupatorium with fingered leaves.* Eupatorium cannabinum. C. B. P. 320. *Common Hemp Agrimony.*
2. EUPATORIUM (*Maculatum*) foliis lanceolato-ovatis, ſerratis, petiolatis, caule erecto. Hort. Cliff. 396. *Eupatorium with ſpear-ſhaped oval leaves which are ſawed, having foot-ſtalks, and an upright ſtalk.* Eupatorium Novæ Angliæ, urticæ foliis, floribus purpuraſcentibus, maculato caule. H. L. *New England Hemp Agrimony with Nettle leaves, purpliſh flowers, and ſpotted ſtalks.*
3. EUPATORIUM (*Purpureum*) foliis ſubverticillatis, lanceolatis ſerratis petiolatis rugoſis. Lin. Sp. Plant. 838. *Eupatorium with leaves placed in whorls, which are ſpear-*

ſpear-ſhaped, ſawed, rough, and have foot-ſtalks. Eupatorium folio oblongo rugoſo, caule purpuraſcente. Tourn. Inſt. 456. *Canada Hemp Agrimony with a long rough leaf, and purpliſh ſtalk.*

4. Eupatorium (*Scandens*) caule volubili, foliis cordatis dentatis acutis. Hort. Cliff. 396. *Eupatorium with a twining ſtalk and heart-ſhaped leaves, which are ſharply indented.* Eupatorium Americanum ſcandens, haſtato magis acuminato folio. Vaill. Mem. 1719. *Climbing American Hemp Agrimony, with a ſpear-like ſharp-pointed leaf.*

5. Eupatorium (*Rotundifolium*) foliis ſeſſilibus diſtinctis ſubrotundo-cordatis. Lin. Sp. Plant. 837. *Eupatorium with roundiſh heart-ſhaped leaves ſitting cloſe to the ſtalks, and are diſtinct.* Eupatorium Americanum, foliis rotundioribus abſque pediculis. Vaill. Mem. 1719. *American Hemp Agrimony with round leaves, having no foot-ſtalks.*

6. Eupatorium (*Fruticoſum*) foliis oblongo-cordatis, floribus paniculatis, caule fruticoſo ſcandente. *Eupatorium with oblong heart-ſhaped leaves, paniculated flowers, and a climbing ſhrubby ſtalk.* Eupatorium ſcandens, foliis ſubrotundis lucidis, floribus ſpicatis albis. Houſt. MSS. *Climbing Hemp Agrimony with roundiſh ſhining leaves, and white flowers growing in ſpikes.*

7. Eupatorium (*Odoratum*) foliis ovatis, obtuſe ſerratis petiolatis trinerviis, calycibus ſimplicibus. Lin. Sp. Plant. 839. *Eupatorium with oval, obtuſe, ſawed, three-veined leaves, having foot-ſtalks, and ſingle empalements to the flowers.* Eupatorium Americanum, teucrii folio, flore niveo. Vaill. Mem. Acad. Scien. *American Hemp Agrimony with a Tree Germander leaf, and a white flower.*

8. Eupatorium (*Perfoliatum*) foliis connatis tomentoſis. Hort. Cliff. 396. *Eupatorium with woolly leaves joined at their baſe.* Eupatorium Virginianum, ſalviæ foliis longiſſimis acuminatis, perfoliatum. Pluk. Alm. *Virginian perfoliate Hemp Agrimony, with long Sage-like leaves cloſely ſurrounding the ſtalk.*

9. Eupatorium (*Betonicifolium*) foliis oblongis, obtuſis, crenatis, glabris, calycibus ſimplicibus. *Eupatorium with oblong, obtuſe, ſmooth, crenated leaves, and ſingle empalements to the flowers.* Eupatorium betonicæ folio glabro & carnoſo, flore cœruleo. Houſt. MSS. *Hemp Agrimony with a fleſhy ſmooth Betony leaf, and a blue flower.*

10. Eupatorium (*Morifolium*) foliis cordatis ſerratis caule erecto arboreo. *Eupatorium with heart-ſhaped ſawed leaves, and an upright tree-like ſtalk.* Eupatorium Americanum arboreſcens, mori folio, floribus albicantibus. Houſt. MSS. *Tree-like American Hemp Agrimony, with a Mulberry leaf and white flowers.*

11. Eupatorium (*Punctatum*) foliis ovatis petiolatis integris, caule fruticoſo ramoſo, calycibus ſimplicibus. *Eupatorium with oval entire leaves having foot-ſtalks, a branching ſhrubby ſtalk, and ſingle empalements to the flowers.* Eupatorium Americanum fruteſcens, balſaminæ lutæ foliis, nigris maculis punctatis. Houſt. MSS. *American ſhrubby Hemp Agrimony, with yellow Balſamine leaves ſpotted with black.*

12. Eupatorium (*Hyſſopifolium*) foliis lanceolato-linearibus trinerviis ſub integerrimis. Lin. Sp. Plant. 836. *Eupatorium with narrow, ſpear-ſhaped, entire leaves, having three nerves.* Eupatorium Virginianum, folio anguſto floribus albis. Hort. Elth. 141. tab. 115. f. 140. *Virginia Hemp Agrimony, with a narrow leaf, and white flowers.*

13. Eupatorium (*Ramoſum*) foliis lanceolato-linearibus acutis, ſupernè ſerratis caule ramoſo. *Hemp Agrimony with narrow, ſpear-ſhaped, pointed leaves, ſawed on their upper part, and a branching ſtalk.*

14. Eupatorium (*Conyzoides*) foliis cordatis acutis, dentatis, trinerviis, caule fruiticoſo ramoſo. *Eupatorium with pointed, heart-ſhaped, ſawed leaves, having three veins, and a branching ſhrubby ſtalk.* Conyza fruticoſa, folio haſtato, flore pallidè purpureo. Sloan. Cat. Jam. 124. *Shrubby Fleabane with a ſpear-ſhaped leaf, and a pale purple flower.*

15. Eupatorium (*Paniculatum*) foliis cordatis rugoſis crenatis, caule paniculato. *Eupatorium with rough, heart-ſhaped, crenated leaves, and a paniculated ſtalk.* Conyza Salviæ foliis conjugatis, floribus ſpicatis rubentibus. Houſt. MSS. *Fleabane with Sage leaves placed oppoſite, and red flowers growing in ſpikes.*

16. Eupatorium (*Houſtonis*) foliis cordatis acuminatis, caule volubili, floribus ſpicatis racemoſis. *Eupatorium with heart-ſhaped pointed leaves, a twining ſtalk, and branching ſpiked flowers.* Eupatorium Americanum, ſcandens, folio haſtato glabro, floribus ſpicatis. Houſt. MSS. *Climbing American Hemp Agrimony with a ſmooth ſpear-ſhaped leaf, and ſpiked flowers.*

17. Eupatorium (*Trifoliatum*) foliis ternis. Flor. Virg. 119. Lin. Sp. Plant 838. *Hemp Agrimony with trifoliate leaves.*

18. Eupatorium (*Altiſſimum*) foliis lanceolatis nervoſis, inferioribus extimo ſub ſerratis, caule fruticoſo. Hort. Upſal. 152. *Eupatorium with nervous ſpear-ſhaped leaves, whoſe lower leaves are ſawed on their edges, and ſtand in whorls round the ſtalks.* Eupatorium folio oblongo, rugoſo, ampliori, caule vireſcente. Tourn. Inſt. R. H. 456. *Hemp Agrimony with a large, oblong, rough leaf, and a green ſtalk.*

19. Eupatorium (*Cæleſtinum*) foliis cordato-ovatis, obtuſe ſerratis petiolatis, calycibus multifloris. Lin. Sp. Plant. 838. *Eupatorium with heart-ſhaped oval leaves obtuſely ſawed, having foot-ſtalks, and many flowers to the empalements.* Eupatorium ſcorodoniæ folio, flore cæruleo. Hort. Elth. 140. tab. 114. *Hemp Agrimony with a Wood Sage leaf, and a blue flower.*

The laſt grows naturally in Carolina, from whence the late Dr. Dale ſent me the ſeeds; theſe plants flowered very finely the year after they were raiſed, but never have flowered ſince, for the roots creep greatly in the ground, but never ſend up any ſtalks.

The firſt ſort grows naturally by the ſide of rivers and ditches in moſt parts of England, and is the only ſpecies of this genus, which is known to grow naturally in Europe; this is eſteemed as a very good vulnerary herb, ſo ſtands in the liſt of medicinal plants. It is ſeldom admitted into gardens, becauſe, wherever it is ſuffered to ſeed, the ground will be well ſtored with the plants to a great diſtance.

The ſecond ſort grows naturally in ſeveral parts of North America, from whence it has been introduced to the gardens in Europe; this hath a perennial root, but an annual ſtalk, which riſes about two feet and a half high; it is purple, and has many dark ſpots upon it. The leaves are rough, oval and ſpear-ſhaped, having foot-ſtalks; they are placed by threes round the ſtalk toward the bottom, but upward by pairs oppoſite at each joint. The ſtalks are terminated by cluſters of purple flowers, growing in a ſort of corymbus; theſe come out in July and Auguſt, and in warm ſeaſons will ripen its ſeeds in autumn.

The third ſort grows naturally in North America; this riſes with an upright ſtalk near four feet high, garniſhed with long, narrow, ſpear-ſhaped leaves at each joint; theſe are deeply ſawed on their edges, and the midrib is oblique to the foot-ſtalk; they are placed by fours round the ſtalk in whorls, and are of a dark green colour. The ſtalks are terminated by bunches of purple flowers like the laſt, which appear at the ſame time. This hath a perennial root and an annual ſtalk.

The fourth ſort grows naturally in Virginia and Carolina; this hath a perennial root, which ſends out many twining ſtalks in the ſpring; theſe twiſt about any neighbouring ſupport, and riſe to the height of five or ſix feet, garniſhed at each joint with two heart-ſhaped leaves, which are indented on their edges, and terminate in acute points; at each joint there are two ſmall ſide branches come out, which are terminated by cluſters of white flowers, ſo that the ſtalks ſeem covered with them moſt part of their length; but as theſe come pretty late in the ſeaſon, ſo unleſs the ſummers prove warm, the plants do not flower well in England.

There is another of theſe plants with purple flowers, ſtanding upon longer foot-ſtalks, which was ſent me from Campeachy; but the ſtalks and leaves are very like thoſe of this ſort, ſo that I doubt whether it be a diſtinct ſpecies.

The fifth ſort grows naturally in New England and Virginia, from both of theſe counties I have received the ſeeds; this hath a perennial root and an annual ſtalk; it riſes with upright ſtalks about a foot high; theſe have their joints pretty near each other, where they are garniſhed with roundiſh heart-ſhaped leaves, ſitting cloſe to the ſtalks; they are ſawed on their edges, and are of a light green colour. The flowers are produced in ſmall looſe panicles at the top of the ſtalks; they are white, and have two ſmall green leaves immediately under the flowers. Theſe flowers appear the latter end of June, but the ſeeds ſeldom ripen in England.

The ſixth ſort grows naturally at La Vera Cruz in America, from whence the late Dr. Houſton ſent me the ſeeds; this hath a ſhrubby climbing ſtalk, which riſes to the height of ten or twelve feet, faſtening itſelf to any neighbouring prop for ſupport, and is garniſhed with heart-ſhaped leaves, placed oppoſite; they are about three inches long, and one and a half broad, of a lucid green; the flowers come out in long branching panicles, which proceed from the ſide of the ſtalks, and are terminated by a branching panicle of white flowers. This ſort is tender, ſo will not live in this country without artificial heat.

The ſeventh ſort riſes with upright ſtalks three feet high, garniſhed with oval leaves at each joint, which are placed oppoſite; they have very ſhort foot-ſtalks, and are ſawed on their edges; from the ſides of the ſtalks, at every joint, is produced two ſlender branches, which ſtand erect; theſe, and the principal ſtalks alſo, are terminated by cluſters of white flowers; they appear in Auguſt and September, and the ſtalks decay in winter, but the root is perennial. This grows naturally in Penſylvania, and other parts of America.

The eighth ſort grows naturally in Virginia and Philadelphia; this hath a perennial root and an annual ſtalk. The ſtalks riſe from two to three feet high; they are hairy, and garniſhed with rough leaves at each joint, which are from three to four inches long, and about an inch broad at their baſe, gradually leſſening to a very acute point; the two leaves are joined at their baſe, ſo the ſtalks ſeem to grow through them; they are of a dark green, and are covered with ſhort hairs. The upper part of the ſtalk divides into many ſlender foot-ſtalks, each ſuſtaining a cloſe cluſter of white flowers. Theſe come out in July, and in warm ſeaſons the ſeeds will ſometimes ripen in England.

The ninth ſort grows naturally at La Vera Cruz, from whence the late Dr. Houſtoun ſent me the ſeeds; this riſes with an upright ſtalk near two feet high, garniſhed toward the bottom with oblong obtuſe leaves, which are of a thick ſubſtance, and crenated on their edges; the upper part of the ſtalk is naked to the top, where the flowers come out in a thick panicle; they are blue, and have ſingle empalements. This flowers late in autumn, but never ripens ſeeds here; the root is biennial, and periſhes ſoon after it has flowered.

The tenth ſort was ſent me by the late Dr. Houſtoun from La Vera Cruz, where he found it growing naturally; this hath a thick woody ſtalk, which riſes twelve or fourteen feet high, ſending out many branches, which are channelled, and covered with a brown bark, garniſhed with regular heart-ſhaped leaves as large as thoſe of the Mulberry-tree; they are of a light green colour, and ſawed on their edges, placed oppoſite upon foot-ſtalks, near two inches long; the upper part of the branches are terminated by four or five pair of foot-ſtalks, which come out oppoſite from the joints, and the top is terminated by an odd one; theſe ſuſtain branching panicles of white flowers, which together form a long looſe pyramidal thyrſe, and make a fine appearance, for there are no leaves intermixed with the flowers, but ſo far as the ſpike reaches the ſtalks are naked. This ſort has flowered in the Chelſea garden, but did not produce ſeeds.

The eleventh ſort grows naturally at La Vera Cruz, from whence the late Dr. Houſtoun ſent it me; this riſes with many ſhrubby ſtalks near five feet high, which divide into many ſlender branches, whoſe joints are three or four inches aſunder; at each of theſe come out two oval leaves about three quarters of an inch long, and half an inch broad, ſtanding upon long ſlender foot-ſtalks; they have ſeveral black ſpots on their ſurface. The branches come out horizontal, and are terminated by ſmall bunches of white flowers, whoſe empalements are ſingle, and compoſed of ſeven narrow ſpear-ſhaped leaves, which are divided to the bottom.

The twelfth ſort riſes with an upright round ſtalk to the height of three feet, ſending out ſeveral branches toward the top, which come out regularly by pairs; they are garniſhed with leaves, placed by pairs; theſe are two inches and a half long, and about one third of an inch broad, having three longitudinal veins; they are of a light green colour, and entire. The flowers ſtand upon long foot-ſtalks at the end of the branches, ſome ſuſtaining one, ſome two, and others three or four flowers; they are white, and appear late in autumn. This grows naturally in Carolina.

The thirteenth ſort grows naturally in Maryland; this hath a perennial root and an annual ſtalk, which riſes three feet high, dividing upward into many branches, which are cloſely garniſhed with narrow ſpear-ſhaped leaves, which are from two to three inches long, and a quarter of an inch broad, of a deep green, ſitting cloſe to the branches; they have three longitudinal veins, and their upper part ſharply ſawed on their edges, ending in acute points. The branches are terminated by roundiſh cluſters of white flowers, which appear in Auguſt, and continue till October; and in warm ſeaſons they are ſucceeded by ſeeds, which ripen here.

The fourteenth ſort grows naturally in Jamaica, and in moſt of the other iſlands in the Weſt-Indies; this riſes with ſhrubby ſtalks about ſix or ſeven feet high, dividing into many branches, which are garniſhed with heart-ſhaped leaves, ending in acute points, indented on their edges, having three longitudinal veins; the upper part of the branches are terminated by ſlender foot-ſtalks, each ſuſtaining a ſmall cluſter of white flowers, included in oblong ſcaly empalements of a ſilvery colour.

The fifteenth ſort was ſent me from La Vera Cruz by the late Dr. Houſtoun; this riſes with an upright branching ſtalk three feet high, ſending out two ſide branches from every joint, almoſt the whole length, which are terminated by looſe ſpikes of red flowers, as is alſo the principal ſtalk. The leaves are heart-ſhaped, rough, and are crenated on their edges, ſitting cloſe to the ſtalks; they are of a light green, and a little hoary.

The ſixteenth ſort was ſent me from Jamaica by the late Dr. Houſtoun; this hath ſlender twining ſtalks, which faſten themſelves to any neighbouring ſupport, and riſe eight or ten feet high, ſending out ſmall branches oppoſite, at moſt of the upper joints. The leaves on the lower part of the ſtalk are heart-ſhaped, ending in acute points; the upper leaves are almoſt triangular, they are ſmooth, and of a lucid green; the upper part of the ſtalks have long branching ſpikes of white flowers, which are ſmall, and ſit cloſe to the foot-ſtalks.

The ſeventeenth ſort grows naturally in Penſylvania; this hath a perennial root, from which ariſe ſeveral upright ſtalks, which grow to the height of ſeven or eight feet, in a moiſt ſoil, or where they are ſupplied with water in dry weather, and are garniſhed with oval, rough, ſpear-ſhaped leaves, which are a little ſawed on their edges; they are placed in whorls round the ſtalks, ſometimes ſeven, at other places four or five of theſe ſtand at each joint; they are about three inches long, and two inches broad. The ſtalks are terminated by a looſe corymbus of purple flowers, which appear in Auguſt and continue till October, but are not ſucceeded by ſeeds in England.

The eighteenth ſort riſes with a ſingle, upright, green ſtalk, about four feet high, garniſhed at each joint by four ſpear-ſhaped leaves, placed in whorls round the ſtalks; they are ſix inches long, and two inches broad in the middle, leſſening to both ends, terminating in acute points; they are rough, ſawed on their edges, and ſtand on ſhort foot-ſtalks; the ſtalk is terminated by a cloſe corymbus of purple flowers, which appear in July, and continue till September. The root is perennial, but the ſtalks decay every winter; it grows naturally in North America.

The nineteenth ſort grows naturally in Carolina; this hath a creeping root, which ſpreads and multiplies very faſt. The ſtalks riſe about two feet high; they are garniſhed with oval heart-ſhaped leaves, which have foot-ſtalks, and are ſawed on their edges. The flowers are produced at the top of the ſtalks in a ſort of corymbus; they are of a fine blue colour, but the roots ſpread ſo much as to cauſe barrenneſs of flowers after the firſt year.

All theſe ſorts may be propagated by ſeeds; ſeveral of them ripen their ſeeds in England; theſe ſhould be ſown in autumn as ſoon as they are ripe, for then the plants will come up the following ſpring; but if they are kept out of the ground till ſpring, the plants will not come up till the year after; and thoſe ſeeds which are procured from America ſhould be ſown as ſoon as they arrive, for though they may not grow the firſt year, yet there will be a greater certainty of their ſucceeding, than when they are kept longer out of the ground.

The ſecond, third, fifth, ſeventh, eighth, twelfth, thirteenth, ſeventeenth, eighteenth, and nineteenth ſorts are hardy plants, ſo the ſeeds of theſe may be ſown in the full ground, but there muſt be care taken in the ſowing to keep the ſorts ſeparate; for as the ſeeds of theſe plants have a light down adhering to them, they are eaſily diſplaced by the leaſt wind; ſo that the beſt way will be to ſow them in drills, but theſe ſhould be but ſhallow, for if the ſeeds are buried too deep they will not grow. The bed in which theſe are ſown ſhould not be too much expoſed to the ſun, but rather have an eaſt aſpect, where the morning ſun only reaches it; but where it is more expoſed, it ſhould be ſhaded with mats in the heat of the day, and the ground ſhould be kept pretty moiſt; for as theſe plants generally grow in moiſt ſhady ſituations in their native countries, they will ſucceed better when they have a ſoil and ſituation ſomewhat like that; though as we want their heat in ſummer, the plants will thrive here when expoſed to the ſun, provided they have a moiſt ſoil, or are ſupplied with water in dry weather.

When the young plants come up, they muſt be kept clean from weeds; and where they are too cloſe, ſome of them ſhould be drawn out, to give room for the others to grow; and if theſe are wanted, they may be planted in another bed, where, if they are ſhaded and watered, they will ſoon take root; after which they will require no farther care but to keep them clean from weeds till the following autumn, when they may be tranſplanted to the places where they are to remain. As the roots of theſe plants ſpread out to a conſiderable diſtance, they ſhould not be allowed leſs than three feet from any other plants, and ſome of the largeſt growing ſhould be allowed four feet. If the ſoil in which they are planted is a ſoft gentle loam, they will thrive much better, and flower ſtronger than in light dry ground; in which, if they are not duly watered in dry ſummers, their leaves will ſhrink, and their ſtalks will not grow to half their uſual height.

All theſe ſorts have perennial roots, by which they may be propagated; for as ſome of them do not perfect their ſeeds in England, ſo that is the only way of increaſing the plants here; ſome of the ſorts have creeping roots, ſending out offſets in great plenty, ſo theſe are eaſily propagated; and the others may be taken up, or the heads taken off from them every other year, in doing of which there ſhould be care taken not to cut or injure the old plants too much, which would cauſe them to flower weak the following year. The beſt time to remove theſe plants is in autumn, as ſoon as they have done growing, that they may get freſh roots before the froſt comes on; but if that ſhould happen ſoon after their removal, if the ſurface of the ground is covered with tan, or dried leaves, to keep out the froſt, it will effectually ſecure them; and if this is done to the old plants in very ſevere winters, it will always preſerve them; but the nineteenth ſort is the only one which I have known killed by froſt: however, it may not be amiſs to practiſe this on the young ſeedling plants, which have not ſo good roots, nor are ſo well eſtabliſhed in the ground; the future culture will be only to dig the ground about them every ſpring, and keep them clean.

The fourth ſort ſends out many weak twining ſtalks, which require ſupport; ſo there ſhould be ſome ſtakes fixed down by their roots in the ſpring when they begin to ſhoot, to which the young ſtalks ſhould be led and faſtened, and afterward they will naturally twine round them and riſe four or five feet high if they are ſupplied with water, and in warm ſeaſons they will produce plenty of white flowers in Auguſt. This ſort is ſometimes killed in very ſevere winters, if they are not covered; but if, when the ſtalks decay in the autumn, the ground about them is covered with ſome old tanners bark, it will effectually ſecure the roots. This ſort multiplies very faſt by its creeping roots, which may be parted every other year.

The ſixth and ſixteenth ſorts have twining ſlender ſtalks, which require to be ſupported in the like manner; but theſe are natives of warm countries, ſo they will not thrive in England, unleſs they are placed in a warm ſtove; therefore they ſhould be planted in pots and plunged into the tan-bed in the ſtove, where, if they are ſupplied with wet in hot weather, they will thrive and produce flowers. The ſixth ſort hath ſhrubby ſtalks, and does not propagate by the root, ſo there ſhould be layers made of the young branches, which will put out roots if they are properly ſupplied with water; but the ſixteenth ſort may be propagated by parting the roots, in the ſame manner as the fourth ſort.

The ninth and fifteenth ſorts have perennial roots, but their ſtalks decay every winter. Theſe are tender plants, ſo ſhould be planted in pots, and kept conſtantly plunged in the tan-bed in the ſtove, where they will thrive and flower. Theſe may be propagated by cutting off ſome of their young ſhoots about the middle of June, when they have ſtrength, and planted into pots filled with light earth, and plunged into a moderate hot-bed, where, if they are ſhaded from the ſun, and gently watered as they may require it, they will put out roots in ſix weeks, and may then be tranſplanted into ſeparate pots, and treated as the old plants.

The tenth, eleventh, and fourteenth ſorts have ſhrubby ſtalks, which are perennial. Theſe are natives of warm countries, ſo will not thrive in England out of a ſtove; therefore they ſhould be planted in pots and kept plunged in the tan-bed of the ſtove, and treated as the former ſorts. Theſe will ſometimes take root from cuttings, but not very freely, ſo that the beſt way is from ſeeds when they can be procured.

When the ſeeds of theſe tender ſorts can be had from their native countries, the plants raiſed that way are much preferable to thoſe which are obtained by any other method, and will flower much ſtronger, therefore ſhould be preferred; but as theſe ſeeds ſeldom grow the firſt year, few perſons have patience enough to wait for the plants coming up. When any of theſe ſeeds are brought over, they ſhould be ſown as ſoon as they arrive in pots, that they may be removed at any time; the pots ſhould be plunged into a moderate hot-bed, and the earth kept tolerably moiſt; the glaſſes ſhould alſo be ſhaded in the heat of the day, to prevent the earth from drying; in this hot-bed the pots may remain till autumn, when, if the plants are not up, they ſhould be plunged between the plants in the bark-ſtove, and in the ſpring removed to a gentle hot-bed, which will bring up the plants ſoon after. When theſe are fit to remove they ſhould be planted in ſeparate ſmall pots, and plunged into the hot-bed again, ſhading them from the ſun till they have taken new root; then they ſhould have a large ſhare of free air admitted to them in warm weather, and frequently refreſhed with water.

In the winter theſe plants ſhould be more ſparingly watered, eſpecially thoſe ſorts whoſe ſtalks decay; and in the ſummer they ſhould have a large ſhare of free air admitted to them, with which management they will thrive and flower.

EUPHORBIA. Lin. Gen. Plant. 536. Euphorbium. Boer. Ind. alt. 1. 258. Tithymalus. Tourn. Inſt. R. H. 85. tab. 18. The Burning Thorny Plant.

This plant was named Euphorbia by King Juba, the father of Ptolemy, who governed both the Mauritanias; whoſe phyſician was named Euphorbus, and his brother Antonius Muſa is ſaid to have healed Auguſtus with this plant.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, which is ſwelling, rough, and divided into five parts at the brim. The flower hath four or five thick truncated petals, and twelve or more ſtamina which are inſerted in the receptacle; they are longer than the petals, and are terminated by globular ſummits. In the center is ſituated a three-cornered germen, ſupporting three bifid ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes a roundiſh capſule with three cells, each containing one roundiſh ſeed.

This genus of plants is ranged in the third ſection of Linnæus's eleventh claſs, which includes the plants whoſe flowers have twelve ſtamina and three ſtyles. To this genus he has added the Tithymalus and Tithymaloides of Tournefort and others. The difference between the Euphorbium and Tithymalus, conſiſts more in their outward form, than in the characters of either flower or fruit, ſo may be properly enough joined together; but the flower of Tithymaloides being very different in its form, ſhould be ſeparated from them, therefore I ſhall place them under the title of Tithymalus; and as the number of Tithymali is very great, many of which are common weeds, I ſhall ſelect only the more rare or uſeful kinds to enumerate here.

The SPECIES are,

1. EUPHORBIA (*Antiquorum*) aculeata triangularis ſubnuda articulata, ramis patentibus. Lin. Hort. Cliff. 196. *Euphorbia with triangular jointed ſtalks which are naked, and have ſpines and ſpreading branches.* Euphorbium verum antiquorum. Hort. Amſt. 1. p. 23. *Prickly triangular-pointed Euphorbia, with ſpreading branches, commonly called the true Euphorbium of the ancients.*

2. EUPHORBIA (*Canarienſis*) aculeata nuda ſubquadangularis, aculeis geminatis. Hort. Cliff. 196. *Euphorbia with naked ſtalks, which have four angles and double ſpines.* Euphorbium tetragonum & pentagonum ſpinoſum Canarinum. Boerh. Ind. alt. 1. 258. *Canary Euphorbium with four or five angles which have ſpines.*

3. EUPHORBIA (*Trigonum*) aculeata nuda triangularis articulata, ramis erectis. *Thorny-jointed triangular Euphorbia with upright naked branches.* Euphorbium trigonum & tetragonum ſpinoſum, ramis compreſſis. D'Iſnard. Act. Par. 1720. *Prickly Euphorbium having three and four angles with compreſſed branches.*

4. EUPHORBIA (*Officinarum*) aculeata nuda multangularis, aculeis geminatis. Lin. Hort. Cliff. 196. *Thorny Euphorbia having many angles and ſpines growing by pairs.* Euphorbium cerei effigie caulibus craſſioribus, ſpinis validioribus armatum. Hort. Amſt. 1. p. 21. *Torch-ſhaped Euphorbium, with thick ſtalks armed with ſtrong ſpines.*

5. EUPHORBIA (*Neriifolia*) aculeata ſeminuda, angulis obliquè tuberculatis. Lin. Hort. Cliff. 196. *Thorny half-naked Euphorbia with oblique tubercular angles, commonly called the Oleander-leaved Euphorbium.* Euphorbium anguloſum, foliis nerii latioribus. Boerh. Ind. alt. 1. 258. *Angular Euphorbium, with broad Oleander leaves.*

6. EUPHORBIA (*Heptagona*) aculeata nuda, ſeptem-angularis, ſpinis ſolitariis ſubulatis floriferis. Lin. Hort. Cliff. 196. *Naked ſeptangular thorny Euphorbia, with ſingle awl-ſhaped ſpines, producing flowers at their extremities.* Euphorbium heptagonum, ſpinis longiſſimis in apice fructiferis. Boerh. Ind. alt. 1. 258. *Euphorbium with ſeven angles and very long ſpines, bearing fruit at their tops.*

7. EUPHORBIA (*Caput Meduſæ*) inermis tuberculis imbricatis, foliolo lineari inſtructis. Lin. Hort. Cliff. 197. *Euphorbia without thorns, cloſely covered with tubercles lying over each other like tiles, and narrow leaves, commonly called Meduſa's Head.* Euphorbium Afrum, caule craſſo ſquamoſo, ramis in capitis Meduſæ ſpeciem cincto. Boerh. Ind. alt. 258. *African Euphorbium with a thick ſcaly ſtalk, and branches diſpoſed like Meduſa's head.*

8. EUPHORBIA (*Mamillaris*) aculeata nuda, angulis tuberoſis, ſpinis interſtinctis. Lin. Sp. Plant. 451. *Naked prickly Euphorbia, with tuberous angles having ſpines growing between them.* Euphorbium polygonum aculeis longioribus ex tuberculorum internodiis prodeuntibus. D'Iſnard. Act. Par. 1720. *Euphorbium with many angles, and long ſpines growing out from between the knots.*

9. EUPHORBIA (*Cereiformis*) aculeata nuda, multangularis, ſpinis ſolitariis ſubulatis. Prod. Leyd. 195. *Naked thorny Euphorbia with many angles, and ſingle awl-ſhaped ſpines.* Euphorbium cerei effigie, caulibus gracilioribus. Boerh. Ind. alt. 1. 258. *Euphorbium with the appearance of Torch Thiſtle, and a ſlender ſtalk.*

10. EUPHORBIA (*Fructus Pini*) inermis imbricata tuberculis foliolo lineari inſtructis. Hort. Cliff. 197. *Imbricated Euphorbia without ſpines, having tubercles furniſhed with very narrow leaves.* Euphorbium Afrum, facie fructûs pini. Boerh. Ind. alt. 1. 258. *African Euphorbium with the appearance of Pine fruit, commonly called Little Meduſa's Head.*

11. EUPHORBIA (*Patula*) inermis, ramis patulis ſimplicibus teretibus, foliolis linearibus inſtructis. *Euphorbia without ſpines, having ſingle ſpreading branches which are taper, terminated with very narrow leaves.*

12. EUPHORBIA (*Procumbens*) inermis ramis teretibus procumbentibus tuberculis quadragonis. *Euphorbia without ſpines, having trailing branches with quadrangular tubercles.*

13. EUPHORBIA (*Inermis*) inermis, ramis plurimis procumbentibus, ſquamoſis, foliolis deciduis. *Euphorbia without ſpines, having many trailing branches which are ſcaly, and deciduous leaves.*

14. EUPHORBIA (*Tiruaculii*) inermis fruticoſa ſubnuda filiformis erecta, ramis patulis determinatè confertis. Lin. Hort. Cliff. 197. *Shrubby erect Euphorbia without ſpines, and ſlender ſpreading branches terminating in cluſters, commonly called Indian-tree Spurge.* Tithymalus Indicus fruteſcens. Hort. Amſt. 1. p. 27. *Indian ſhrubby Spurge.*

15. EUPHORBIA (*Viminalis*) inermis fruticoſa nuda filiformis volubilis, cicatricibus oppoſitis. Hort. Cliff. 197. *Shrubby naked Euphorbia without ſpines, and ſlender twining branches, commonly called Indian Climbing Spurge.* Tithymalus Indicus vimineus penitus aphyllos. *Indian Spurge with ſlender branches, entirely without leaves.*

16. EUPHORBIA (*Mauritanica*) inermis fruticoſa ſeminuda filiformis flaccida, foliis alternis. Lin. Hort. Cliff. 197. *Naked ſhrubby Euphorbia without ſpines, taper flaccid branches, and leaves placed alternately.* Tithymalus aphyllus Mauritania. Hort. Elth. 384. *Mauritanian Spurge without leaves.*

17. EUPHORBIA (*Cotinifolia*) foliis oppoſitis ſubcordatis petiolatis emarginatis integerrimis, caule fruticoſo. Lin. Sp. Plant. 453. *Euphorbia with heart-ſhaped leaves placed oppoſite upon foot-ſtalks, which are indented at the top, entire, and a ſhrubby ſtalk.* Tithymalus arboreus Americanus cotini folio. Hort. Amſt. 1. p. 29. *Tree American Spurge with a Venice Sumach leaf.*

18. EUPHORBIA (*Lathyris*) umbellâ quadrifidâ, dichotomâ, foliis oppoſitis integerrimis. Lin. Sp. Plant. 457.

457. *Euphorbia with a quadrifid umbel, a forked ſtalk, and entire leaves placed oppoſite.* Tithymalus latifolius Cataputia dictus. H. L. *Broad-leaved Spurge, called Cataputia.*

19. Euphorbia (*Myrſinites*) umbellâ ſuboctifidâ, bifida, involucellis ſubovatis, foliis ſpathulatio patentibus carnoſis mucronatis margine ſcabris. Lin. Sp. Plant. 461. *Euphorbia with an umbel divided into eight points, whoſe ſmall involucrums are oval, and ſpreading fleſhy-pointed leaves ſhaped like a ſpatula, having rough borders.* Tithymalus myrſinites latifolius. C. B. P. 296. *Broad-leaved Myrtle Spurge.*

20. Euphorbia (*Dendroides*) umbellâ multifidâ, dichotomâ, involucellis ſubcordatis, primariis triphyllis, caule arboreo. Lin. Sp. Plant. 462. *Euphorbia with a multifid forked umbel, heart-ſhaped ſmall involucrums, the firſt three-leaved, and a tree-like ſtalk.* Tithymalus myrtifolius arboreus. C. B. P. 290. *Myrtle-leaved Tree Spurge.*

21. Euphorbia (*Amygdaloides*) umbellâ multifidâ, dichotomâ, involucellis perfoliatis emarginatis, orbiculatis foliis obtuſis. Lin. Sp. Plant. 662. *Euphorbia with a multifid umbel divided by pairs, orbicular perfoliate involucrums, and obtuſe leaves.* Tithymalus characias amygdaloides. C. B. P. 290. *Wood Spurge.*

22. Euphorbia (*Paluſtris*) umbellâ multifidâ, ſubtrifidâ, bifidâ, involucellis ovatis, foliis lanceolatis, ramis ſterilibus. Lin. Sp. Plant. 462. *Euphorbia with a multifid umbel, which is ſubtrifid and bifid, the ſmall involucrums oval, ſpear-ſhaped leaves, and ſteril branches.* Tithymalus paluſtris fruticoſus. C. B. P. 292. *Shrubby Marſh Spurge.*

23. Euphorbia (*Orientalis*) umbellâ quinquefidâ, quadrifidâ, dichotomâ, involucellis ſubrotundis acutis, foliis lanceolatis. Lin. Sp. Plant. 460. *Euphorbia with a quinquefid and quadrifid forked umbel, a pointed roundiſh involucrum, and ſpear-ſhaped leaves.* Tithymalus Orientalis, ſalicis folio, caule purpureo, flore magno. Tourn. Cor. 2. *Eaſtern Spurge with a Willow leaf, a purple ſtalk, and large flower.*

24. Euphorbia (*Characias*) umbellâ quinquefidâ, trifidâ dichotomâ, involucellis ovatis, foliis lanceolatis, capſulis lanatis. Lin. Sp. Plant. 460. *Euphorbia with a quinquefid trifid umbel, dividing by pairs, an oval involucrum, ſpear-ſhaped leaves and woolly capſules.* Tithymalus arboreus, caule corallino, folio Hyperici, pericarpio barbato. Boerh. Ind. alt. 1. p. 256. *Tree Spurge with a red ſtalk, a St. John's Wort leaf, and bearded capſule.*

25. Euphorbia (*Hiberna*) umbellâ ſextifidâ, dichotomâ, involucellis ovalibus, foliis integerrimis, ramis nullis capſulis verrucoſis. Lin. Sp. Plant. 462. *Euphorbia with a ſix-pointed forked umbel, oval involucrums, entire leaves, no branches, and warted capſules.* Tithymalus Hibernicus Machingboy dictus. Mer. Pin. *Iriſh Spurge, called Machingboy.*

26. Euphorbia (*Apios*) umbellâ quinquefidâ, bifidâ, involucellis obcordatis. Lin. Sp. Plant. 457. *Euphorbia with a quinquefid bifid umbel, and heart-ſhaped involucrums.* Tithymalus tuberosâ pyriformi radice. C. B. P. 292. *Spurge with a tuberous Pear-ſhaped root.*

27. Euphorbia (*Aleppica*) umbellâ quinquefidâ, dichotomâ, involucellis ovato-lanceolatis mucronatis, foliis inferioribus ſetaceis. Lin. Sp. Plant. 458. *Euphorbia with a quinquefid forked umbel, oval ſpear-ſhaped involucrums which are pointed, and the lower leaves briſtly.* Tithymalus Cypariſſius. Alp. Exot. 65. *Cypreſs Spurge.*

28. Euphorbia (*Cretica*) umbellâ multifidâ, bifidâ, involucellis orbiculatis, foliis lineari-lanceolatis villoſis. *Euphorbia with a multifid bifid umbel, orbicular involucrums, and narrow, ſpear-ſhaped, hairy leaves.* Tithymalus Creticus characias, anguſtifolius, villoſus & incanus. Tourn. Cor. 1. *Cretan Wood Spurge, with narrow, hairy, and hoary leaves.*

29. Euphorbia (*Sylvatica*) umbellâ multifidâ, dichotomâ, involucellis perfoliatis, ſubcordatis, foliis lanceolatis integerrimis. Lin. Sp. Plant. 463. *Euphorbia with a multifid forked umbel, heart-ſhaped perfoliate involucrums, and entire ſpear-ſhaped leaves.* Tithymalus ſylvaticus lunato flore. C. B. P. 290. *Wood-Spurge with a moon-ſhaped flower.*

30. Euphorbia (*Heterophylla*) inermis foliis ſerratis petiolatis difformibus ovatis lanceolatis panduriformibus. Lin. Sp. Plant. 453. *Euphorbia without ſpines, having ſawed leaves with foot-ſtalks which are deformed, oval, ſpear-ſhaped, and like a fiddle.* Tithymalus Curaſſavicus, ſalicis & atriplicis foliis variis, caulibus viridantibus. Pluk. Alm. 396. *Spurge from Curaſſao, with variable leaves like Willow and Orach, and a green ſtalk.*

31. Euphorbia (*Hypericifolia*) dichotomâ, foliis ſerratis ovali-oblongis glabris, corymbis terminalibus, ramis divaricatis. Lin. Sp. Plant. 454. *Forked Euphorbia with oblong, oval, ſmooth, ſawed leaves, and divaricated branches terminated by umbels.* Tithymalus erectus acris, parietariæ foliis glabris, floribus ad caulim nodos conglomeratis. Sloan. Cat. Jam. 82. *Upright acrid Spurge, with ſmooth Pellitory leaves, and flowers growing in cluſters from the joints of the ſtalk.*

32. Euphorbia (*Ocymoides*) inermis, herbacea, ramoſa, foliis, ſubcordatis integerrimis petiolatis floribus ſolitariis. Lin. Sp. Plant. 453. *Branching herbaceous Euphorbia without ſpines, having entire heart-ſhaped leaves with foot-ſtalks, and ſingle flowers.* Tithymalus Americanus, erectus, annuus, ramoſiſſimus ocymi caryophyllati foliis. Houſt. MSS. *Upright, annual, branching Spurge of America, with leaves like ſmall Baſil.*

The firſt ſort has been generally taken for the true Euphorbium of the ancients, and as ſuch hath been directed for medicinal uſe; but it is from the ſecond ſort, that the drug now imported under that title in England is taken. Dr. Linnæus ſuppoſes the fourth to be the ſort which ſhould be uſed, though as they are all nearly of the ſame quality, it may be indifferent which of them that drug is taken from, which is the inſpiſſated juice of the plant.

The firſt ſort hath a triangular, compreſſed, ſucculent ſtalk, which is jointed, and riſes to the height of eight or ten feet, ſending out many irregular twiſting branches, which are for the moſt part three-cornered, but have ſometimes only two, and at others four angles; they are compreſſed, ſucculent, and ſpread out on every ſide the ſtalk; theſe have at the extremity of the branches a few ſhort roundiſh leaves, which ſoon fall off; and near theſe come out now and then a few flowers, which have five thick whitiſh petals, with a large three-cornered germen in the center; theſe ſoon drop off without having any ſeeds. It grows naturally in India, from whence the plants were brought to the gardens in Holland, and have ſince been communicated to moſt of the curious gardens in Europe.

The ſecond ſort grows naturally in the Canary Iſlands, from whence I have been credibly informed, the Euphorbium which is imported in England, is now brought, and is the inſpiſſated juice of this plant. In its native country this grows to the height of twenty feet or more, but in England it is rarely ſeen more than ſix or ſeven; nor is it of any advantage to have them ſo tall here, becauſe they ſend out many branches which are large and ſucculent, ſo render the plants too heavy to be eaſily removed. This hath a very thick, green, ſucculent ſtalk, which has four or five large angles or corners, cloſely armed with black crooked ſpines, which come out by pairs at every indenture: the ſtalks ſend out from every ſide large ſucculent branches of the ſame form, which extend to the diſtance of two or three feet, then turn their ends upwards, ſo that when the plants are well grown, they have ſome reſemblance to a branched chandelier; theſe have no leaves, but are cloſely armed with black ſpines like the ſtalks; at the end of the branches come out the flowers, which are ſhaped like thoſe of the firſt ſort.

The third ſort hath a naked three-cornered ſtalk which is compreſſed, ſending out a great number of branches which grow erect, and join up to the main ſtalk; theſe are generally three-cornered, but ſome vary to four; they are jointed and armed with ſhort crooked ſpines, but have no leaves, nor do the plants produce flowers here. This grows naturally in India.

The fourth ſort puts out many ſtalks juſt above the ſurface of the ground, which are thick, ſucculent, and roundiſh, having eight or ten angles while they are young, but as they grow old they loſe their angles and become round; the branches grow diſtorted and irregular, firſt horizontal, and afterward turn upward; they are armed with ſmall crooked ſpines on their angles, and on the upper part of the branches come out the flowers, which are ſmall, and of a greeniſh white, ſhaped like thoſe of the ſecond ſort. This grows naturally in India.

The fifth ſort grows naturally in India; this riſes with a ſtrong upright ſtalk five or ſix feet high, which hath irregular angles, and protuberances which are oblique to the angles; the lower part of the ſtalk is naked, the upper part is branching, and the branches are armed with crooked ſpines; at every protuberance, and at the top, they are garniſhed with oblong leaves of a lucid green, which are very ſmooth, entire, and rounded at their ends; theſe fall off, and the plants remain naked for ſome months, and then the flowers come out, which ſit cloſe to the branches, and are of a greeniſh white colour; the leaves come out in the autumn, and fall off in the ſpring.

The ſixth ſort riſes with a roundiſh, upright, ſucculent ſtalk about three feet high, putting out ſeveral branches on the ſide of the ſame form; theſe have ſeven angles or furrows, which are armed with long, ſingle, black thorns; at the end of which come out ſmall flowers, of the ſame form with thoſe of the other ſorts, and are ſometimes ſucceeded by ſmall fruit.

The ſeventh ſort hath thick, roundiſh, ſucculent ſtalks, which are ſcaly; theſe ſend out many branches from their ſides of the ſame form, which are twiſted, and run one over another, ſo as to appear like a parcel of ſerpents coming out from the ſtalks, from whence it had the appellation of Meduſa's Head. The ends of the branches are garniſhed with narrow, thick, ſucculent leaves, which drop off, and round the upper part of the branches the flowers come out; theſe are white, and of the ſame form with thoſe of the other ſpecies, but larger, and are frequently ſucceeded by round ſmooth capſules with three cells, each including a ſingle roundiſh ſeed.

The eighth ſort hath roundiſh ſtalks, which ſwell out like a belly in the middle, and have knobbed angles, between which come out long ſpines which are ſtrait; theſe ſtalks riſe two feet high, and put out a few branches on their ſide of the ſame form; the flowers are produced at the end of the branches, ſitting cloſe upon the angles; they are ſmall, of a yellowiſh green colour, and ſhaped like thoſe of the other ſpecies.

The ninth ſort hath ſtalks and branches very like thoſe of the fourth, but much ſlenderer; the ſpines of this are ſingle, and thoſe of the other double; and the ends of the branches are cloſely garniſhed with flowers on every angle, in which it differs from the fourth ſort.

The tenth ſort hath a thick ſhort ſtalk, which ſeldom riſes more than eight or ten inches high, from which come out a great number of trailing branches which are ſlender, and grow about a foot in length; theſe intermix with each other like thoſe of the ſeventh ſort, but they are much ſmaller, and do not grow near ſo long, but have the ſame appearance, from whence it is called Little Meduſa's Head: the ends of theſe branches are beſet with narrow leaves, between which the flowers come out, which are white, and ſhaped like thoſe of the other ſpecies.

The eleventh ſort riſes with a taper ſtalk ſix or ſeven inches high, ſending out from the top a few taper branches, which ſpread out on every ſide; theſe are not ſcaly, like thoſe of the laſt ſort, but taper, and garniſhed at their ends with ſeveral ſmall narrow leaves which drop off. This ſort hath not yet flowered here, having been but a ſhort time in England.

The twelfth ſort hath a ſhort thick ſtalk, which never riſes three inches high, ſo that the branches ſpread on the ſurface of the ground; theſe ſeldom grow more than ſix inches long, and their ſcales ſwell into a ſort of protuberances which are ſquare; they have no leaves, and very rarely produce flowers in England, but has been long an inhabitant in the gardens.

The thirteenth ſort is very like the ſeventh, but the ſtalks never riſe more than a foot or fifteen inches high, ſo that the branches ſpread out near the ground; theſe are alſo much ſhorter than thoſe of the ſeventh, but have the ſame appearance, and are garniſhed with narrow leaves at their end, which fall off as the branches are extended in length: this produces a great number of ſmall white flowers at the end of the branches, which are ſhaped like thoſe of the other ſpecies, and are frequently ſucceeded by round ſmooth capſules with three cells, including one or two roundiſh ſeeds which ripen here.

Theſe ſorts have been by moſt of the modern botaniſts ranged under the title of Euphorbium, and have been diſtinguiſhed from the Tithymali, more from the ſtructure and outward appearance of the plants, than any real difference in their characters, as hath been before obſerved; but as the number of ſpecies of thoſe commonly called Spurge was very great, ſo many of the writers were willing to ſeparate the Euphorbia from that genus, to leſſen the number of ſpecies.

Theſe plants are preſerved in many curious gardens, more for the oddneſs of their ſtructure, than any real beauty; but being ſo extremely different in their form, from almoſt any plants of European production, many curious perſons have been induced to preſerve the ſeveral ſorts in their gardens.

They are all of them full of a milky acrid juice, which flows out on their being wounded in any part; this juice will bliſter the fleſh, if it happen to lie upon any tender part for a ſhort time, and will burn linen almoſt as bad as aqua fortis, therefore the plants ſhould be handled with great caution; nor ſhould the ends of their branches be ever bruiſed or injured; for if they are, it frequently occaſions their rotting down to the next joint, and ſometimes will deſtroy the whole plant, if thoſe injured branches are not cut off in time; ſo that whenever the branches appear to have been injured, the ſooner they are cut from the plants, the leſs danger there will be of their ſuffering from it; nor ſhould any of the branches be cut between the joints, for the ſame reaſon.

Moſt of theſe plants were firſt brought to Europe by the Dutch, who have been very curious to introduce great numbers of plants from India, and alſo from the Cape of Good Hope: from the latter there hath been a very great variety of curious plants of late years brought to Europe, many of which produce very elegant flowers, and are the greateſt ornaments of the conſervatory in the winter and ſpring ſeaſons. Theſe have been brought over in ſeeds, but the different kinds of Euphorbia came over moſt of them in plants or cuttings; for theſe may be eaſily tranſported to any diſtance, if either of them are put up in boxes, with any ſoft dry package, to prevent their being bruiſed, or their ſpines from wounding each other, and kept from moiſture and cold; with this care they may be kept ſix months out of the ground, and if carefully planted will take root, and thrive as well as if they had been newly taken from the old plants, or out of the ground but a ſhort time; which is a much more expeditious method of obtaining the plants than from ſeeds, when they can be procured.

The greateſt part of theſe ſucculent plants grow naturally upon barren rocky places, or in dry ſandy ſoils, where few other plants will thrive; therefore they ſhould never be planted in rich or loamy earth here, nor ſuffered to receive much wet, which will cauſe them to rot. The beſt mixture of earth for theſe plants is about a fourth part of ſcreened limerubbiſh, a fourth part of ſea-ſand, and half of light freſh earth from a common; theſe ſhould be mixed well together, and frequently turned over before it it uſed, that the parts may be incorporated, and the compoſt ſweetened by being expoſed to the air. If this mixture is prepared a year before it is wanted, it will be the better, that it may have the benefit of the winter's froſt and the ſummer's heat to mellow it; and the oftener it is turned over, and the ſmaller the heaps are in which it is laid, the air will penetrate it better, and render it more fit for uſe.

Theſe ſorts are eaſily propagated by cuttings, which ſhould be taken from the old plants in June; theſe muſt be cut at a joint, otherwiſe they will rot. When theſe cuttings are taken off, the milky juice of the old plants will flow out in plenty; therefore there ſhould be ſome dry earth or ſand applied upon the wounded part, which will harden and ſtop the ſap; and the wounded part of the cuttings ſhould alſo be rubbed in ſand, or dry earth, for the ſame purpoſe; then the cuttings ſhould be laid in a dry part of the ſtove, for ten days or a fortnight; and ſome of thoſe whoſe branches are large and very ſucculent, may lie three weeks or more before they are planted, that their wounds may be healed and hardened, otherwiſe they will rot. When the cuttings are planted, they ſhould be each put into a ſmall halfpenny pot, laying ſtones or rubbiſh in the bottom, and filling the pots with the mixture before directed; then plunge the pots into a moderate hot-bed, and if the weather is very hot, the glaſſes of the hot-bed ſhould be ſhaded in the middle of the day, and the cuttings ſhould be gently watered once or twice a week, according as the earth may dry: in about ſix weeks or two months the cuttings will have put out roots, ſo if the bed is not very warm, the plants may continue there, provided they have free air admitted to them every day, otherwiſe it will be better to remove them into the ſtove, where they may be hardened before the winter; for if they are too much drawn in ſummer, they are very apt to decay in winter, unleſs they are very carefully managed. During the ſummer ſeaſon, theſe plants ſhould be gently watered two or three times a week, according to the warmth of the ſeaſon; but in winter they muſt not be watered oftener than once a week, and it ſhould be given more ſparingly at that ſeaſon, eſpecially if the ſtove is not warm: the firſt ſort will require more warmth in the winter than any of the other, as alſo leſs water at that ſeaſon. This, if well managed, will grow ſeven or eight feet high; but the plants muſt conſtantly remain in the ſtove, giving them a large ſhare of air in warm weather, and in winter the ſtove ſhould be kept in a temperate degree of warmth.

The ſixth ſort is at preſent the moſt rare in England: the plants of this ſort, which have been procured from Holland, have been moſt of them deſtroyed by placing them in ſtoves, where, by the heat, they have in one day turned black, and rotted immediately after. This ſort will thrive well if placed in a dry airy glaſs-caſe with Ficoides, and other ſucculent plants in the winter, where they may have free air in mild weather, and be protected from froſt; in ſummer the plants of this ſort may be expoſed in the open air, in a warm ſituation, but ſhould be ſcreened from much wet: with this treatment, the plants will thrive much better than when they are more tenderly nurſed.

The ſeventh, eighth, tenth, eleventh, twelfth, and thirteenth ſorts, are alſo pretty hardy, ſo will live in a good glaſs-caſe in winter without fire, provided the froſt is kept entirely out, and in ſummer they may be placed abroad in a warm ſituation: as theſe are very ſucculent plants, they ſhould not have too much wet; therefore, if the ſummer ſhould prove very moiſt, it will be very proper to place theſe plants under ſome ſhelter, where they may enjoy the free air, and be ſcreened from the rain, otherwiſe by receiving too much wet in ſummer they will rot in winter.

The ſeventh ſort will require to be ſupported, otherwiſe the weight of the branches will draw them upon the pots; and, by training of the ſtems up to ſtakes, they will grow four or five feet high, and a great number of ſide branches will be produced; theſe, being very ſucculent and heavy, are very apt to draw down the ſtem if it hath not ſupport.

The following ſorts have been, by all the writers on botany, placed under the title of Tithymalus; but the fourteenth and fifteenth ſorts ſhould, according to their own diſtinction, have been placed in the genus of Euphorbium, becauſe they are as deſtitute of leaves as moſt of the ſpecies which they have there placed.

The fourteenth ſort riſes with a taper ſucculent ſtalk to the height of eighteen or twenty feet, ſending out many branches of the ſame form, which ſubdivide into many ſmaller; theſe are jointed but at a great diſtance: they are ſmooth, and of a deep green colour, having a few ſmall leaves at their extremities, which ſoon fall off. As the plants grow older, their ſtalks become ſtronger and leſs ſucculent, eſpecially toward the bottom, where they turn to a brown colour, and become a little woody. The branches grow diffuſed and intermix with each other, ſo form a ſort of buſh toward the top, but this doth not produce flowers here.

The fifteenth ſort ſends out a great number of ſlender taper ſtalks of a dark green colour, which are ſmooth, and twiſt about each other, or any neighbouring ſupport, whereby they will riſe to the height of ten or twelve feet, putting out ſmaller branches upward, which alſo twine and intermix with the other ſtalks; they are naked, having no leaves, nor do the plants flower in England. Theſe grow in India.

The ſixteenth ſort ſends out many taper ſucculent ſtalks from the root, which riſe about four feet high; they are ſlender and weak, ſo require ſupport to prevent their falling to the ground; theſe have a light green bark, and their lower parts are naked, but their upper parts are garniſhed with oblong leaves, which are ſmooth, entire, and placed alternate on every ſide the ſtalks: the flowers are produced in ſmall cluſters at the end of the branches, they are of a yellowiſh green colour, and are ſometimes ſucceeded by ſmooth round fruit, but the ſeeds rarely ripen in England. This ſort grows naturally on the African ſhore in the Mediterranean.

The ſeventeenth ſort grows naturally in ſome of the iſlands of the Weſt-Indies, and alſo upon the continent there. I received ſpecimens of this ſort from the iſland of Tobago, and alſo from Carthagena, where the plants were growing in plenty; the Dutch gardens were furniſhed with it from Curaſſao, where it alſo grows naturally. This hath an upright ſtalk, which riſes to the height of ſix or ſeven feet, covered with a light brown bark, and divides upward into many branches; theſe are garniſhed with roundiſh leaves, which are indented at their ends, and have foot-ſtalks: they are ſmooth and of a beautiful green, but fall away in winter, ſo that in the ſpring they are almoſt naked; the flowers come out from the end of the branches, they are yellow and ſmall, ſoon falling away without having any fruit ſucceed them here.

Theſe ſorts are propagated by cuttings, in the ſame manner as the Euphorbiums, and the plants muſt be treated in the ſame way, as hath been directed for them.

The fourteenth, fifteenth, and ſeventeenth ſorts, are tender, ſo require a ſtove; theſe muſt have the ſame treatment as the tender kinds of Euphorbiums, but the ſixteenth ſort will live in a common green-houſe in winter, and may be expoſed abroad in the ſummer.

The eighteenth ſort ſtands in the liſt of medicinal plants, but is rarely uſed in England at preſent; this is a biennial plant, which periſhes after the ſeeds are ripe. It grows naturally in Italy and the ſouth of France, and where it is allowed to ſcatter its ſeeds in a garden, becomes a weed here. This riſes with an upright ſucculent ſtalk from three to four feet high, garniſhed with oblong ſmooth leaves which are placed oppoſite, and ſit cloſe to the ſtalks; the upper part of the ſtalk divides by pairs into ſmaller forked branches, and from the fork between theſe diviſions come out the umbels of flowers, each fork having one; that which is ſituated in the firſt diviſion being the largeſt, and thoſe in the upper the ſmalleſt. The flowers are of a greeniſh yellow colour; they appear in June and July, and the fruit follows ſoon after, which is divided into three lobes, and has three cells, each containing one roundiſh ſeed, which is caſt out at a diſtance by the elaſticity of the pods. This ſort will propagate itſelf faſt enough when it is once introduced into gardens, ſo requires no care but to keep it clean from weeds.

The nineteenth ſort grows naturally in the ſouth of France, in Spain, and Italy. This ſends out many trailing branches from the root, which grow about a foot long, lying upon the ground, which are cloſely garniſhed with thick ſucculent leaves; theſe are flat, ſhort, and pointed; they ſpread open on every ſide the branches, and are placed alternate, ſitting cloſe to the ſtalks: the flowers are produced in large umbels at the end of the branches; the involucrum of the principal umbel is compoſed of ſeveral oval-pointed leaves, but thoſe of the ſmall umbels have only two heart-ſhaped concave leaves, whoſe borders are rough; the flowers are yellow, and are ſucceeded by three ſeeds, incloſed in a roundiſh capſule with three cells. This plant will continue two or three years upon a dry warm ſoil, and will ripen ſeeds annually; which, if permitted to ſcatter, the plants will come up, and require no other care but to keep them clean from weeds.

The twentieth ſort grows naturally in Crete, and in ſeveral iſlands of the Archipelago; this riſes with an upright branching ſtem to the height of four feet; the leaves of this are oblong and pointed, and are placed alternate on the branches; the flowers come out in umbels from the fork between the branches; they are ſmall and yellow, and are rarely ſucceeded by ſeeds in England. It is eaſily propagated by cuttings during any of the ſummer months, and requires a little protection from the froſt in winter.

The twenty-firſt ſort grows naturally in the woods in many parts of England; it riſes with a ſhrubby ſtalk three feet high; the flowers are produced in umbels ſitting cloſe to the ſtalks, ſo form a long ſpike; the empalements are of a greeniſh yellow, and the petals black, ſo they make an odd appearance. It flowers in May, and the ſeeds ripen in July. If the ſeeds of this are ſown under trees in the autumn, the plants will riſe the following ſpring, and require no culture.

The twenty-ſecond ſort ſtands in the liſt of medicinal plants by the title of Eſula major, but at preſent is ſeldom uſed: this grows naturally in France and Germany upon marſhy places, where it riſes three or four feet high. It hath a perennial root, by which it may be propagated better than by ſeeds, which ſeldom grow, unleſs they are ſown ſoon after they are ripe.

The twenty-third ſort was diſcovered in the Levant, by Dr. Tournefort, who ſent the ſeeds to the royal garden at Paris; this hath a perennial root, from which ariſe many ſucculent ſtalks three feet high, covered with a purple bark, and garniſhed with oblong ſmooth leaves, ſhaped like thoſe of Willow, of a dark green colour. The upper part of the ſtalks divide, and in the fork is ſituated an umbel of flowers of a greeniſh yellow colour, which are ſucceeded by round capſules with three cells, each containing a ſingle ſeed. It flowers in June, and the ſeeds are ripe in Auguſt; this may be propagated by parting the roots, or by ſowing the ſeeds in autumn. The plant is hardy, ſo will endure the greateſt cold of this country, if it is planted in a dry ſoil.

The twenty-fourth ſort grows naturally in Sicily, and on the borders of the Mediterranean Sea; this riſes with ſeveral ſhrubby ſtalks to the height of five or ſix feet, having a red bark, and are garniſhed with oblong, ſmooth, blunt leaves, which are placed alternate. The flowers grow in ſmall umbels from the diviſion of their branches; they are yellow, and are ſucceeded by roundiſh capſules, which are rough, having three cells like the other ſpecies. This is eaſily propagated by cuttings during any of the ſummer months, and requires protection from the froſt in winter.

The twenty-fifth ſort grows naturally in Ireland, from whence the roots have been brought to England; this hath thick fibrous roots, which ſend up ſeveral ſingle unbranched ſtalks about a foot high, garniſhed with oblong leaves, placed alternate on every ſide. The flowers are produced in ſmall umbels at the top of the ſtalks; they are yellow, and are ſucceeded by rough warted capſules with three cells; it flowers in June, and the ſeeds ripen in Auguſt. This may be propagated by the roots, which ſhould be planted in a ſhady ſituation and a moiſt ſoil.

This plant was almoſt the only phyſic uſed by the native inhabitants of Ireland formerly; but ſince the uſe of mercury has been known to them, the other has been generally neglected.

The twenty-ſixth ſort grows naturally in the Levant; this hath a knobbed Pear-ſhaped root, from which ariſe two or three ſtalks about a foot and a half high, garniſhed with oblong leaves, which are hairy, placed alternate on every ſide the ſtalk. The flowers are produced in ſmall umbels from the diviſions of the ſtalk; they are ſmall, of a greeniſh yellow colour, and are ſeldom ſucceeded by ſeeds here; it may be propagated by offſets, ſent out from the main root; theſe may be taken off in autumn, and planted in a ſhady ſituation, where they will thrive better than in the full ſun.

The twenty-ſeventh ſort grows naturally at Aleppo, and in other parts of the Levant; this hath a perennial creeping root, by which it multiplies very faſt where it is once eſtabliſhed. The ſtalks of this riſe a foot and a half high; the lower leaves are narrow, ſtiff, and briſtly; but thoſe on the upper part of the ſtalk are ſhaped like the narrow-leaved Myrtle. The flowers are produced in large umbels from the diviſions of the ſtalk; they are yellow, and appear in June, but are rarely ſucceeded by ſeeds in this country. The roots of this ſhould be confined in pots; for when they are planted in the full ground, they creep about to a great diſtance.

The twenty-eighth ſort grows naturally in many parts of the Levant, and alſo in Spain and Portugal. The ſeeds of this were brought me from Scanderoon, by the late Mr. Robert Millar, who found the plants growing plentifully there; and he aſſured me, that he ſaw the inhabitants wounding of theſe plants, and collecting their milky juice, which they mixed up with the Scammony to ſend abroad.

The ſeeds of this plant were ſince ſent me from Portugal, by Robert More, Eſq; who found the plants growing there naturally, but this plant had been many years before an inhabitant in the Engliſh gardens; this riſes with a purple ſhrubby ſtalk near three feet high, which is garniſhed with narrow, ſpear-ſhaped, hairy leaves, ſet cloſely on the ſtalk alternately on every ſide; the upper part of the ſtalk is terminated by umbels of flowers, which form a ſort of ſpike. The greater umbels are multifid, but the ſmall ones are bifid. The involucrums of the flowers are yellow, and the petals of the flowers black; theſe appear in May, and are ſucceeded by ſeeds which ripen in July: the young plants which have been lately raiſed from ſeeds, are generally very fruitful, but the old ones, and thoſe raiſed by cuttings are barren; this may be propagated by ſeeds, or from cuttings, and will live abroad if planted in a dry rubbiſhy ſoil and a warm ſituation, otherwiſe they are frequently killed by ſevere froſt.

The twenty-ninth ſort grows naturally in the ſouth of France, in Spain, and Italy; this is a biennial plant, from whoſe root ariſe two or three ſtalks, which grow two or three feet high, garniſhed with ſpear-ſhaped leaves, which are entire. The umbels of flowers ariſe from the diviſion of the branches; the involucrums are heart-ſhaped, and ſurround the pedicle with their baſe. The flowers are yellow, and appear in June. The ſeeds ripen in Auguſt; which, if permitted to ſcatter, the plants will come up, and require no other care but to keep them clean from weeds; this muſt have a ſhady ſituation.

The thirtieth ſort grows naturally at La Vera Cruz, from whence the late Dr. Houſtoun ſent me the ſeeds; this is an annual plant, which riſes from two to three feet high. The leaves of theſe are ſometimes narrow and entire, at other times oval, and divided in the middle, almoſt to the midrib, in ſhape of a fiddle; they alſo vary in their colour, ſome being inclinable to purple, others of a light green; they are ſawed on their edges, and ſtand upon ſhort foot-ſtalks. The flowers are produced in ſmall umbels at the end of the branches; they are of a greeniſh white, and are ſucceeded by ſmall round capſules with three cells.

The thirty-firſt ſort grows naturally in moſt of the iſlands in the Weſt-Indies; this is an annual plant, which riſes with a branching ſtalk about two feet high, garniſhed with oblong, oval, ſmooth leaves, which are ſawed on the edges. The flowers grow in ſmall umbels at the foot-ſtalks of the leaves, gathered into cloſe bunches; theſe are white, and are ſucceeded by ſmall round capſules, incloſing three ſeeds.

The ſeeds of the thirty-ſecond ſort were ſent me from La Vera Cruz, by the late Dr. Houſtoun; this is an annual plant, which riſes with an upright ſtalk about a foot high, dividing into a great number of branches, which ſpread very wide on every ſide, garniſhed with roundiſh, heart-ſhaped leaves, which are entire, ſtanding upon pretty long foot-ſtalks. The flowers come out ſingly from the diviſions of the ſtalk; they are ſmall, and of an herbaceous colour, and are ſucceeded by ſmall round capſules, containing three ſeeds.

The laſt three ſorts are annual; the ſeeds of theſe muſt be ſown upon a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted in a ſmall pot filled with light earth, and plunged into the hot-bed again, and muſt afterward be treated in the ſame manner as other tender annual plants from warm countries.

EUPHRASIA. Eyebright.

This is a medicinal plant, which grows naturally in the fields and commons in moſt parts of England, always among graſs, heath, furz, or ſome other cover, and will not grow when theſe are cleared from about it; nor will the ſeeds grow when they are ſown in a garden; for which reaſon I ſhall not trouble the reader with a deſcription, or any farther account of it, than that the herb-women ſupply the markets with it in plenty from the fields.

EXCORTICATION [excorticatio, *Lat.*] a pulling or peeling off the outward bark of trees.

EXOTICS [exotica, *Lat.*] Exotic plants are ſuch as are natives of foreign countries.

F.

FABA. Tourn. Inſt. R. H. 391. tab. 212. Vicia. Lin. Gen. Plant. 782. The Bean; in French, *Féve*.

The CHARACTERS are,

The flower hath a tubulous empalement of one leaf, which is cut into five ſegments at the brim; the three lower ſegments being long, and the two upper are very ſhort. The flower is of the butterfly kind. The ſtandard is large, oval, and indented at the end; the two ſides turn backward, after ſome time; it hath two oblong erect wings, which incloſe the keel, being much longer. The keel is ſhort, ſwelling, and cloſely covers the parts of generation; theſe are joined in one column, almoſt to the top where they are divided; the nine ſtamina are in three parts, and one ſtands ſeparate; theſe are terminated by roundiſh reclined ſummits. At the bottom is ſituated an oblong compreſſed germen, ſupporting a ſhort angular ſtyle, crowned by an obtuſe ſtigma, which is bearded on the two ſides. The germen afterward becomes a long, compreſſed, leathery pod, having one cell, filled with compreſſed kidney-ſhaped ſeeds.

Tournefort ranges this genus of plants in the ſecond ſection of his tenth claſs, which includes the herbs with a butterfly flower, whoſe pointal turns to a long pod with one cell. This is in the third ſection of Linnæus's ſeventeenth claſs, in which he places thoſe plants whoſe flowers have ten ſtamina, joined in two bodies; and he joins it to his genus of Vicia, ſo he makes only a ſpecific difference between them; but as the Bean hath a compreſſed leathery pod and kidney-ſhaped ſeeds, and the Vetch a ſwelling pod with round ſeeds, they ſhould be ſeparated.

There are ſeveral varieties of the Garden Bean, which are known and diſtinguiſhed by the gardeners, but do not eſſentially differ from each other; ſo I ſhall not enumerate them as diſtinct ſpecies, nor join theſe to the Horſe Bean, as ſome have done, who have ſuppoſed them to be but one ſpecies; for, from having cultivated them more than forty years, without finding the Garden Bean degenerate to the Horſe Bean, or the latter improving to the former, I conclude they are diſtinct ſpecies.

There is a great variety of the Garden Beans, now cultivated in the kitchen-gardens in England, which differ in ſize and ſhape; ſome of them producing their pods much earlier in the year than others, for which they are greatly eſteemed by the gardeners, whoſe profit ariſes from their early crops of moſt eſculent plants; therefore they are very careful to improve all thoſe varieties which have a tendency to be fit for the markets firſt; but as many ſorts of ſeeds, when cultivated long in the ſame land, are apt to degenerate, ſo new ſeeds ſhould be annually procured, either from abroad, or ſome diſtant ſituation, where the ſoil is of a different nature, by which change many of the varieties may be continued in perfection.

I ſhall begin with the Garden Bean, called by the botaniſts, Faba major to diſtinguiſh it from the Horſe Bean, which they have titled Faba minor ſeu Equina; and I ſhall only mention the names of each, by which they are known among the gardeners, placing them according to their time of ripening for the table.

The Mazagan Bean is the firſt and beſt ſort of early Beans at preſent known; theſe are brought from a ſettlement of the Portugueſe on the coaſt of Africa, juſt without the Streights of Gibraltar; the ſeeds of this ſort are ſmaller than thoſe of the Horſe Bean; and as the Portugueſe are but ſlovenly gardeners, there is commonly a great number of bad ſeeds among them. If this ſort is ſown in October, under a warm hedge, pale, or wall, and carefully earthed up when the plants are advanced, they will be fit for the table by the middle of May. The ſtems of this ſort are very ſlender, therefore, if they are ſupported by ſtrings cloſe to the hedge, or pale, it will preſerve them from the morning froſts, which are ſometimes ſevere in the ſpring, and retard their growth; ſo by keeping them cloſe to the fence it will cauſe them to come forwarder than if this is neglected; theſe Beans bear plentifully, but they ripen nearly together, ſo that there are never more than two gatherings from the ſame plants; if the ſeeds of this ſort are ſaved two years in England, the Beans will become much larger, and not ripen ſo ſoon, which is called a degeneracy.

The next ſort is the early Portugal Bean, which appears to be the Mazagan ſort ſaved in Portugal, for it is very like thoſe which are the firſt year ſaved in England; this is the moſt common ſort uſed by the gardeners for their firſt crop, but they are not near ſo well taſted as the Mazagan; therefore when the Mazagan Bean can be procured, no perſon would plant the other.

The next is the ſmall Spaniſh Bean; this will come in ſoon after the Portugal ſort, and is rather a ſweeter Bean, therefore ſhould be preferred to it.

Then comes the broad Spaniſh, which is a little later than the other, but comes in before the common ſorts, and is a good bearer, therefore is frequently planted.

The Sandwich Bean comes ſoon after the Spaniſh, and is almoſt as large as the Windſor Bean; but, being hardier, is commonly ſown a month ſooner; this is a plentiful bearer, but not very delicate for the table.

The Toker Bean, as it is generally called, comes about the ſame time with the Sandwich, and is a great bearer; therefore is now much planted, though it is a coarſe Bean.

The white and black Bloſſom Beans are alſo by ſome perſons much eſteemed; the Beans of the former are, when boiled, almoſt as green as Peas; and being a tolerable ſweet Bean, renders it more valuable; theſe ſorts are very apt to degenerate, if their ſeeds are not ſaved with great care.

The Windſor Bean is allowed to be the beſt of all the ſorts for the table; when theſe are planted on a good ſoil, and are allowed ſufficient room, their ſeeds will be very large, and in great plenty; and when they are gathered young, are the ſweeteſt and beſt taſted of all the ſorts; but theſe ſhould be carefully ſaved, by pulling out ſuch of the plants as are not perfectly right, and afterward by ſorting out all the good from the bad Beans.

This ſort of Bean is ſeldom planted before Chriſtmas, becauſe it will not bear the froſt ſo well as many of the other ſorts; ſo it is generally planted for the great crop, to come in June and July.

All the early Beans are generally planted on warm borders under walls, pales, and hedges; and thoſe which are deſigned to come firſt, are uſually planted in a ſingle row pretty cloſe to the fence: and here I cannot help taking notice of a very bad cuſtom, which too generally prevails in gentlemens kitchen-gardens, which is that of planting Beans cloſe to the garden-walls, on the beſt aſpects, immediately before the fruit-trees, which is certainly a greater prejudice to the trees, than the value of the Beans, or any other early crop; therefore this practice ſhould be everywhere diſcouraged; for it is much better to run ſome low Reed hedges acroſs the quarters of the kitchen-garden, where early Beans and Peas may be planted, in which places they may with more conveniency be covered in ſevere froſt; and to theſe hedges they may both be cloſely faſtened, as they advance in their growth; which, if practiſed againſt the walls where good fruit-trees are planted, will greatly prejudice the trees, by overſhadowing them, and the growth of theſe legumes will draw off the nouriſhment from the roots of the trees, whereby they will be greatly weakened.

But to return to the culture of the Beans. Thoſe which are planted early in October, will come up by the beginning of November; and as ſoon as they are an inch above ground, the earth ſhould be carefully drawn up with a hoe to their ſtems; and this muſt be two or three times repeated, as the Beans advance in height; which will protect their ſtems from the froſt, and encourage their ſtrength. If the winter ſhould prove ſevere, it will be very proper to cover the Beans with Peas-haulm, Fern, or ſome other light covering, which will ſecure them from the injury of froſt; but this covering muſt be conſtantly taken off in mild weather, otherwiſe they will draw up tall and weak, and come to little; and if the ſurface of the border is covered with tanners bark, it will prevent the froſt penetrating the ground to the roots of both, and be of great ſervice to protect them from the injury which they might otherwiſe receive.

In the ſpring, when the Beans are advanced to be a foot high, they ſhould be faſtened up to the hedge with packthread or a ſmall line, ſo as to draw them as cloſe as poſſible; which will ſecure them from being injured by the morning froſts, which are often ſo ſevere in March and April, as to lay thoſe Beans flat on the ground, which are not thus guarded; at this time all ſuckers which come out from the roots ſhould be very carefully taken off; for theſe will retard the growth of the Beans, and prevent their coming early; and when the bloſſoms begin to open toward the bottom of the ſtalks, the top of the ſtems ſhould be pinched off, which will cauſe thoſe firſt pods to ſtand, and thereby bring them forward. If theſe rules are obſerved, and the ground kept clean from weeds, or other plants, there will be little danger of their failing.

But leſt this firſt crop ſhould be deſtroyed by froſt, it will be abſolutely neceſſary to plant more about three weeks after the firſt, and ſo to repeat planting more every three weeks, or a month, till February; but thoſe which are planted toward the end of November, or the beginning of December, may be planted on ſloping banks, at a ſmall diſtance from the hedges; for if the weather is mild, theſe will not appear above ground before Chriſtmas; therefore will not be in ſo much danger as the firſt and ſecond planting, eſpecially if the ſurface of the ground is covered with tan to keep the froſt out of the ground as is before directed; for the firſt planting will, by that time, be a conſiderable height: the ſame directions which are before given will be ſufficient for the management of theſe; but only it muſt be obſerved, that the larger Beans ſhould be planted at a greater diſtance than the ſmall ones; as alſo, that thoſe which are firſt planted muſt be put cloſer together, to allow for ſome miſcarrying; therefore, when a ſingle row is planted, the Beans may be put two inches aſunder, and thoſe of the third and fourth planting may be allowed three inches; and when they are planted in rows acroſs a bank, the rows ſhould be two feet and a half aſunder; but the Windſor Beans ſhould have a foot more ſpace between the rows, and the Beans in the rows ſhould be planted five or ſix inches aſunder. This diſtance may, by ſome perſons, be thought too great; but from many years experience, I can affirm, that the ſame ſpace of ground will produce a greater quantity of Beans when planted at this diſtance, than if double the quantity of ſeeds are put on it. In the management of theſe later crops of Beans, the principal care ſhould be to keep them clear from weeds, and any other plants which would draw away their nouriſhment; to keep earthing them up, and, when they are in bloſſom, to pinch off their tops; which, if ſuffered to grow, will draw the nouriſhment from the lower bloſſoms, which will prevent the pods from ſetting, and ſo only the upper parts of the ſtems will be fruitful; and another thing ſhould be obſerved in planting of the ſucceeding crops, which is, to make choice of moiſt ſtrong land for the later crops; for if they are planted on dry ground, they rarely produce a crop.

Theſe after-crops ſhould be planted at about a fortnight diſtance from each other, from the middle of February to the middle of May; after which time it is generally too late to plant, unleſs the land is very ſtrong and moiſt; for in warm dry light land all the late crops of Beans are generally attacked by the black inſects, which cover all the upper part of their ſtems, and ſoon cauſe them to decay.

Where the ſeeds of theſe Beans are deſigned to be ſaved, a ſufficient number of rows ſhould be ſet apart for that purpoſe, according to the quantity deſired; theſe ſhould be managed in the ſame way as thoſe which are deſigned for the table; but none of the Beans ſhould be gathered, though there are ſome covetous perſons, who will gather all the firſt ripe for the table, and are contented to ſave the after-crop for ſeed, but theſe are never ſo large and fair as the firſt; ſo that if theſe are for ſale, they will not bring near the price as the other; therefore, what is gained to the table is loſt in the value of the ſeed; but thoſe who are deſirous to preſerve the ſeveral varieties as pure as poſſible, ſhould never ſuffer two of the varieties to grow for ſeeds in the ſame place; for by their farina mixing with each other they will not continue ſo pure, but be apt to vary; and in order to keep the early kinds perfect, thoſe which come the earlieſt ſhould be ſaved for ſeeds; but this is what few people chuſe to do, becauſe they are then the moſt valuable.

When the ſeed is ripe, the ſtalks ſhould be pulled up, and ſet upright againſt a hedge to dry, obſerving to turn them every third day, that they may dry equally; then they may be threſhed out, and cleaned for uſe, or otherwiſe ſtacked up in a barn, till there is more leiſure for threſhing them out; and afterward the ſeed ſhould be drawn over to take out all thoſe that are not fair, preſerving the beſt for uſe or ſale.

It is a very good method to change the ſeeds of all ſorts of Beans, and not to ſow and ſave the ſeeds long in the ſame ground, for they do not ſucceed ſo well; therefore, if the land is ſtrong where they are to be planted, it will be the beſt way to procure the ſeeds from a lighter ground, and ſo vice verſa; and by this method the crops will be larger, and the Beans fairer, and not ſo liable to degenerate.

Having given directions for the culture of the Garden Beans, I ſhall next proceed to that of the Horſe Bean, which is cultivated in the fields: there are two or three varieties of theſe Beans, which differ in their ſize and colour; but that which is now in the greateſt eſteem, is called the Tick Bean; this doth not grow ſo high as the other, is a more plentiful bearer, and ſucceeds better on light land than the common Horſe Bean, ſo preferred to it.

The Horſe Bean delights in a ſtrong moiſt ſoil, and an open expoſure, for they never thrive well on dry warm land, or in ſmall incloſures, where they are very ſubject to blight, and are frequently attacked by a black inſect, which the farmers call the black dolphin; theſe inſects are often in ſuch quantities as to cover the ſtems of the Beans entirely, eſpecially all the upper part of them; and whenever this happens, the Beans ſeldom come to good; but in the open fields, where the ſoil is ſtrong, this rarely happens.

Theſe Beans are uſually ſown on land which is freſh broken up, becauſe they are of uſe to break and pulverize the ground, as alſo to deſtroy weeds; ſo that the land is rendered much better for corn, after a crop of Beans, than it would have been before, eſpecially if they are ſown and managed according to the new huſbandry, with a drill plough, and the horſe hoe, uſed to ſtir the ground between the rows of Beans, which will prevent the growth of weeds, and pulverize the ground, whereby a much greater crop of Beans may, with more certainty, be expected, and the land will be better prepared for whatever crop it is deſigned for after.

The ſeaſon for ſowing of theſe Beans is from the middle of February to the end of March, according to the nature of the ſoil; the ſtrongeſt and wet land ſhould always be laſt ſown; the uſual quantity of Beans ſown on an acre of land is about three buſhels; but this is double the quantity which need be ſown, eſpecially according to the new huſbandry; but I ſhall firſt ſet down the practice according to the old huſbandry, and then give directions for their management according to the new. The method of ſowing is after the plough, in the bottom of the furrows; but then the furrows ſhould not be more than five, or at moſt ſix inches deep. If the land is new broken up, it is uſual to plough it early in autumn, and let it lie in ridges till after Chriſtmas; then plough it in ſmall furrows, and lay the ground ſmooth; theſe two ploughings will break the ground fine enough for Beans, and the third ploughing is to ſow the Beans, when the furrows ſhould be made ſhallow, as was before mentioned.

Moſt people ſet their Beans too cloſe; for, as ſome lay the Beans in the furrows after the plough, and others lay them before the plough, and plough them in; ſo, by both methods the Beans are ſet as cloſe as the furrows are made, which is much too near; for when they are on ſtrong good land, they generally are drawn up to a very great height, and are not ſo apt to pod as when they have more room, and are of lower growth; therefore I am convinced by many late trials, that the better way is to make the furrows two feet and a half aſunder, or more; which will cauſe them to branch out into many ſtalks, and bear in greater plenty than when they are cloſer; by this method, half the quantity of Beans will be ſufficient for an acre of land; and by the ſun and air being admitted between the rows, the Beans will ripen much earlier and more equally than in the common way.

What has been mentioned muſt be underſtood as relating to the old huſbandry; but where Beans are planted according to the new, the ground ſhould be four times ploughed before the Beans are ſet, which will break the clods, and render it much better for planting; then with a drill plough, to which a hopper is fixed for ſetting of the Beans, the drills ſhould be made at three feet aſunder, and the ſpring of the hopper ſet ſo as to ſcatter the Beans at three inches diſtance in the drills. By this method leſs than one buſhel of ſeed will plant an acre of land. When the Beans are up, if the ground is ſtirred between the rows with a horſe plough, it will deſtroy all the young weeds; and when the Beans are advanced about three or four inches high, the ground ſhould be again ploughed between the rows, and the earth laid up to the Beans; and if a third ploughing, at about five or ſix weeks after is given, the ground will be kept clean from weeds, and the Beans will ſtalk out, and produce a much greater crop than in the common way.

When the Beans are ripe, they are reaped with a hook, as is uſually practiſed for Peas; and after having lain a few days on the ground they are turned, and this muſt be repeated ſeveral times, until they are dry enough to ſtack; but the beſt method is to tie them in ſmall bundles, and ſet them upright; for then they will not be in ſo much danger to ſuffer by wet, as when they lie on the ground; and they will be more handy to carry and ſtack, than if they are looſe. The common produce is from twenty to twenty-five buſhels on an acre of land; but I have known thirty-ſix on an acre.

The Beans ſhould lie in the mow to ſweat, before they are threſhed out; for as the haulm is very large and ſucculent, ſo it is very apt to give and grow moiſt; but there is no danger of the Beans receiving damage, if they are ſtacked tolerably dry, becauſe the pods will preſerve the Beans from injury; and they will be much eaſier to threſh after they have ſweat in the mow than before; and after they have once ſweated and are dry again, they never after give.

By the new huſbandry, the produce has exceeded the old by more than ten buſhels on an acre; and if the Beans which are cultivated in the common method are obſerved, it will be found that more than half their ſtems have no Beans on them; for by ſtanding cloſe, they are drawn up very tall; ſo the tops of the ſtalks only produce, and all the lower part is naked; whereas in the new method, they bear almoſt to the ground; and as the joints of the ſtems are ſhorter, ſo the Beans grow cloſer together on the ſtalks.

In the year 1745 I made the following experiment, in planting a piece of eleven acres of Beans in Berkſhire, viz. the gentleman's bailiff, who was wedded to the old practice of huſbandry, was very unwilling to depart from it; and having been an old ſervant in the family, his maſter was inclinable to hear all he could ſay in favour of his opinion: however, at laſt I prevailed on the gentleman to let his bailiff plant one half of the land in his way, giving him the choice which half he would have: accordingly the land was divided and planted; but the ſummer proving wet, the Beans on that part of the field he had choſen grew ſo tall and rank, that they produced no pods but on the upper part of the ſtalks; and when they were threſhed out, there was no more than twenty-two buſhels on an acre, whereas the other half produced near forty.

FABA ÆGYPTIACA, is the Arum Ægyptiacum.

FABA CRASSA, is Anacampſeros.

FABAGO. See ZYGOPHYLLUM.

FAGARA. Brown. Hiſt. Jam. tab. 5. f. 1. Ironwood.

The CHARACTERS are,

It hath male and hermaphrodite flowers upon different plants; the male flowers have a ſmall empalement, ſlightly cut into four ſegments, but have no petals, and ſix ſtamina, terminated by roundiſh ſummits: theſe are barren. The female flowers have a larger concave permanent empalement with four ſpreading petals, and four ſtamina, crowned with oval ſummits, and an oval germen, ſupporting a ſlender ſtyle, terminated by an obtuſe ſtigma; the germen afterward becomes a globular capſule with two lobes, incloſing two ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia; whereas it ſhould be put into his ſixth ſection of the twenty-third claſs, as the flowers are male and hermaphrodite on different plants, and the flowers have ſix ſtamina: but this miſtake he was led into by Jacquin, who had ſeen and deſcribed the hermaphrodite flowers only.

The SPECIES are,

1. FAGARA (*Pterota*) foliolis emarginatis. Amœn. Acad. 5. p. 393. *Fagara, whoſe lobes (or ſmall leaves) are indented at the top.* Lauro affinis jaſmini alato folio, coſta media membranulis utrinque extantibus alata, ligno duritie ferro vix cedens. Sloan. Hiſt. Jam. 2. p. 25. *Ironwood.*
2. FAGARA (*Tragodes*) articulis pinnarum ſubtus aculeatus. Jacq. Amer. 13. *Fagara with ſpines under the leaves at the joints.* Schinoides petiolis ſubtus aculeatis. Hort. Cliff. 489.

The firſt ſort grows naturally in the warmeſt parts of America. The late Dr. Houſtoun found it growing at Campeachy, from whence he ſent me dried ſpecimens of the plants in flower, by which I am convinced there are male trees which are barren. It riſes with a woody ſtem upwards of twenty feet high, ſending out branches great part of its length, garniſhed with ſmall winged leaves, having three or five lobes to each. The flowers come from the ſide of the branches, ſtanding four or five together upon ſhort foot-ſtalks.

The ſecond ſort I have placed here after Linnæus, but am not ſure it ſhould be ranged with it; for although I have pretty ſtrong plants of it growing in the Chelſea garden, they have not yet flowered; but by the external face of the plant, it ſeems to agree with the firſt.

Theſe are both tender plants, ſo muſt be kept in the bark-ſtove conſtantly, and are propagated by ſeeds, and alſo by cuttings, if properly managed.

FAGONIA. Tourn. Inſt. R. H. 265. tab. 141. Lin. Gen. Plant. 475. This plant was ſo named by Dr. Tournefort, in honour of Dr. Fagon, who was ſuperintendant of the royal garden at Paris.

The CHARACTERS are,

The flower hath a ſpreading empalement, compoſed of five ſmall leaves; it hath five heart-ſhaped petals, which ſpread open, aud are narrow at their baſe, where they are inſerted in the empalement. It hath ten ſtamina which are erect, terminated by roundiſh ſummits. In the center is ſituated a five-cornered germen, ſupporting an awl-ſhaped ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes a roundiſh capſule having five lobes, ending in a point, and five cells, each having a ſingle roundiſh ſeed.

Linnæus ranges this plant in the firſt ſection of his tenth claſs, intitled Decandria Monogynia, from the flower having ten ſtamina and one ſtyle.

The SPECIES are,

1. FAGONIA (*Erecta*) ſpinoſa, foliolis lanceolatis planis lævibus. Hort. Upſal. 103. *Prickly Fagonia, whoſe leaves are ſpear-ſhaped, plain, and ſmooth.* Fagonia Cretica ſpinoſa. Tourn. *Thorny Trefoil of Candia.*
2. FAGONIA (*Hiſpanica*) inermis. Lin. Sp. Plant. 386. *Fagonia without ſpines.* Fagonia Hiſpanica non ſpinoſa. Tourn. *Spaniſh Fagonia without thorns.*
3. FAGONIA (*Arabica*) ſpinoſa, foliolis linearibus convexis. Lin. Sp. Plant. 386. *Prickly Fagonia with narrow convex leaves.* Fagonia Arabica, longiſſimis aculeis armato. Shaw. Pl. Afr. 229. *Arabian Fagonia, armed with very long ſpines.*

The firſt ſort is a native of the iſland of Candia: this has been deſcribed by ſome botaniſts under the title of Trifolium ſpinoſum Creticum, which occaſioned my giving it the Engliſh name of Thorny Trefoil of Crete; though there is no other affinity between this and the Trefoil, than that of this having three leaves or lobes on the ſame foot-ſtalk.

This is a low plant, which ſpreads its branches cloſe to the ground, which are extended to the length of a foot or more every way, garniſhed with ſmall trifoliate oval leaves, placed oppoſite; and at each joint, immediately below the leaves, come out two pair of ſpines, one on each ſide the ſtalk; and at the ſame places come out a ſingle blue flower, ſtanding upon a ſhort foot-ſtalk, compoſed of five ſpear-ſhaped petals, which are narrow at their baſe, where they are inſerted into the empalement; after theſe fall away, the germen turns to a roundiſh five-lobed capſule, ending in an acute point, having five cells, each containing one roundiſh ſeed. It flowers in July and Auguſt, but unleſs the ſeaſon proves warm, the ſeeds do not ripen in England.

The ſecond ſort grows naturally in Spain; this differs from the firſt in being ſmooth, the branches of this having no thorns; and the plant will live two years, whereas the firſt is annual.

The third ſort was diſcovered by the late Dr. Shaw in Arabia; this is a low plant with a ſhrubby ſtalk, from which come out ſeveral weak branches armed with long thorns; the leaves of this are thick, narrow, and convex on their lower ſide; the flowers come out in the ſame manner as in the firſt ſort.

Theſe plants are propagated by ſeeds, which ſhould be ſown upon a border of freſh light earth, where the plants are deſigned to remain, for they do not bear tranſplanting well; when the plants come up, they may be thinned out to the diſtance of ten inches or a foot; and if they are kept clean from weeds, they will require no other care.

The firſt ſort is an annual plant, which ſeldom perfects its ſeeds in England, unleſs the ſeaſons prove very warm; therefore the beſt way is to ſow the ſeeds upon a warm border in the autumn, and in froſty weather ſhelter the plants with mats, or ſome covering to ſecure them; or if they are ſown in pots and placed under a frame in the winter, and the following ſpring ſhaken out of the pots, and planted in a warm border, they will come early to flower, and thereby ripe ſeeds may be more certainly obtained.

The other two ſorts may be treated in the ſame way; for as theſe ſeldom flower the firſt year from ſeeds, ſo the plants ſhould be either kept in pots, and ſheltered under a frame in winter, or placed in a warm border, where they may be ſheltered with mats, or ſome other covering, to preſerve them from the froſt; and the following ſummer the ſecond ſort will flower and produce ripe ſeeds, but the third has not perfected any ſeeds as yet in England.

FAGOPYRUM. See Helxine.

FAGUS. Tourn. Inſt. R. H. 584. tab. 351. Lin. Gen. Plant. 951. [ſo called from φάγω, *Gr.* becauſe ſuppoſed to be the food of the firſt race of mankind.] The Beech-tree; in French, *Hêtre.*

The Characters are,

It hath male and female flowers on the ſame tree; the male flowers are collected into globular heads; theſe have no petals, but have ſeveral ſtamina included in an empalement of one leaf; which are terminated by oblong ſummits. The female flowers have a one-leaved empalement cut into four parts, but have no petals; the germen is fixed to the empalement, ſupporting three ſtyles, crowned by reflexed ſtigmas. The germen afterward becomes a roundiſh capſule, armed with ſoft ſpines, opening in three cells, each containing a triangular nut.

This genus of plants is ranged in the eighth ſection of Linnæus's twenty-firſt claſs, which includes thoſe plants that have male and female flowers on the ſame plant, and the male flowers have many ſtamina. To this genus he has joined the Cheſnut; but as the male flowers of the Cheſnut are collected in long katkins, and thoſe of the Beech are globular, and the fruit of the latter being triangular, there is ſufficient reaſon for keeping them ſeparate.

We know but one Species of this genus, viz.

Fagus (*Sylvatica*) foliis ovatis obſolete ſerratis. Hort. Cliff. 447. Fagus. Dod. Pempt. 832. *The Beech-tree with oval ſawed leaves.*

There are ſome planters, who ſuppoſe there are two diſtinct ſpecies of this tree; one they call the Mountain Beech, which they ſay is a whiter wood than the other, which they diſtinguiſh by the title of Wild Beech; but it is certain, that this difference in the colour of the wood ariſes from the difference of the ſoils in which they grew, for I have not ſeen any ſpecific difference in the trees. There have been ſeeds of a Beech-tree brought from North-America, by the title of Broad-leaved Beech, but the plants which were raiſed from them proved to be the common ſort; ſo that we know of no other variety, excepting thoſe with ſtriped leaves, which is accidental; and when the trees are in vigour, the leaves become plain again.

This tree is propagated by ſowing the maſt; the ſeaſon for which is any time from October to February, only obſerving to ſecure the ſeeds from vermin when early ſowed; which, if carefully done, the ſooner they are ſown the better, after they are full ripe: a ſmall ſpot of ground will be ſufficient for raiſing a great number of theſe trees from ſeed, but you muſt be very careful to keep them clear from weeds; and if the plants come up very thick, you ſhould not fail to draw out the ſtrongeſt of them the autumn following, that thoſe left may have room to grow; ſo that if you huſband a ſeed-bed carefully, it will afford a three years draught of young plants, which ſhould be planted in a nurſery; and, if deſigned for timber trees, at three feet diſtance row from row, and eighteen inches aſunder in the rows.

But if they are deſigned for hedges (to which the tree is very well adapted) the diſtance need not be ſo great; two feet row from row, and one foot in the rows will be ſufficient. In this nurſery they may remain two or three years, obſerving to clear them from weeds, as alſo to dig up the ground between the rows, at leaſt once a year, that their tender roots may the better extend themſelves each way: but be careful not to cut or bruiſe their roots, which is injurious to all young trees; and never dig the ground in ſummer, when the earth is hot and dry; which, by letting in the rays of the ſun to the roots, is often the deſtruction of young trees.

This tree will grow to a conſiderable ſtature, though the ſoil be ſtony and barren; as alſo upon the declivities of hills, and chalky mountains, where they will reſiſt the winds better than moſt other trees; but then the nurſeries for the young plants ought to be upon the ſame ſoil; for if they are raiſed in good ſoil and a warm expoſure, and afterwards tranſplanted into a bleak barren ſituation, they ſeldom thrive, which holds true in moſt other trees; therefore I would adviſe the nurſery to be made upon the ſame ſoil where the plantation is intended, but of this I ſhall ſay more under the article of Nursery.

The tree is very proper to form large hedges to ſurround plantations, or large wilderneſs quarters; and may be kept in a regular figure, if ſheared twice a year, eſpecially if they ſhoot ſtrong; in which caſe, if they are neglected but a ſeaſon or two, it will be difficult to reduce them again. The ſhade of this tree is very injurious to moſt ſorts of plants which grow near it, but is generally believed to be very ſalubrious to human bodies.

The timber is of great uſe to turners for making trenchers, diſhes, trays, buckets; and likewiſe to the joiner for ſtools, bedſteads, coffins, &c. The maſt is very good to fat ſwine and deer; it alſo affords a ſweet oil, and the nuts have in ſcarce times ſupported ſome families with bread.

This tree delights in a chalky or ſtony ground, where it generally grows very faſt; and the bark of the trees in ſuch land is clear and ſmooth; and although the timber is not ſo valuable as that of many other trees, yet as it will thrive on ſuch ſoils and in ſuch ſituations where few better trees will ſcarce grow, the planting of them ſhould be encouraged; eſpecially as the trees afford an agreeable ſhade, and the leaves make a fine appearance in ſummer, and continue green as long in autumn as any of the deciduous trees: therefore in parks, and other plantations for pleaſure, this tree deſerves to be cultivated among thoſe of the firſt claſs, eſpecially where the ſoil is adapted to it.

The two ſorts with variegated leaves may be propagated by budding or grafting them upon the common Beech, obſerving not to plant them in a good earth; which will cauſe the buds or cyons to ſhoot vigorouſly, whereby the leaves will become plain, which often happens to moſt variegated plants.

FARINA FŒCUNDANS is the impregnating meal or duſt on the apices or ſummits of flowers; which, being conveyed into the uterus or vaſculum ſeminale of plants, fecundates the rudiments of the ſeeds in the ovary, which otherwiſe would decay and come to nothing. See Generation of Plants.

FEATHERFEW, or FEAVERFEW. See Matricaria.

FENCES. In hotter climates than England, where they have not occaſion for walls to ripen their fruit, their gardens lie open, where they can have water fence and proſpects; or elſe they bound their gardens with groves, in which are fountains, walks, &c. which are much more pleaſing to the ſight than a dead wall: but in colder countries, and in England, we are obliged to have walls to ſhelter and ripen our fruit, although they take away much from the pleaſant proſpect of the garden.

Since therefore we are under a neceſſity to have walls to ſecure our gardens from the injury of winds, as well as for the conveniency of partitions or incloſures, and alſo to ripen our fruit, brick walls are accounted the warmeſt and beſt for this purpoſe: and theſe walls being built pannel-ways, with pillars at equal diſtances, will ſave a great deal of charge, in that the walls may be built thinner, than if they were built plain without theſe pannels, for then it would be neceſſary to build them thicker every where: and beſides, theſe pannels make the walls look the handſomer.

Stone walls are by ſome preferred to thoſe of brick, eſpecially thoſe of ſquare hewn ſtones; but where they are deſigned for fruit, they ſhould be faced with brick. Thoſe that are made of rough ſtones, though they are very dry and warm, yet, by reaſon of their unevenneſs, are inconvenient to nail up trees to, except pieces of timber be laid in them here and there for to faſten a trellis to them.

But in large gardens it is better to have the proſpect open to the pleaſure-garden, which ſhould be ſurrounded with a foſſe, that from the garden the adjacent country may be viewed, but this muſt depend on the ſituation of the place; for if the proſpect from the garden is not good, it had better be ſhut out from the ſight by a wall, or any other fence, than to be open. As alſo, where a garden lies near a populous town, and the adjoining grounds are open to the inhabitants, if the garden is open, there will be no walking there in good weather, without being expoſed to the view of all paſſengers, which is very diſagreeable.

Where theſe foſſes are made round a garden which is ſituated in a park, they are extremely proper; becauſe hereby the proſpect of the park will be obtained in the garden, which renders theſe gardens much more agreeable than thoſe which are confined.

In the making theſe foſſes there have been many inventions; but, upon the whole, I have not ſeen any which are in all reſpects preferable to thoſe which have an upright wall next the garden; which (where the ſoil will admit of a deep trench) ſhould be ſix or ſeven feet high, ſo as to be above the reach of boys; and from the foot of this wall, the ground on the outſide ſhould riſe with a gradual eaſy ſlope to the diſtance of eighteen or twenty feet; and where it can be allowed, if it ſlopes much farther, it will be eaſier and leſs perceptible as a ditch to the eye, when viewed at a diſtance. But if the ground is naturally wet, ſo as not to admit of a deep foſſe, then, in order to make a fence againſt cattle, if the wall be four feet high, and ſlight poſts of three feet and a half high are placed juſt behind the wall, with a ſmall chain carried on from poſt to poſt, no cattle or deer will ever attempt to jump againſt it, therefore it will be a ſecure fence againſt them; and if theſe are painted of a dark lead colour, they will not be diſcerned at a diſtance; and at the ſame time the chain will ſecure perſons walking in the garden from tumbling over: and if another chain is carried through the poſts at one foot from the ground, it will more effectually prevent cattle from creeping under.

In ſuch places where there are no good proſpects to be obtained from a garden, it is common to make the incloſure of park-paling; which, if well performed, will laſt many years, and has a much better appearance than a wall: and this pale may be hid from the ſight within, by plantations of ſhrubs and Evergreens; or there may be a quick hedge planted within the pale, which may be trained up, ſo as to be an excellent fence by the time the pales begin to decay.

There are ſome perſons who make ſtuckade fences round their gardens to keep out cattle, &c. which, when well made, will anſwer the purpoſe of a fence; but this being very expenſive in the making, and not of very long duration, has occaſioned their not being more commonly in uſe.

As to fences round parks, they are generally of paling; which, if well made of winter-fallen Oak, will laſt many years; but a principal thing to be obſerved in making theſe pales, is not to make them too heavy; for when they are ſo, their own weight will cauſe them to decay; therefore the pale ſhould be cleft thin, and the rails ſhould be cut triangular, to prevent the wet lodging upon them; and the poſts ſhould be good, and not placed too far aſunder, burning that part of them as goes into the ground. If theſe things are obſerved, one of theſe pales will laſt, with a little care, upward of forty years very well. The common way of making theſe fences is, to have every other pale nine or ten inches above the intermediate ones; ſo that the fence may be ſix feet and a half high, which is enough for fallow deer; but where there are red deer, the fence ſhould be one foot higher, otherwiſe they will leap over.

Some incloſe their parks with brick walls; and in countries where ſtone is cheap, the walls are built with this material; ſome with, and others without mortar.

A kitchen-garden, if rightly contrived, will contain walling enough to afford a ſupply of ſuch fruits as require the aſſiſtance of a wall for any family; and this garden being ſituated on one ſide, and quite out of ſight of the houſe, may be ſurrounded with walls, which will ſcreen the kitchen-garden from the ſight of perſons in the pleaſure-garden; and being locked up, the fruit will be much better preſerved than it can be in the public garden: and the having too great a quantity of walling is often the occaſion that ſo many ſcandalous trees are frequently to be ſeen in large gardens, where there is not due care obſerved in their management.

And beſides, the borders of pleaſure-gardens are generally too narrow for the roots of fruit-trees, as will be ſhewn in its proper place, therefore it is in vain to plant them there.

The height of garden-walls ſhould be from ten to twelve feet, which is a moderate proportion; and if the ſoil be good, it may in time be well furniſhed with bearing wood in every part, eſpecially thoſe parts planted with Pears, notwithſtanding the branches being trained horizontally from the bottom of the walls.

I would recommend the White Thorn, the Holly, the Black Thorn and Crab, for outward fences to a good ground, but I do not approve of the intermixing them.

The White Thorn is the beſt quick to plant, becauſe it is the moſt common, and may be clipped ſo as to render it the cloſeſt and hardieſt fence of any other tree; and being very durable, is preferred to all others for outward fences, or for the diviſion of fields, where they are expoſed to cattle, &c.

The Black Thorn and Crab make very good fences, and are to be raiſed as the White Thorn; but if the kernels of Apples or Crabs be ſown, it is beſt to ſow the pommace with them, and they will come up the ſooner, i. e. the firſt year, if ſown in the autumn, ſoon after the fruit is ripe.

If Crab-ſtocks be planted while young, in the ſame manner as quick, they make excellent hedges ſoon, and ſo will ſome ſorts of Plumbs, I mean ſuch as have thorns.

The Black Thorn is not accounted ſo good for fences as the White Thorn, becauſe it is apt to run more into the ground, and is not certain as to the growing, eſpecially if the plants are not ſet very young; but then on the other hand, the buſhes are by much the better, and are alſo more laſting than the White Thorn, or any other, for dead hedges, or to mend gaps; nor are they ſubject to be cropt by cattle, as the others are. The richer the mould is, the better they will proſper, but yet they will grow on the ſame ſort of ſoil that the White Thorn does.

The Holly will make an excellent fence, and is preferable to all the reſt, but is a ſlow grower; but when once it does grow, it makes amends by its height, ſtrength, and thickneſs.

It is raiſed of young ſeedling plants or berries, as the White Thorn is, and the berries will lie as long in the ground before they come up. It delights moſt in ſtrong grounds, but will grow upon the drieſt gravel, amongſt rocks and ſtones.

The berries lie till the ſecond ſpring before they come up, therefore they ſhould be prepared before they are ſown (for this ſee the article AQUIFOLIUM.) It will be beſt to ſow them in the place where you deſign they ſhould grow, but they ſhould be well weeded both before they come up and afterwards.

French Furz will alſo do well upon dry ſandy banks, where few other plants will grow; but they muſt be kept very clean at the bottom, and cut thin, and never ſuffered to grow too high: nor ſhould they be cut in dry weather, or late in autumn, nor early in the ſpring; the doing either of which is ſubject to make it die in patches, which is irrecoverable; nor will it ever break out again from old wood, if cut cloſe in, after it has been ſuffered long to grow out.

Fences may likewiſe be made of Elder: if the ſoil be any thing good, you may put ſticks of Elder, or truncheons ten or twelve feet long, ſlopeways in your banks, ſo as to make a chequer-work; and they will make a fence for a garden the quickeſt of any thing, and be a good ſhelter. But theſe fences are improper for a fine garden, becauſe they ſhoot very irregular, and are ungovernable; as likewiſe the roots of theſe trees ſpread very far, and draw away all the heart of the ground, ſo as to ſtarve whatever plants grow near them: and add to this the ſcattering of the berries, which will fill the ground near them with young plants; which, if not timely weeded out, will get the better of whatever grows near them; therefore this ſort of fence is ſeldom planted, where a hedge of White Thorn can be had.

Elder planted on a bank, the ſide of which is waſhed with a river or ſtream, will make an extraordinary fence, and will preſerve the bank from being undermined by the water, becauſe it is continually ſending ſuckers from the roots and lower branches, which is of great advantage where the ſtream waſhes away the bank.

For middle fences in a garden, the Yew is the moſt tonſile, governable, and durable plant.

For ſurrounding wilderneſs quarters, Elm, Lime, Hornbeam and Beech, are very proper.

FENNEL. See Foeniculum.

FENNEL-FLOWER. See Nigella.

FERRUM EQUINUM. See Hippocrepis.

FERULA. Lin. Gen. Plant. 305. Tourn. Inſt. R. H. 321. tab. 170. [takes its name of Ferendo, *Lat.* becauſe the ſtalks of this plant are made uſe of in ſupporting the branches of trees; or of Feriendo, becauſe in old time ſticks were made of them, with which ſchool-maſters uſed to correct their ſcholars.] Fennel Giant; in French, *Ferule.*

The Characters are,

It hath an umbellated flower; the principal umbel is globular, and is compoſed of ſeveral ſmaller called rays, of the ſame form; the involucrum is compoſed of ſeveral narrow leaves which fall off; the principal umbel is uniform. The flowers have five oblong erect petals which are equal, and five ſtamina of the ſame length, terminated by ſingle ſummits; under the flower is ſituated a turbinated germen, ſupporting two reflexed ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes an elliptical, compreſſed, plain fruit, dividing in two parts, each having a large elliptical plain ſeed, marked with three lines on each ſide.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, which contains thoſe plants whoſe flowers have five ſtamina and two ſtyles.

The Species are,

1. Ferula (*Communis*) foliolis linearibus longiſſimis ſimplicibus. Hort. Cliff. 95. *Ferula with the ſmaller leaves, very narrow, long, and ſingle.* Ferula major, ſeu fæmina Plinii. M. Umb. *Pliny's Female Fennel Giant.*
2. Ferula (*Galbanifera*) foliolis multipartitis, laciniis linearibus planis. Hort. Cliff. 95. *Ferula whoſe ſmaller leaves are divided into many narrow parts which are plain.* Ferula galbanifera. Lob. Obſ. *Galbanum-bearing Fennel Giant.*
3. Ferula (*Tingitana*) foliolis laciniatis, lacinulis tridentatis inæqualibus. Hort. Cliff. 95. *Ferula whoſe ſmaller leaves are cut, and ſegments ending in three unequal parts.* Ferula Tingitana, folio latiſſimo lucido. H. Edin. *Broad-leaved ſhining Fennel Giant from Tangier.*
4. Ferula (*Ferulago*) foliis pinnatifidis, pinnis linearibus planis trifidis. Hort. Cliff. 95. *Ferula with wing-pointed leaves, whoſe pinnæ are narrow, plain, and trifid.* Ferula latiore folio. Mor. Hiſt. 3. p. 309. *Fennel Giant with a broader leaf.*
5. Ferula (*Orientalis*) foliorum pinnis baſi nudis, foliolis ſetaceis. Hort. Cliff. 95. *Ferula with the wings of the leaves naked at the baſe, and the ſmaller leaves briſtly.* Ferula Orientalis, Cachyros folio & facie. Tourn. Cor. 22. *Eaſtern Fennel Giant with the leaf and appearance of Cachrys.*
6. Ferula (*Meoides*) foliorum pinnis utrinque baſi acutis, foliolis ſetaceis. Hort. Cliff. 95. *Ferula with the wings of the leaves pointed at their baſe on every ſide.* Laſerpitium Orientale mei folio, flore luteo. Tourn. Cor. 23. *Eaſtern Laſerwort with a Spignel leaf and yellow flower.*
7. Ferula (*Nodiflora*) foliolis appendiculatis, umbellis ſubſeſſilibus. Lin. Sp. Plant. 247. *Ferula with appendages to the ſmaller leaves, and umbels ſitting cloſe to the ſtalks.* Libanotis ferulæ folio & ſemine. C. B. P. 158. *Libanotis with a Fennel Giant leaf and ſeed.*
8. Ferula (*Glauca*) foliis ſupradecompoſitis, foliolis lanceolato-linearibus planis. Hort. Cliff. 95. *Fennel Giant with linear, ſpear-ſhaped, decompounded leaves.* Ferula folio glauco, ſemine lato oblongo. J. B. 3. p. 45.

The firſt of theſe plants is pretty common in the Engliſh gardens: this, if planted in a good ſoil, will grow to a great height, and divide into many branches: the lower leaves of this ſort ſpread more than two feet every way, and branch out into many diviſions, which are again ſubdivided into many ſmaller, garniſhed with very long, narrow, ſmall leaves that are ſingle; they are of a lucid green, and ſpread near the ground. From the center of the plant comes out the flower-ſtalk, which, when the plants are ſtrong, will be near as large as a common broomſtick, and will riſe ten or twelve feet high, having many joints; if the ſtalks are cut, there iſſues from the veſſels a fœtid yellowiſh liquor, which will concrete on the ſurface of the wound. The ſtalks are terminated by large umbels of yellow flowers, which come out the latter end of June, or in the beginning of July; theſe are ſucceeded by oval compreſſed ſeeds, which have three lines running longitudinally on each ſide. Theſe ripen in September, and the ſtalks decay ſoon after. When the ſtalks are dry, they are full of a light dry pith, which will ſoon take fire.

Mr. Ray ſays, that the people of Sicily uſe the pith of this plant for tinder to light their fires. And if this was practiſed by the ancients, we may eaſily gueſs why the poets feigned, that Prometheus ſtole fire from heaven, and carried it to the earth in a hollow Ferula.

The leaves of theſe plants decay ſoon after the ſeeds are formed, ſo that before they are ripe, there are ſeldom any leaves remaining, and the ſtalks afterward dry and become very tough; ſo it is not unlikely theſe may have been uſed for correction in the ſchools, as they are very light, and cannot do much injury. The roots of this ſort will continue ſeveral years, eſpecially on a dry ſoil, and will annually produce flowers and ſeeds.

The ſecond ſort doth not grow quite ſo large as the firſt, but the ſtalks of this will riſe ſeven or eight feet high; the lower leaves are large, and greatly divided; the ſmall leaves are flat, and not ſo long as thoſe of the former, and are of a lucid green colour; the umbels of flowers are ſmaller, and the ſeeds are leſs. This flowers and ripens its ſeeds about the ſame time as the former ſort.

The third ſort hath large ſpreading leaves near the root, which are divided and ſubdivided into many parts; the ſmall leaves of this are much broader than in any of the other ſorts, and theſe are divided at their end into three unequal ſegments; the leaves are of a very lucid green. The ſtalks are ſtrong, and riſe to the height of eight or ten feet, and are terminated by large umbels of yellow flowers, which are ſucceeded by large, oval, compreſſed ſeeds, like thoſe of the firſt ſort. This flowers and ripens its ſeeds about the ſame time as the former ſort; it grows naturally in Spain and Barbary.

The fourth ſort grows to much the ſame height as the ſecond; the leaves of this branch out on every ſide pretty wide, and the ſmaller leaves on the diviſions of the leaves, are broader than thoſe of the others (excepting the third) but they are longer than thoſe, and are of a darker green colour, ending in three points. The umbels of flowers are large, the flowers are yellow, and are ſucceeded by oval compreſſed ſeeds, like thoſe of the other ſpecies. This grows naturally in Sicily.

The fifth ſort is of much humbler growth than either of the former; the ſtalks of this ſeldom riſe much more than three feet high; the lower leaves branch into many diviſions, which are cloſely garniſhed with very fine briſtly leaves; the umbel of flowers is but ſmall, when compared with the others, and the ſeeds are ſmaller. It grows naturally in the Levant.

The ſixth ſort hath very branching leaves, the footſtalks are angular and channelled; this ſends out at every joint two ſide branches oppoſite; thoſe toward the bottom are nine or ten inches long, and the others are diminiſhed gradually to the top; theſe ſide branches ſend out ſmaller at each joint in the ſame manner, which are garniſhed with very fine leaves like thoſe of Spignel, which ſtand quite round the ſtalks in ſhape of whorls; the flower-ſtalks grow three feet high, having a pretty large umbel of yellow flowers at the top; theſe are ſucceeded by oval flat ſeeds, which ripen in the autumn. It grows naturally in the Levant.

The ſeventh ſort riſes about three feet high; the leaves of this ſort are much divided, and the ſmall leaves on the diviſions are very narrow and entire; the umbels of flowers are ſmall, and are ſituated cloſe to the ſtalks between the leaves at the joints; theſe are like thoſe of the other ſorts. It grows naturally in Iſtria and Carniola.

The eighth ſort grows naturally in Italy and Sicily. The leaves of this are compoſed of many narrow flat ſegments, of a gray colour, and are divided into many parts: the ſtalk riſes from three to four feet high, and is terminated by an umbel of yellow flowers in July, which are ſucceeded by oval compreſſed ſeeds which ripen in autumn.

All theſe ſorts have perennial roots, which will continue ſeveral years; theſe have thick ſtrong fibres, which run deep in the ground, and divide into many ſmaller, ſpreading to a conſiderable diſtance every way: the ſtalks are annual, and decay ſoon after they have perfected their ſeeds. As theſe plants ſpread very wide, ſo they ſhould have each four or five feet room; nor ſhould they ſtand near to other plants, for their roots will rob whatever plants grow near them of their nouriſhment.

They are all propagated by ſeeds, which ſhould be ſown in the autumn; for if they are kept out of the ground till the ſpring, they frequently fail, and thoſe which ſucceed remain a year in the ground, ſo that much time is loſt. The ſeeds may be ſown in drills, by which method the ground may be eaſier kept clean; they muſt not be nearer than a foot row from row, and the ſeeds may be ſcattered two or three inches aſunder in the drills; when the plants come up, they muſt be kept clean from weeds; and where they are too cloſe together, they ſhould be thinned, to allow them room to grow, for they will not be ſtrong enough to remove till they have had two years growth; then in the autumn ſo ſoon as their leaves decay, the roots ſhould be taken up with great care, ſo as not to cut or injure the tap or downright root, and then planted in the places where they are deſigned to remain, for after this tranſplanting they ſhould not be removed. They delight in a ſoft, gentle, loamy ſoil, not too wet, and are very rarely injured by the hardeſt froſt.

FERRARIA. Burman. Lin. Gen. 1018.

The Characters are,

It hath two keel-ſhaped ſpathæ (*or ſheaths*) *which alternately incloſe the flowers, which have ſix oblong pointed petals curled at their borders, revolving, and are alternately larger; and three ſtamina ſitting on the ſtyle, terminated by twin roundiſh ſummits; and a roundiſh three-cornered germen under the flower, ſupporting a ſimple erect ſtigma, crowned by three bifid, hooded, curled ſtigma; the germen afterward becomes an oblong three-cornered capſule, having three cells, filled with roundiſh ſeeds.*

This genus of plants is ranged in the ſecond ſection of Linnæus's twentieth claſs, intitled Gynandria triandria, the flower having three ſtamina which ſit upon the ſtyle.

The Species are,

1. Ferraria (*Undulata*) foliis lanceolatis. Burm. Icon. *Ferraria with ſpear-ſhaped leaves.* Iris ſtellata, Cyclaminis radice, pullo flore. Barrel. Icon. 1216. *Starry Iris with a root like the Sowbread.*
2. Ferraria (*Enſiformi*) foliis enſiformibus. Burm. Icon. *Ferraria with ſword-ſhaped leaves.*

Theſe plants grow naturally at the Cape of Good Hope; the roots of the firſt ſort were ſent me by Dr. Job Baſter, of Zirkzee, who received them from the Cape. The root of this is ſhaped like that of the Bizantine Cornflag; it has a bright brown ſkin or cover; on the upper ſide is a hollow like a navel, from whence the flower-ſtalk ariſes. The ſtalk riſes a foot and a half high, and is about the ſize of a man's middle finger, garniſhed with leaves the whole length; theſe are keel-ſhaped, embracing the ſtalks with their baſe. The upper part of the ſtalk divides into two or three branches, which are garniſhed with the ſame ſhaped leaves, but they are ſmaller; each of the branches are terminated by a large ſpathæ or ſheath of the ſame colour with the leaves, but this afterward withers and decays; theſe ſheaths are double, and ſplit at the top, where the flower peeps out its petals; theſe ſix petals are three alternately larger than the other, and are curiouſly fringed on their borders; they are of a pale greeniſh colour on their outſide, but of a tawney purple within, and are of a ſhort duration; in the centre of the flower is ſituated the ſtyle, having the three ſtamina fixed on the ſide, and is terminated by twin ſtigmas; the germen is ſituated under the flower, which afterward becomes an oblong ſmooth capſule with three cells, filled with roundiſh ſeeds.

The ſecond ſort is rare in England; this differs from the former in having ſmaller roots, and longer ſword-ſhaped leaves, which have deeper veins; the ſtalk alſo does not divide ſo much, and the flowers are ſmaller, and leſs fringed on their borders.

They are both propagated by offſets ſent out from the roots, in the ſame way as the Ixia, and ſhould be cultivated in the ſame manner as is directed for thoſe and the African Gladiolus, being too tender to thrive in the open air in England, nor do they ſucceed well in a green-houſe; therefore the beſt method is, to make a border four feet wide, either in the front of the green-houſe or ſtoves, covering it with a proper frame and glaſſes, ſo that the plants may enjoy the free air in mild weather, but be protected from froſt. In ſuch a frame, moſt of the African bulbous and tuberous rooted plants may be brought to great perfection.

There is a great ſingularity in the root of the firſt ſpecies, which is in its vegetating only every other year, and the intermediate years it remains at reſt.

FICOIDES. See Meſembryanthemum.

FICUS. Lin. Gen. Plant. 1032. Tourn. Inſt. R. H. 662. tab. 420. The Fig-tree; in French, *Figuier*.

The Characters are,

It hath male and female flowers, which are included within the covering, or ſkin of the fruit, ſo do not appear unleſs the covering is opened; the male flowers are but few in number, and are ſituated in the upper part of the fruit; the female flowers are numerous, and ſituated in the lower part.

part. The male flowers ſit each upon a ſeparate foot-ſtalk, and have an empalement divided into three parts; they have no petals, but three briſtly ſtamina as long as the empalement, terminated by twin ſummits; the female flowers ſit upon diſtinct foot-ſtalks; their empalements are divided into five parts; they have no petals, but a germen as the empalement, ſupporting an inflexed ſtyle, crowned by two reflexed pointed ſtigmas. The germen afterward becomes a large ſeed, ſitting in the empalement.

This genus of plants is ranged in the third ſection of Linnæus's twenty-third claſs, intitled Polygamia Polyœcia; the male and hermaphrodite flowers being ſituated in the ſame common covering, but in the wild Fig they are in diſtinct plants.

The Species are,

1. Ficus (*Carica*) foliis palmatis. Hort. Cliff. 471. *Fig-tree with hand-ſhaped leaves.* Ficus communis. C. B. P. 457. *The common Fig-tree.*
2. Ficus (*Sycomorous*) foliis cordatis ſubrotundis integerrimis. Hort. Cliff. 471. *Fig-tree with roundiſh heart-ſhaped leaves, which are entire.* Ficus folio mori, fructum in caudice ferens. C. B. P. 459. *Fig-tree with a Mulberry leaf, bearing fruit on the body or ſtem, commonly called Sycamore.*
3. Ficus (*Religioſa*) foliis cordatis oblongis integerrimis acuminatis. Hort. Cliff. 471. *Fig-tree with entire heart-ſhaped leaves, ending in acute points.* Ficus Malabarienſis, folio cuſpidato, fructu rotundo parvo gemino. Pluk. Alm. 144. *Malabar Fig with a long pointed leaf, and ſmall double round fruit.*
4. Ficus (*Benghalenſis*) foliis ovatis integerrimis obtuſis, caule infernè radicato. Hort. Cliff. 471. *Fig-tree with oval, obtuſe, entire leaves, and the lower part of the ſtalk putting out roots.* Ficus Benghalenſis, folio ſubrotundo, fructu orbiculato. Hort. Amſt. 1. p. 119. *Bengal Fig with a roundiſh leaf, and orbicular fruit.*
5. Ficus (*Indica*) foliis lanceolatis petiolatis, pedunculis aggregatis, ramis radicantibus. Lin. Sp. Plant. 1060. *Fig-tree with ſpear-ſhaped leaves having petals, the foot-ſtalks of the fruit growing in cluſters, and branches ſending out roots.* Ficus Indica Theophraſti. Tabern. Hiſt. 1370. *Indian Fig of Theophraſtus.*
6. Ficus (*Maximus*) foliis lanceolatis integerrimis. Hort. Cliff. 471. *Fig-tree with entire ſpear-ſhaped leaves.* Ficus Indica maxima, folio oblongo, funiculis è ſummis ramis dimiſſis radices agentibus ſe propagans, fructu minori ſphærico ſanguineo. Sloan. Cat. Jam. 189. *The largeſt Indian Fig with an oblong leaf, ſending out roots from the tops of the branches, and a ſmall ſpherical blood-coloured fruit.*
7. Ficus (*Racemoſa*) foliis ovatis acutis integerrimis, caule arboreo, fructu racemoſa. Lin. Sp. Plant. 1060. Amœn. Acad. 1. p. 30. *Fig-tree with oval, entire, acute leaves, tree-like ſtalk, and branching fruit.* Alty-alu. Hort. Mal. 1. p. 43.
8. Ficus (*Pumila*) foliis ovatis acutis integerrimis, caule repente. Lin. Sp. Plant. 1060. Amœn. Acad. 1. p. 30. *Fig-tree with oval, acute, entire leaves, and a creeping ſtalk.* Ficus ſylveſtris procumbens, folio ſimplici. Kœmpf. Amœn. 803. *Trailing wild Fig-tree having ſingle leaves.*
9. Ficus (*Nymphææfolia*) foliis ovato-cordatis integerrimis glabris. *Fig-tree with oval, heart-ſhaped, entire, ſmooth leaves,* vulgarly called Ficus nymphææ folio. *Fig-tree with a Water Lily leaf.*
10. Ficus (*Citrifolia*) foliis oblongo-cordatis acuminatis, petiolis longiſſimis. *Fig-tree with oblong, heart-ſhaped, pointed leaves, and very long foot-ſtalks.* Ficus citrii folio, fructu parvo purpureo. Cateſb. Hiſt. Carol. 3. p. 18. *Fig-tree with a Citron-leaf, and ſmall purple fruit.*
11. Ficus (*Calyculata*) foliis ovatis integerrimis obtuſis, oppoſitis, fructu globoſo calyculato. *Fig-tree with oval, obtuſe, entire leaves placed oppoſite, and a globular fruit having a calyx.* Ficus folio lato ſubrotundo, fructu globoſo, magnitudine nuces moſchatæ. Houſt. MSS. *Fig-tree with broad roundiſh leaves, and a globular fruit about the bigneſs of a nutmeg.*

The firſt ſort, which is the Fig whoſe fruit is valuable, is cultivated in moſt parts of Europe; of this there are great varieties in the warm countries, which have been obtained from ſeeds, therefore may be increaſed annually, if the inhabitants were careful in propagating the trees from the ſeeds of their beſt ſorts. In England we had not more than four or five ſorts till within a few years paſt; for as the generality of the Engliſh were not lovers of this fruit, ſo there were few who troubled themſelves with the culture of it. But ſome years paſt I had a large collection of theſe trees ſent me from Venice, by my honoured friend the Chevalier Rathgeb, which I planted and preſerved to taſte of their fruits, ſeveral of which proved excellent; theſe I have preſerved and propagated, and thoſe whoſe fruit were inferior have been neglected. And as the variety of them is very great, ſo I ſhall here mention only ſuch of them as are the beſt worth cultivating, placing them in the order of their ripening.

1. The brown or Cheſnut-coloured Iſchia Fig. This is the largeſt fruit of any I have yet ſeen, it is ſhort, globular, with a pretty large eye, pinched in near the foot-ſtalk, of a brown or Cheſnut colour on the outſide, and purple within; the grains are large, and the pulp ſweet and high-flavoured; this ſort very often burſts open when it ripens. It ripens the latter end of July, or the beginning of Auguſt. I have had this fruit ripen well on ſtandards, in a warm ſoil. If this ſort is planted againſt hot walls, two plentiful crops of fruit may be annually ripened.
2. The black Genoa Fig. This is a long fruit, which ſwells pretty large at the top where it is obtuſe, but the lower part is very ſlender toward the ſtalk; the ſkin is of a dark purple colour, almoſt black, and hath a purple farina over it like that on ſome Plumbs; the inſide is of a bright red, and the fleſh is very high flavoured. It ripens early in Auguſt.
3. The ſmall white early Fig. This hath a roundiſh fruit a little flatted at the crown, with a very ſhort foot-ſtalk; the ſkin, when fully ripe, is of a pale yellowiſh white colour; the ſkin is thin, the inſide white, and the fleſh ſweet, but not high-flavoured. This ripens in Auguſt.
4. The large white Genoa Fig. This is a large globular fruit, a little lengthened toward the ſtalk; the ſkin is thin, of a yellowiſh colour when fully ripe, and red within. This is a good fruit, but the trees are not good bearers.
5. The black Iſchia Fig. This is a ſhort fruit, of a middling ſize, a little flatted at the crown; the ſkin is almoſt black when ripe, and the inſide is of a deep red; the fleſh is very high flavoured, and the trees produce a good crop of fruit, but the birds are great devourers of them if they are not protected from them. This ripens in Auguſt.
6. The Malta Fig. This is a ſmall brown fruit, much compreſſed at the top, and greatly pinched toward the foot-ſtalk; the ſkin is of a pale brown colour, as is alſo the inſide; the fleſh is very ſweet, and well flavoured. If this ſort is permitted to hang upon the trees till the fruit is ſhrivelled, it becomes a fine ſweetmeat.
7. The Murrey, or brown Naples Fig. This is a pretty large globular fruit, of a light brown colour on the outſide, with ſome faint marks of a dirty white, the inſide is nearly of the ſame colour; the grains are pretty large, and the fleſh is well flavoured. It ripens the latter end of Auguſt.
8. The green Iſchia Fig. This is an oblong fruit, almoſt globular at the crown; the ſkin is thin, of a green colour, but when it is fully ripe, it is ſtained through by the pulp to a browniſh caſt; the inſide is purple, and will ſtain linen, or paper; the fleſh is high flavoured, eſpecially in warm ſeaſons. It ripens toward the end of Auguſt.
9. The Madonna Fig, commonly called here the Brunſwick, or Hanover Fig, is a long pyramidal fruit of a large ſize; the ſkin is brown; the fleſh is of a lighter brown colour, coarſe, and hath little flavour. This ripens the end of Auguſt and the beginning of

September; the leaves of this ſort are much more divided than of moſt other.

10. The common blue, or purple Fig is ſo well known, as to need no deſcription.

11. The long brown Naples Fig. The leaves of this tree are deeply divided. The fruit is long, ſomewhat compreſſed at the crown. The foot-ſtalks are pretty long; the ſkin is of a dark brown when fully ripe, the fleſh inclining to red; the grains are large, and the fleſh well flavoured. It ripens in September.

12. The yellow Iſchia Fig. This is a large fruit, of a pyramidal form; the ſkin is yellow when ripe, and the fleſh is purple and well flavoured, but the trees do not produce much fruit here; they grow very luxuriant in branches, the leaves are very large, and not much divided. This ripens in September.

13. The ſmall Brown Iſchia Fig. This is a ſmall pyramidal fruit with a very ſhort foot-ſtalk; the ſkin is of a light brown, the fleſh inclining to purple, of a very high flavour; it ripens late in September; the leaves of this tree are leſs divided than any of the other ſorts. This is not a good bearer.

14. The Gentile Fig. This is a middle ſized globular fruit; the ſkin, when ripe, is yellow; the fleſh alſo inclines to the ſame colour; the grains are large, and the fleſh is well flavoured, but it ripens very late, and the trees are bad bearers, ſo that it is not propagated much in England.

There are ſeveral other ſorts which have been lately introduced from Italy, but all thoſe which I have yet taſted, are inferior to thoſe above-mentioned; ſome of them rarely ripen their fruit, and others are very ill bearers, not worth propagating, therefore I have omitted the mentioning of them here; for as thoſe which are enumerated, continue in ſucceſſion during the ſeaſon for theſe fruits, and being preferable to the other, few perſons will care to fill their gardens with a greater variety of theſe trees than are of real uſe, eſpecially as they require good walls, and a very large ſhare of room.

The firſt, ſecond, third, ninth, and tenth ſorts will ripen their fruits on ſtandards, where they are in a warm ſituation; but the others require the aſſiſtance of walls expoſed to good aſpects, otherwiſe their fruit will not ripen in England.

Fig-trees generally thrive in all ſoils, and in every ſituation; but they produce a greater quantity of fruit upon a ſtrong loamy ſoil, than on dry ground; for if the ſeaſon proves dry in May and June, thoſe trees which grow upon very warm dry ground, are very ſubject to caſt their fruit; therefore, whenever this happens, ſuch trees ſhould be well watered and mulched, which will prevent the fruit from dropping off; and the fruit upon theſe trees are better flavoured, than any of thoſe which grow upon cold moiſt land. I have always obſerved thoſe Fig-trees to bear the greateſt quantity of well-flavoured fruit, which were growing upon chalky land, where there has been a foot or more of a gentle loamy ſoil on the top. They alſo love a free open air; for although they will ſhoot and thrive very will in cloſe places, yet they ſeldom produce any fruit in ſuch ſituations; and all thoſe which are planted in ſmall gardens in London, will be well furniſhed with leaves, but I have never ſeen any fruit upon them which have grown to maturity.

Theſe trees are always planted as ſtandards in all warm countries, but in England they are generally planted againſt walls, there being but few ſtandard Fig-trees at preſent in the Engliſh gardens; however, ſince ſome of the ſorts are found to ripen their fruit well upon the ſtandards, and the crop of Figs is often greater upon them, than upon thoſe trees againſt walls, it is worthy of our care, to plant them either in ſtandards or eſpaliers; the latter, I think, will ſucceed beſt in England, if they were managed as in Germany, where they untie the Fig-trees from the eſpalier, and lay them down, covering them in winter with ſtraw or litter, which prevents their ſhoots being injured by the froſt; and this covering is taken away gradually in the ſpring, and not wholly removed until all the danger of froſt is over, by which management they generally have a very great crop of Figs; whereas in England, where the trees grow againſt warm walls, if the ſpring proves warm, the young Figs are puſhed out early, and the cold, which frequently returns in April and May, cauſes the greateſt part of the fruit to drop off; ſo that our crop of Figs is generally more uncertain than moſt other ſorts of fruit: and it frequently happens, that trees which are planted againſt north and eaſt-aſpected walls, produce a greater quantity of fruit in England, than thoſe which are planted againſt ſouth and ſouth-eaſt aſpects; which muſt happen from the latter putting out their fruit ſo much earlier in the ſpring than the former; and if there happen cold froſty nights after the Figs are come out (which is frequently the caſe in this country) the forwardeſt of the Figs are generally ſo injured as to drop off from the trees ſoon after. In Italy, and the other warm countries, this firſt crop of Figs is little regarded, being few in number; for it is the ſecond crop of Figs which are produced from the ſhoots of the ſame year, which is their principal crop, but theſe rarely ripen in England; nor are there above three or four ſorts which ever ripen their ſecond crop, let the ſummer prove ever ſo good, therefore it is the firſt crop which we muſt attend to in England; ſo that when theſe trees are growing againſt the beſt aſpected walls, it will be a good method to looſen them from the wall in autumn; and after having diveſted the branches of all the latter fruit, to lay the branches down from the wall, faſtening them together in ſmall bundles, ſo that they may be tied to ſtakes, to keep them from lying upon the ground; the damp whereof, when covered in froſty weather, might cauſe them to grow mouldy, and hereby they will be ſecured from being broken by the wind. When they are thus managed in autumn, if the winter ſhould prove very ſevere, the branches may be eaſily covered with Peas-haulm, ſtraw, or any other light covering, which will guard the tender fruit-bearing branches from the injury of froſt; and when the weather is mild, the covering muſt be removed, otherwiſe the Figs will come out too early; for the intention of this management is, to keep them as backward as poſſible: then in the ſpring, when the Figs are beginning to puſh out, the trees may be faſtened up to the wall again. By this management I have ſeen very great crops of Figs produced in two or three places.

I have alſo ſeen great crops of Figs in ſome particular gardens, after very ſharp winters, when they have, in general, failed in other places, by covering up the trees with Reeds made into pannels, and fixed up againſt the walls.

In the pruning of Fig-trees, the branches muſt never be ſhortened, becauſe the fruit are all produced at the upper part of the ſhoots of the former year; if theſe are cut off, there can be no fruit expected, beſide the branches are very apt to die after the knife; ſo that when the branches are too cloſe together, the beſt way is to cut out all the naked branches quite to the bottom, leaving thoſe which are beſt furniſhed with lateral branches at a proper diſtance from each other, which ſhould not be nearer than a foot; and when they are well furniſhed with lateral branches, if they are laid four or five inches farther aſunder, it will be better.

The beſt ſeaſon for pruning of Fig-trees is in autumn, becauſe at that time the branches are not ſo full of ſap, and will not bleed ſo much, as when they are pruned in the ſpring; and at this ſeaſon, the branches ſhould be diveſted of all the autumnal Figs, and the ſooner this is done, when the leaves begin to fall off, the better will the young ſhoots reſiſt the cold of the winter. There are ſome ſeaſons ſo cold and moiſt, that the young ſhoots of the Fig-trees will not harden, but are ſoft, and full of juice; when this happens, there is little hope of a crop of Figs the ſucceeding year, for the firſt froſt in autumn will kill the upper part of theſe ſhoots, for a conſiderable length downward; whenever this happens, it is the beſt way to cut off all the decayed part of the ſhoots, which will prevent the infection from deſtroying all the lower part of the branches; and, by this method, I have ſeen a moderate crop of Figs put out from the lower part of the ſhoots; where, if the ſhoots had not been injured, there would have been no fruit produced, becauſe it is chiefly from the four or five uppermoſt joints of the ſhoots that the fruit comes out; and it is for this reaſon, that as many of the ſhort lateral branches ſhould be preſerved as poſſible, thoſe being the moſt productive of fruit; for where the long ſtrait ſhoots are faſtened up, there will be no fruit, but at their extremities, ſo that all the lower part of the trees will be naked, if there is not a particular regard had to ſupply young ſhoots in every part of the trees.

Thoſe trees which are laid down from the eſpaliers, ſhould not be faſtened up again till the end of March, for the reaſons before given, and thoſe againſt walls may remain ſome time longer; and when the large ſhoots of theſe are nailed up, if the ſmall lateral branches are thruſt behind theſe, to keep them cloſe to the wall, it will ſecure the young Figs from being injured by the morning froſts; and when this danger is over, they may be brought forward to their natural poſition again: during the ſummer ſeaſon theſe trees will require no other pruning, but to ſtop the ſhoots in the ſpring, where lateral branches are wanting; and as the branches are often blown down by wind, therefore, whenever this happens, they ſhould be immediately faſtened up again, otherwiſe they will be in danger of breaking; for the leaves of theſe trees being very large and ſtiff, the wind has great power on them; ſo that where the branches are not well ſecured, they are frequently torn down.

Thoſe trees which are planted againſt eſpaliers may be protected from the injury of froſt in the ſpring, by placing Reeds on each ſide the eſpalier, which may be taken down every day, and put up again at night; but this need not be practiſed in warm weather, but only at ſuch times as there are cold winds and froſty mornings; and although there is ſome trouble and expence attending this management, yet the plentiful crop of Figs which may this way be obtained, will ſufficiently recompenſe for both: the beſt way of making this covering is, to faſten the Reeds with rope yarn in ſuch a manner as that it may be rolled up like a mat, that the whole may with great facility be put up or taken down; and if theſe Reeds are carefully rolled up, after the ſeaſon for uſing them is over, and put up in a dry ſhed, they will laſt ſeveral years.

There are ſeveral perſons who of late have planted Fig-trees in ſtandards, which have ſucceeded very well; this practice was revived, by obſerving ſome old ſtandard Fig-trees in ſome gardens, which had been growing many years, and generally produced a much greater plenty of fruit than any of thoſe trees which were growing againſt warm walls; indeed, theſe ſtandard Fig-trees are in much greater danger of having their branches killed by ſevere froſt, but in mild winters they generally do better than thoſe againſt walls; ſo that where theſe trees can be covered in very hard winters, there will always be plenty of fruit; and theſe may be covered by faſtening as many of the branches together as can be conveniently brought into a bundle, and winding ſome Hay-bands, Straw, Peas-haulm, or any ſuch light covering as can be readily procured, which in the ſpring may be gradually taken off, ſo as not to expoſe the ſhoots all at once to the open air; and if there is ſome ſuch light covering laid round the ſtems, and upon the ſurface of the ground about their roots, it will more effectually ſecure them from the danger of froſt; but when this is practiſed, great care ſhould be taken that no mice or rats harbour in this covering, for theſe will eat off the bark from their ſhoots, and kill them: and I have often obſerved thoſe trees which were againſt walls, have ſuffered greatly by theſe vermin, by having many of their largeſt branches diſbarked near the ground, which has abſolutely killed them; and it is in the winter that theſe vermin do this miſchief to them, therefore they ſhould be carefully watched at that ſeaſon.

The common blue and white Figs, which are the ſorts which have been the moſt generally cultivated in England, are not ſo proper to plant for ſtandards, as ſome other ſorts which have been lately introduced; for they are much tenderer, and are often killed almoſt to the root, when ſome of the other ſorts, which have been growing in the ſame ſituation, have received very little injury from the froſt; indeed the white ſort is generally a great bearer, and the fruit is very ſweet; but to thoſe palates which are accuſtomed to Figs, that ſort is not much in eſteem, from its want of flavour: thoſe which have ſucceeded beſt with me, are the firſt and third ſorts. Their branches are rarely hurt by froſt in winter, and their fruit will always ripen well; for in favourable ſeaſons, many of theſe ſorts, which were growing againſt walls, have ripened their ſecond crop of fruit tolerably well. I have alſo planted many of theſe ſorts of Fig-trees againſt north-eaſt and north-weſt aſpects; ſome of thoſe which were firſt planted, have produced a good quantity of well taſted fruit, but were ripe much later, which has encouraged me to plant many more of theſe trees to the ſame aſpects, and alſo to increaſe my number of ſtandard trees.

I am aware, that what I have here advanced, in relation to the pruning and dreſſing of Fig-trees, will be condemned by great numbers of people, who will not give themſelves time to conſider and examine the reaſons upon which I have founded this practice, nor to make one ſingle experiment to try the truth of it, as being vaſtly different from the general practice of moſt gardeners, who always imagine, that Fig-trees ſhould never have much pruning; or, at leaſt, that they ſhould always be ſuffered to grow very rude from the wall, to ſome diſtance. That by this management I have often ſeen great quantities of fruit I cannot deny, but then this has been only after mild winters; for it is very certain, that in ſharp froſts few of theſe outſide ſhoots eſcape being greatly injured where they are not covered; whereas it rarely happens that thoſe ſhoots which are cloſely nailed to the wall in autumn, or laid down and covered, ſuffer the leaſt damage; and the fruits are always produced a fortnight ſooner upon theſe branches, than they are upon thoſe which grow from the wall: but although the trees which are ſuffered to grow rude from the walls may produce a good quantity of fruit for a year or two, yet afterward the trees will only bear at the ends of the ſhoots, which will then be ſo far from the wall, as to receive little benefit from it; nor can the trees be reduced again to any regularity, without cutting away the greateſt number of their branches, by which a year or two will be loſt before they will come to bear again.

The ſeaſon alſo for pruning, which I have laid down, being vaſtly different from the common practice and opinion of moſt gardeners, will alſo be objected againſt; but I am ſure, if any one will but make trial of it, I doubt not his experience will confirm what I have here advanced; for as one great injury to this tree proceeds from the too great effuſion of ſap at the wounded parts, by this autumn pruning this is prevented; for, at that ſeaſon, all the parts of European trees which caſt their leaves, are leſs replete with moiſture than at any other time of the year; for by the long continuance of the ſummer's heat, the juices of plants having been exhauſted in the nouriſhment and augmentation of wood, leaves, fruits, &c. and alſo great quantities being evaporated by perſpiration, the root not being able to ſend up a ſupply equivalent to this great conſumption, the branches muſt contain a much leſs quantity of ſap than in the ſpring, when it has had ſeveral months ſupply from the root; which, though but ſmall in proportion to what is ſent up when the heat is greater, yet there being little or no waſte, either by perſpiration or augmentation, there muſt be a greater quantity contained in the branches; which alſo is eaſily to be obſerved, by breaking or cutting off a vigorous branch of a Fig-tree at both ſeaſons (the ſap, being milky, may be readily diſcerned) when that cut in autumn ſhall be found to ſtop its bleeding in one day's time, or leſs; whereas that cut in the ſpring will often flow a week or more, and the wound will be proportionably longer before it heals.

Of late years there has been ſome of theſe trees planted againſt fire-walls, which have ſucceeded very well where they have been properly managed; but where they have been kept too cloſe, and drawn by glaſſes, they have not produced much fruit; therefore whenever this is practiſed, the heat ſhould not be too great, nor the glaſſes, or other covering, kept too cloſe, but at all times, when the weather is favourable, a good ſhare of free air ſhould be admitted; and if the trees are young, that their roots are not extended beyond the reach of the covering, they muſt be frequently watered when they begin to ſhew fruit, otherwiſe it will drop off; but old trees, whoſe roots are extended to a great diſtance, will only require to have their branches now and then ſprinkled over with water. If theſe trees are properly managed, the firſt crop of fruit will be greater than upon thoſe which are expoſed to the open air, and will ripen ſix weeks or two months earlier, and a plentiful ſecond crop may alſo be obtained, which will ripen early in September, and ſometimes in Auguſt, which is about the ſeaſon of their ripening in the warmer parts of Europe; but the fires ſhould not be uſed to theſe trees till the beginning of February; becauſe when they are forced too early, the weather is frequently too cold to admit a ſufficient quantity of freſh air to ſet the fruit; but the covers ſhould be put over the trees a month before, to prevent the ſhoots from being injured by the froſt.

It may not be improper in this place to mention the great pains which the inhabitants of the Levant are at in the culture of their Figs; and without which (it is generally ſaid by all the travellers who have written on this ſubject, as alſo by Pliny, and other old naturaliſts) their fruit will fall off, and be good for nothing. I ſhall here ſet it down, as I find it in the travels of Monſ. Tournefort, chief botaniſt to the late king of France.

“Pliny, ſays he, obſerved, That in Zia they uſed to dreſs the Fig-trees with much care; they ſtill continue to do ſo. To underſtand aright this huſbandry of Figs (called in Latin, Caprificatio) we are to obſerve, that in moſt of the iſlands of the Archipelago, they have two ſorts of Fig-trees to manage; the firſt is called Ornos, from the old Greek, Erinos, a wild Fig-tree; or Caprificus, in Latin; the ſecond is the domeſtic, or garden Fig-tree; the wild ſort bears three kinds of fruit, Fornites, Cratitires, and Orni, of abſolute neceſſity towards ripening thoſe of the garden Fig.

“The Fornites appear in Auguſt, and continue to November, without ripening; in theſe breed ſmall worms, which turn to a ſort of gnats, no where to be ſeen but about theſe trees. In October and November theſe gnats of themſelves make a puncture into the ſecond fruit, which is called Cratitires, and do not ſhew themſelves till towards the end of September; and the Fornites gradually fall away after the gnats are gone; the Cratitires, on the contrary, remain on the tree till May, and incloſe the eggs, depoſited by the Fornites, when they pricked them. In May the third ſort of fruit begins to put forth from the ſame wild Fig-trees which produced the other two; this is much bigger, and is called Orni; when it grows to a certain ſize, and its bud begins to open, it is pricked in that part by the gnats of the Cratitires, which are ſtrong enough to go from one fruit to the other, to diſcharge their eggs.

“It ſometimes happens, that the gnats of the Cratitires are ſlow to come forth in certain parts, while the Orni in thoſe very parts are diſpoſed to receive them; in which caſe the huſbandman is obliged to look for the Cratitires in another part, and fix them at the end of the branches of thoſe Fig-trees, whoſe Orni are in fit diſpoſition to be pricked by the gnats; if they miſs the opportunity the Orni fall, and the gnats of the Cratitires fly away. None but thoſe that are well acquainted with this ſort of culture, know the critical minutes of doing this; and in order to it, their eye is perpetually fixed on the bud of the Fig; for that part not only indicates the time that the prickers are to iſſue forth, but alſo when the Fig is to be ſucceſsfully pricked; if the bud be too hard, and too compact, the gnat cannot lay its eggs, and the Fig drops when this bud is too open.

“Theſe three ſorts of fruit are not good to eat; their office is to help to ripen the fruit of the garden Fig-trees, in manner following: during the months of June and July, the peaſants take the Orni at a time that their gnats are ready to break out, and carry them to the garden Fig-trees; if they do not nick the moment, the Orni fall, and the fruit of the domeſtic or garden Fig-tree not ripening, will, in a very little time, fall in like manner. The peaſants are ſo well acquainted with theſe precious moments, that every morning, in making their inſpection, they only transfer to their garden Fig-trees ſuch Orni as are well conditioned, otherwiſe they loſe their crop. It is true, they have one remedy, though an indifferent one, which is, to ſtrew over the garden Fig-trees the Aſcolimbros, a very common plant there, and in whoſe fruit there is a ſort of gnats proper for pricking; perhaps they are the gnats of the Orni, which are uſed to hover about and plunder the flowers of this plant.

“To ſum up all in one word, The peaſants ſo well order the Orni, that their gnats cauſe the fruit of the garden Fig-tree to ripen in the compaſs of forty days. Theſe Figs are very good green; when they would dry them, they lay them in the ſun for ſome time, then put them in an oven to keep them the reſt of the year. Barley bread and dried figs are the principal ſubſiſtence of the boors and monks of the Archipelago; but theſe Figs are very far from being ſo good as thoſe dried in Provence, Italy, and Spain; the heat of the oven deſtroys all their delicacy and good taſte; but then, on the other hand, this heat kills the eggs which the prickers of the Orni diſcharged therein, which eggs would infallibly produce ſmall worms that would prejudice theſe fruits.

“What an expence of time and pains is here for a Fig, and that but an indifferent one at laſt! I could not ſufficiently admire the patience of the Greeks, buſied above two months in carrying theſe prickers from one tree to another. I was ſoon told the reaſon, one of their Fig-trees uſually produces between two and three hundred pounds of Figs, and ours in Provence ſeldom above twenty-five.

“The prickers contribute, perhaps, to the maturity of the fruit of the garden Fig-tree, by cauſing them to extravaſate the nutritious juice, whoſe veſſels they tear aſunder in depoſiting their eggs; perhaps too, beſides their eggs, they leave behind them ſome ſort of liquor proper to ferment gently with the milk of the Fig, and to make their fleſh tender. Our Figs in Provence, and even at Paris, ripen much ſooner for having their buds pricked with a Straw dipped in olive oil. Plumbs and Pears, pricked by ſome inſects likewiſe ripen much the faſter for it; and the fleſh round ſuch puncture is better taſted than the reſt. It is not to be diſputed but that conſiderable change happens to the contexture of fruits ſo pricked, juſt the ſame as to parts of animals pierced with any ſharp inſtrument.

“It is ſcarce poſſible well to underſtand the antient authors who have treated of caprification (or huſbanding and dreſſing the wild Fig-tree) if one is not well appriſed of the circumſtances, the particulars whereof were confirmed to us not only at Zia, Tinos, Mycone, and Scio, but in moſt of the other iſlands.”

Fig-trees are propagated in England, either by the ſuckers, which are ſent out from their roots, and by layers made, by laying down of their branches, which in one year will put out roots ſufficient to be removed, or by planting of cuttings, which, if properly managed, will take root; the firſt of theſe is a bad method, becauſe all thoſe trees which are raiſed from ſuckers, are very ſubject to ſend out great quantities of ſuckers again from their roots; and the branches of the ſuckers are not ſo compact, as thoſe of the layers, but are fuller of ſap, ſo in greater danger of being injured by the froſt; thoſe plants which are propagated by layers, are the beſt, provided the layers are made from the branches of fruitful trees; for thoſe which are made from the ſuckers, or ſhoots, produced from old ſtools, are very ſoft, and full of ſap, ſo are in danger of ſuffering by the froſt, and theſe will ſhoot greatly into wood, but will not be very fruitful; for, when trees have acquired a vicious habit while young, it is ſeldom they are ever brought to be fruitful afterward; therefore the ſhoots which are laid down, ſhould be ſuch as are woody, compact, and well ripened, not young ſhoots, full of ſap, whoſe veſſels are large and open. The beſt time for laying down of the branches is in autumn; and if the winter ſhould prove very ſevere, if they are covered with ſome old tan, or any other mulch, to keep the froſt from penetrating the ground, it will be of great ſervice to them; by the autumn following, theſe will be ſufficiently rooted for removing, when they ſhould be cut off from the old plants, becauſe at that ſeaſon the branches are not ſo full of ſap as in the ſpring, ſo will not bleed ſo much as when cut off in the ſpring. If the place is ready to receive them, the layers ſhould be tranſplanted in autumn, where they are to remain; but if it is not, then the layers may remain till the ſpring, provided they are ſeparated from the old plants in autumn. As theſe plants do not bear tranſplanting well when they are large, it is the better way to plant them at firſt in places where they are to remain; and after they are planted, the ſurface of the ground about their roots ſhould be covered with mulch to keep out the froſt; and if the winter ſhould prove very ſevere, it will be proper to cover the branches with Reeds, Peas-haulm, Straw, or ſome other light covering, which will prevent their tender ends being killed by the froſt, which frequently happens where this care is wanting.

The other method of propagating theſe trees, is by cuttings, which ſhould be taken from the trees in autumn, for the reaſon before given: theſe muſt be choſen from ſuch branches as are compact, whoſe joints are near each other; and they ſhould have a part of the former year's wood at their bottom, and the top of each ſhould be left entire, not ſhortened as is uſually practiſed with other cuttings; then they ſhould be planted eight or nine inches deep, in a bed of loamy earth, in a warm ſituation, covering the ſurface of the ground, three or four inches thick, with old tanner's bark, to keep out the froſt; and in ſevere froſt their tops ſhould be covered with Straw, Peas-haulm, Fern, or other light covering, to protect them from froſt, which ſhould be removed in the ſpring; but the tan may remain, for that will prevent the drying winds of the ſpring, and the ſun in ſummer, from penetrating the ground, and will be of great uſe to ſecure the cuttings from injury; theſe cuttings will be rooted ſufficiently by the following autumn, when they ſhould be tranſplanted, and treated in the ſame manner as the layers.

If fruitful branches of theſe trees are cut off, and planted in pots, or tubs, filled with good earth, and theſe are plunged into a good hot-bed of tanners bark in the ſtove, they will put out fruit early in the ſpring, which will ripen in the middle of May.

We ſhall now return to the other ſorts of Figs, which grow naturally in warm countries, but are preſerved in the gardens of thoſe who are curious in collecting rare exotic plants, for theſe do not bear eatable fruit in their native ſoil; but their leaves being large and beautiful, the plants make a pleaſing variety in the ſtove.

The ſecond ſort grows naturally in the Levant, where it becomes a large tree, dividing into many branches, which are garniſhed with leaves ſhaped like thoſe of the Mulberry, and affords a friendly ſhade in thoſe hot countries. The fruit is produced from the trunk and larger branches of the tree, and not on the ſmaller ſhoots, as in moſt other trees; the ſhape is like the common Fig, but is little eſteemed. This is called the Sycamore, or Pharaoh's Fig-tree.

The third ſort grows naturally in India, where it is ſacred, ſo that none dare deſtroy them; it is called by ſome the Indian God-tree; this riſes with a woody ſtem to a great height, ſending out many ſlender branches, which are garniſhed with ſmooth heart-ſhaped leaves, ending in a long tail, or point; they are entire, ſmooth, and of a light green, having pretty long foot-ſtalks; they are between ſix and ſeven inches long, and three inches and a half broad toward their baſe, diminiſhing gradually to the top, where they run out in a narrow point, an inch and a half long. The fruit comes out on the branches, which are ſmall, round, and of no value.

The fourth ſort riſes with many ſtalks, which grow to the height of thirty or forty feet, dividing into a great number of branches, which ſend out roots from their under branches, many of which reach to the ground; ſo that in ſuch places where the trees grow naturally, their roots and branches are ſo interwoven with each other, as to render the places impaſſable. In India, the Banyans trail the branches of theſe trees into regular archades, and ſet up their pagods under them, theſe being the places of their devotion. In America, where theſe trees are equally plenty, they form ſuch thickets, as neither man nor beaſt can paſs through. The leaves of this ſort are of a thick ſubſtance, ſmooth, and oval; they are ſix inches long, and four inches broad, with obtuſe ends. The fruit is the ſize of a marble, and round, but of no uſe.

The fifth ſort grows naturally in both Indies; this riſes with a woody ſtalk to the height of thirty feet, ſending out many branches, which are garniſhed with oblong leaves ſtanding upon pretty long foot-ſtalks; they are about ſix or eight inches long, and two inches and a half broad, ending in an obtuſe point, of a dark green, and ſmooth on their upper ſide, but of a light green, and veined on their under ſide. The fruit is ſmall, and of no value. The branches of theſe trees ſend out roots from their lower ſide, which ſometimes reach the ground.

The ſixth ſort grows naturally in the Weſt-Indies, where it riſes to the height of thirty or forty feet, ſending ont many ſlender branches, which put out roots in the ſame manner as the former. The leaves of this are eight or nine inches long, and two inches broad, ending in points. The fruit is ſmall, round, and of a blood colour when ripe, but is not eatable.

The ſeventh ſort grows naturally in India, where it riſes to the height of twenty-five feet, and divides into many branches, which are garniſhed with oval-pointed leaves, which are ſmooth, and of a lucid green. The fruit is ſmall, and grows in cluſters from the ſide of the branches; theſe are not eatable.

The eighth ſort grows naturally in India; this is a low trailing ſhrub, whoſe ſtalks put out roots at their joints, which ſtrike into the ground, ſo is propagated plentifully where it naturally grows. The leaves are two inches and a half long, and near two inches broad, ending in points; they are of a lucid green, and are placed without order on the branches; the fruit is ſmall, and not eatable.

The ninth ſort riſes with a ſtrong, upright, woody ſtalk twenty feet high, ſending out ſeveral ſide branches, which are garniſhed with large, oval, ſtiff leaves, about fourteen inches long, and near a foot broad, and are rounded at the ends; they have ſeveral tranſverſe veins, which run from the midrib to the ſides. The foot-ſtalks are long, and frequently turned next to the branches; the upper ſide of the leaves are of a lucid green, and the under ſide is of a gray, or ſea-green colour, they are of a thick ſubſtance, and very ſmooth; this grows naturally in India, from whence it was brought to the gardens in Holland.

The tenth ſort grows naturally in the Weſt-Indies, where it riſes twenty feet high, ſending out many ſide branches, which are covered with a white bark, and garniſhed with oblong heart-ſhaped leaves, ending in acute points; they are about three inches long, and one inch and a half broad, near the baſe; of a lucid green on their upper ſide, but of a pale green on their under, ſtanding upon very long foot-ſtalks. The fruit comes out from the ſide of the branches, toward their ends; they are about the ſize of large gray Peas, and of a deep purple colour, ſitting cloſe to the branches; theſe are not eatable.

The eleventh ſort grows naturally at La Vera Cruz, from whence it was ſent me by the late Dr. Houſtoun; this riſes with many ſhrubby ſtalks to the height of twelve or fourteen feet, and divides into many ſmaller branches, which are garniſhed with oval ſtiff leaves, which are obtuſe; they are four inches long, and three broad, of a light green, and ſtand upon very ſhort foot-ſtalks, which are joined to a cup, in which the fruit ſits; this is globular, and the ſize of a middling nutmeg, of a deep yellow, when ripe, but is not eatable.

The ſecond ſort, I believe, is not in England at preſent; I raiſed two or three of theſe plants from ſeeds in the year 1736, which were deſtroyed by the ſevere froſt in 1740, ſince which time I have not been able to procure any of the ſeeds. The other ſorts are preſerved in ſeveral curious gardens; they are eaſily propagated by cuttings during the ſummer ſeaſon. When the cuttings are taken from the plants, they ſhould be laid in a dry ſhady place for two or three days, that the wounds may be healed over, otherwiſe they are apt to rot; for all theſe plants abound with a milky juice, which flows out whenever they are wounded; for which reaſon, the cuttings ſhould have their wounded part healed over and hardened before they are planted; after which they ſhould be planted in pots filled with ſandy light earth, and plunged into a moderate hotbed, where they ſhould be ſhaded from the ſun, and two or three times a week gently refreſhed with water, if the ſeaſon is warm; but they muſt not have too much moiſture, for that will infallibly deſtroy them. When the cuttings have taken root ſufficient to tranſplant, they ſhould be each planted into a ſeparate ſmall pot filled with light undunged earth, and plunged into the hot-bed again, being careful to ſhade them until they have taken freſh root; then they ſhould have a large ſhare of free air admitted to them at all times when the weather is favourable, to prevent their drawing up weak, and to give them ſtrength before the cold comes on. In autumn the pots ſhould be removed into the ſtove, and plunged into the tan-bed, where they ſhould conſtantly remain, and muſt be treated in the ſame manner as other tender plants from the ſame countries; for although two or three of the ſorts may be treated in a hardier manner, yet they will not make much progreſs.

FICUS INDICA. See Opuntia.

FILAGO. There are ſeveral ſpecies of this genus, ſome of which grow naturally upon barren land in moſt parts of England. They are called by ſome Cottonweed, by others Cudweed, their leaves being white, and, when broken, have cottony threads. Theſe have been ranged under the genus of Gnaphalium by moſt botaniſts, and one of the ſpecies which is uſed in medicine, ſtands in the liſt of ſimples by that appellation. As theſe plants are not cultivated in gardens, I ſhall not trouble the reader with a farther account of them.

FILBERT. See Corylus.

FILIPENDULA. See Spiræa.

FILIUS ANTE PATREM [i. e. the ſon before the father] an expreſſion which botaniſts apply to plants, whoſe flower comes out before their leaves; or thoſe plants which ſend forth ſide branches of flowers, which advance above the middle.

FILIX, Fern. There are great varieties of this plant in the different parts of the world, but particularly in America, as may be ſeen in the Natural Hiſtory of Jamaica, publiſhed by Sir Hans Sloane, Bart. and in Plumier's American Ferns: but as they are plants which are ſeldom propagated in gardens, I ſhall paſs them over in this place.

FILM, that woody ſkin which ſeparates the ſeeds in the pods of plants.

FIMBRIATED [of Fimbria, *Lat.* a fringe] a term relating to the leaves of plants when they are jagged on the edges, having, as it were, a fringe about them; theſe are often called furbelowed leaves.

FIRE. However foreign, at the firſt view, this article may ſeem to our preſent purpoſe, yet I am of opinion, that a tolerable acquaintance with its nature, as far as it can be attained, and its effects, will contribute no ſmall aſſiſtance in forwarding the work of vegetation. And though the theory of fire is indeed philoſophical, yet the conſideration of its effects, and how it operates on vegetables, will be of no ſmall uſe in the culture of them.

That which beſt defines and diſtinguiſhes fire from every thing elſe, is its heating; and ſo it may be defined, Whatſoever warms or heats bodies.

Heat is ſomething, the preſence of which is beſt perceived by the dilatation of the air or ſpirit in the thermometer. So then, fire is a body, and a body in motion too. The motion of it is proved by its expanding the air, and that it is a body by experiment.

Pure mercury, being incloſed in a phial with a long neck, and kept in a gentle heat for the ſpace of a year, will be reduced into a ſolid, and the weight alſo will be increaſed conſiderably; which increaſe cannot proceed from any thing elſe but the acceſſion of fire.

The nature of fire is ſo obſcure and wonderful, that it was held by many of the ancients as a deity; and ſeveral authors of prime note have taken great pains to diſcover the myſtery of it, without having been able to explain many of the principal effects thereof. The learned Herman Boerhaave has uſed no leſs induſtry in making a new ſet of experiments, in order to come to a clearer knowledge of them; and having laid down a new doctrine of fire, in a courſe of public lectures, I ſhall briefly take notice of ſuch of them as I apprehend may be of uſe.

> "Fire (ſays he) in effect, appears to be the general inſtrument of all the motion in the univerſe. The conſtant tenor of a great number of experiments leaves no room to doubt, but that, if there were no fire, all things would inſtantly become fixed and immoveable. Of this there are inſtances every winter; for while froſt prevails, the water, which before was fluid, by a mere privation of heat, becomes ſolid, i. e. hardens into ice, and ſo remains till diſſolved again by fire. Thus, were a man entirely deſtitute of heat, he would immediately freeze into a ſtatue; and thus the air itſelf, which is found in continual motion, being always either expanding or condenſing, would, upon the abſence of fire, contract itſelf, and cohere into a firm rigid maſs; ſo alſo animals and vegetables, all oils, ſalts, &c. would, upon the like occaſion, immediately congeal."

Although this doctrine of fire, here laid down by Boerhaave, ſeems new and extraordinary, at leaſt to thoſe who have been uſed to conſider fire in the light that it has been ſet in by the Lord Bacon, Mr. Boyle, and Sir Iſaac Newton; and though we ought to pay great veneration to thoſe illuſtrious authors, yet, in the judgment of themſelves, we ſhould be in excuſable, if we ſhould abſolutely acquieſce in what they have done, and ſhut the door againſt farther and better information.

It may reaſonably be ſuppoſed, that Dr. Boerhaave has had an opportunity of going beyond them; in that, beſides all the experiments and obſervations that they have had to build upon, he has had the advantage of a new ſet, which they were unacquainted with.

As to the nature of fire, the great and fundamental difference is, whether it be originally ſuch, formed thus by the great Creator himſelf, at the beginning of things? or, whether it be mechanically producible from other bodies, by inducing ſome alteration in the particles of it?

Among the modern writers, Homberg, Boerhaave, the younger Lemery, and Dr. Graveſande, maintain the former, and the Engliſh authors chiefly maintain the latter.

Monſ. Homberg holds, That the chymical principle or element, ſulphur, which is ſuppoſed one of the ſimple, primary, pre-exiſtent ingredients of all natural bodies, is real fire; and, of conſequence, fire is coeval with all bodies. Eſſai de Souffre Principe, Mem. de l'Academie, anno 1705.

Dr. Graveſande proceeds much on the ſame principle: according to him, fire enters the compoſition of all bodies, is contained in all bodies, and may be ſeparated or procured from all bodies, by rubbing them againſt each other, and thus putting their fire in motion: and he adds, That fire is by no means generated by ſuch motion. Elem. Phyſ. Tom. II. cap. 1.

Mr. Lemery the younger, aſſerts the abſolute and ingenerable nature of fire, and alſo extends it farther; not contented to confine it, as an element, to bodies, he endeavours to ſhew, that it is "Equably diffuſed through all ſpace; is preſent in all places; in the void ſpace between bodies, as well as the inſenſible interſtices between their parts." Mem. de l'Acad. anno 1713.

This laſt ſentiment falls in with that of Boerhaave.

Of the contrary opinion is the Lord Bacon, who, in his treatiſe de Forma Calidi, deduces from a great number of particulars, that heat in bodies is no other than motion, only a motion ſo and ſo circumſtantiated; ſo that to produce heat in a body, nothing is required but to excite ſuch motion in the parts of it.

His opinion is ſeconded by Mr. Boyle, in his treatiſe of the Mechanical Origin of Heat and Cold; where he maintains the ſame doctrine, with new obſervations and experiments, of which two are as follow:

He ſays, "In the production of heat there appears nothing on the part either of the agent or patient but motion, and its natural effects. When a ſmith briſkly hammers a ſmall piece of iron, the metal thereby becomes exceedingly hot; yet there is nothing to make it ſo, except the forcible motion of the hammer, impreſſing a vehement and variouſly determined agitation on the ſmall parts of the iron; which, being a cold body before, becomes by that ſuperinduced commotion of its ſmall parts hot; firſt, in a more looſe acceptation of the word, with regard to ſome other bodies, compared with which it was cold before; then ſenſibly hot, becauſe this agitation ſenſibly ſurpaſſes that of the parts of our fingers. And in this inſtance oftentimes the hammer and anvil continue cold after the operation; which ſhews, that the heat acquired by the iron was not communicated by either of theſe implements, as heat, but produced in it, by a motion great enough ſtrongly to agitate the parts of ſo ſmall a body as the piece of iron, without being able to have the like effect upon ſo much greater maſſes of metal as the hammer and anvil; though if the percuſſions were often and briſkly renewed, and the hammer were ſmall, this alſo might be heated; whence it is not neceſſary, that a body itſelf ſhould be hot to give heat.

"If a large nail be driven by a hammer into a plank of wood, it will receive ſeveral ſtrokes on its head, ere it grows hot; but when it is once driven to the head, a few ſtrokes ſuffice to give it a conſiderable heat; for while at every blow with the hammer the nail enters farther into the wood, the motion produced is chiefly progreſſive, and is of the whole nail tending one way; but, when the motion ceaſes, the impulſe given by the ſtroke being unable to drive the nail farther on or break it, muſt be ſpent in making a various, vehement, and inteſtine commotion of the parts among themſelves, wherein the nature of heat conſiſts."

That fire is the real cauſe of all the changes in nature, will appear from the following conſideration.

All bodies are either ſolid or fluid; the ſolid of themſelves are either commonly ſuppoſed to be inactive or motionleſs; the fluid both move and are moved.

And all ſolids are found to be ſo much the more firm and contracted, as they have the leſs fire in them. This is evident in iron, which, when heated, expands itſelf into a much greater ſpace than when it was cold; ſo that any ſolid and hard body, by being freed from all fire, would ſink into a much leſs bulk, and its parts would cohere more nearly, and with greater force than before.

As to fluids, they all harden, ſo as to be viſible to the eye upon the abſence of fire; as water, by the cold of a ſevere winter, will form itſelf into a ſolid globe, and yet even then contains a great deal of fire, as appears evidently upon applying a thermometer to it, which is capable of falling twenty diviſions lower before it arrive at the point of the moſt intenſe cold: and hence it is, that the ſpirit of wine is kept from freezing in the thermometer, which would undergo the common fate of other things, were there not abundantly more fire in it.

The air itſelf expands by a greater quantity of fire, and condenſes by a leſs; but it ſtill contains a large quantity of fire, where it is moſt of all contracted; this is evident from the ſtriking of a flint againſt a ſteel, which is followed by ſparks of fire.

Likewiſe if this fire could be taken from the air, it would become ſolid and perfectly at reſt, and, by conſequence, uncapable of change.

"Fire (ſays Dr. Graveſande, in Element. Phyſ.) naturally unites itſelf with bodies; and hence it is, that a body brought near to the fire grows hot, in which caſe it alſo expands or ſwells; which expanſion is not only obſerved in very ſolid bodies, but in thoſe whoſe parts do not cohere; in which caſe they likewiſe acquire a great degree of elaſticity, as is obſerved in air and vapours."

Fire being thus acknowledged the inſtrumental cauſe of all motion, it remains that itſelf be moved; nay, to move, muſt be more natural and immediate to fire, than to any other body; and hence ſome have ventured to make motion eſſential to fire: but as this is inconſiſtent with the notion of matter, which is defined to be inert and paſſive, and as fire is capable of being proved material, we ought rather to agree, that the motion of fire itſelf is derived from ſome higher and metaphyſical cauſe. A property of perpetual mobility may indeed be ſuperadded to the other properties of fire, but it has no natural neceſſary connexion with them; nor can it be maintained with them otherwiſe than by ſome extrinſic efficacy of a ſuperior cauſe.

However, that it is by motion that fire produces its effects, is evident; and hence the action of fire cannot make any alteration in the elementary ſubſtance of bodies; for it is neceſſary, that what acts upon an object, be without that object, i. e. the fire muſt not penetrate the elementary parts, but only enter the pores and interſtices of bodies; ſo that it does not ſeem capable of making thoſe tranſmutations, which Sir Iſaac Newton aſcribes to it.

In effect, as to all our purpoſes, it may perhaps be ſaid, that fire is always in motion. For inſtance, take ſix ſeveral ſorts of thermometers, and two veſſels of water with ſal armoniac mixed therein, and apply the thermometers to it; and the conſequence will be, that the air being condenſed in them, the ſpirit will deſcend in all of them: remove the veſſels of water, and the air growing warmer, and rarefying, the ſpirit will aſcend again; ſo that the active force in air, which produces ſo many effects, does really all ariſe from the fire contained in it.

Again: As all bodies placed in a very ſolid air, do, by degrees, grow cold, motionleſs, rigid, &c. i. e. though there be ſtill ſome remains of fire, and in proportion as that is diminiſhed, the effect is accelerated; it follows, that cold, a leſs degree of heat, is the effect of a leſſer action of fire: and all action riſes apparently from the ſame ſource.

Then, as fire can render the moſt ſolid bodies, as ſtone, metals, &c. (as appears very evident in large burning-glaſſes, in which gold itſelf immediately calcines, and emits fumes, i. e. becomes fluid) ſo the want of fire would convert the moſt fluid bodies, as ſpirits of wine, &c. into ſolids.

Fire is diſtinguiſhed into two kinds, called elementary or pure fire, which is ſuch as exiſts in itſelf, and alone is properly called fire; or common or culinary fire, which is raiſed and kindled from the former, and is that which agitates and affects ignited, combuſtible, and moveable bodies, the particles of which, joining with thoſe of the pure fire, conſtitute pure flame.

This latter is improperly called fire, in that not only a ſmall part of it is real or pure fire; and in ignited bodies, that which flames, ſmokes, &c. is not ſimply fire; whereas pure fire, ſuch as is collected in a burning-glaſs, yields no flame, ſmoke, aſhes, or the like.

Fire may be preſent in the greateſt abundance, yet without any heat: this is evident in the tops of the higheſt mountains, illuminated by the ſun, where the cold is always extremely pinching, and this even under the equator, there being mountains there which are perpetually covered with ſnow, though there can be no want of fire.

So a large burning-glaſs has no effect: the ſmalleſt warmth cannot be felt in its focus in a place where the ſun does not ſhine, or when the ſun is covered with a cloud, but a piece of metal may be ſeen to melt the very moment the ſun emerges.

Fire may be in exceeding ſmall quantity, and yet burn with great violence: thus ſpirit of wine when ſet on fire, does not burn the hands; and though poured on a piece of red-hot iron, does not take fire; ſo that the fire that is in, ſhould not appear very great: yet if it meet with ſome harder body while it is burning, the particles of which body it is capable to agitate by the attrition of its own, it will yield a fierce flame, capable of burning a harder body than the hand.

From this it appears, that the relation of heterogeneous particles, agitated by the fire, has more effect in reſpect to heat than the action of the fire itſelf: nor need we be far to ſeek for the mechanical reaſon of this, for the particles of fire, being all equal and ſpherical, muſt of themſelves be harmleſs; but if they carry certain ſpicula, or any other bodies along with them, then they become capable of doing much harm.

Hence, though the flame of a piece of wood may give a ſenſe of heat, and burn ſuch things as are applied to it, it does not therefore neceſſarily follow, that there is any pure fire in it, ſo that the diſtinction of pure and common fire is abſolutely neceſſary: though this diſtinction has been overlooked by moſt or all the authors before Dr. Boerhaave, who have written on fire; which has led them into egregious miſtakes, inſomuch that moſt of them have held, that the flame of a piece of wood is all fire, which appears to be falſe from what has been already ſaid, and alſo what follows.

Elementary or pure fire is of itſelf imperceptible, and only diſcovers itſelf by certain effects that it produces in bodies, and theſe effects are only to be learnt by the changes which ariſe in bodies. Theſe effects are three; 1ſt, heat; 2dly, dilatation in all ſolid bodies, and rarefaction in all fluids; 3dly, motion.

The firſt effect of elementary fire on bodies is heat: heat ariſes wholly from fire, and in ſuch a manner, that the meaſure of heat is always the meaſure of fire; and that of fire, of heat; ſo the heat is inſeparable from the fire.

The ſecond effect of elementary fire is dilatation in all ſolid bodies, and rarefaction in all fluids.

Numerous experiments make it evident, that both theſe are inſeparable from heat. If you heat an iron rod, it will increaſe in all its dimenſions; and the more it is heated, the farther it will be increaſed; and being again expoſed to the cold, it will contract, and ſucceſſively return through all degrees of its dilatation, till it arrive at its firſt bulk, being never two minutes ſucceſſively of the ſame magnitude.

The like may be obſerved in gold, the heavieſt of all bodies, which takes up more ſpace when it is fuſed than it did before; nay, even mercury, the heavieſt of all fluids, has been known to aſcend above thirty times its height, being placed over the fire in a tube.

The laws of this expanſion are;

1ſt, That the ſame degree of fire rarefies fluids ſooner, and in a greater degree than it does ſolids. Without this, the thermometer would be of no uſe; ſince, if it were otherwiſe, the cavity of the tube would be dilated in the ſame proportion as the fluid is rarefied.

2dly, By how much the liquor is lighter, by ſo much the more it is dilated by fire: thus air, which is the lighteſt of all fluids, expands the moſt, and ſpirit of wine the next after air.

The third effect of fire on bodies is motion; for fire, in warming and dilating bodies, muſt neceſſarily move their parts. And in effect, all the motion of nature ariſes from fire alone; and if this were taken away, all things would become immoveable. All oils, fats, waters, wines, ales, ſpirits of wine, vegetables, animals, &c. become hard, rigid, and inert, upon the abſence of only a certain degree of fire; and this induration will be both the ſooner, and the more violent, the leſs the degree of fire is.

Hence, if the fire was abſolutely taken away, and there were the greateſt degree of cold, all nature would grow into one concrete body, ſolid as gold, and hard as a diamond; but, upon the application of fire, it would recover its former mobility.

And, of conſequence, every diminution of fire is attended with a proportionable diminution of motion.

Pure fire is found in two different manners, either as it exiſts every where, and is diffuſed equally in all places; or as it exiſts in certain bodies, in which it makes no great alteration.

That fire ſhould exiſt in the ſame quantity in all places, will ſeem a ſtrange paradox; and yet that it does ſo, is demonſtrable from innumerable experiments.

This elementary fire is preſent every where, in all bodies, all ſpace, and at all times, and that in equal quantities; for let a perſon go where he will, to the top of the higheſt mountains, or deſcend into the loweſt cavern, whether the ſun ſhine or not; either in the moſt ſcorching ſummer, or the ſharpeſt winter; fire may be collected by ſeveral methods, as attrition or otherwiſe. In a word, there is no phyſical point aſſignable without fire, no place in nature where the attrition of two ſticks will not render it ſenſible.

The Carteſians, as Marriotte, Perrault, &c. hold, That there is a large ſtock of fire in a perfect vacuum, i. e. a ſpace out of which all the air has been exhauſted, as ſuppoſing an abſolute vacuum impoſſible: now, the moſt perfect vacuum that we can arrive at, is that of Mr. Hugyens's contrivance, which is as follows: heat a quantity of the pureſt mercury to the heat of boiling water, and pour it into a hot tube of about forty inches long; and when the tube is filled, apply a finger upon the orifice of it, and thus invert it into a baſon full of mercury: the mercury will now be ſuſpended in the tube to the whole height; but then, if you give it but a little ſhake, it will ſink down to the height of about twenty-nine inches, and thus leave a vacuity of eleven inches.

Yet here the philoſophers above-mentioned deny there is any vacuum, and urge, that now ſo much the more fire is entered into the ſpace as there was of other matter; but this is contrary to experience; at leaſt, the fire contained there is no hotter than the mercury itſelf; for if a drop or two of water be in a froſty ſeaſon ſprinkled both upon the upper part of the tube, ſuppoſed to be full of fire, and on the lower that is full of mercury, they will in each place freeze alike; ſo that there is no more pure fire in a perfect vacuum, than in any other place.

But whereas it has been ſaid, that fire is found in all bodies, to prove this, ſet gold againſt the vacuum before-mentioned, and this gold, though the moſt ponderous of all bodies, will not contain more fire than Huygens's vacuum, as appears from the thermometer.

But the fire in gold, when ready to fuſe, is pure fire; for a maſs of this being once heated red hot, will retain this fire perfectly for three days; nay, the prince of Mirandola and others, have kept gold ignited for two months, without any diminution of weight.

Mr. Graveſande, Phyſ. Element, ſays, That bodies of any kind, being violently moved againſt one another, will grow hot by ſuch friction; and this to a conſiderable degree, which ſhews that all bodies have fire in them; for fire may be put in motion, and ſeparated from a body by ſuch rubbing, but can never be generated that way.

Mr. Boyle, Mech. Prod. of Heat, ſays, That although quickſilver is allowed to be the coldeſt of all fluids, inſomuch that many deny, that it will produce any heat by its immediate action on any other body, and particularly on gold; yet ſeveral trials have aſſured him, that a particular mercury may by preparation be enabled ſuddenly to inſinuate itſelf into the body of gold, whether calcined or crude, and become manifeſtly hot with it in leſs than two or three minutes.

Mr. Graveſande ſays, That quickſilver contains fire, is evident hence, that if you ſhake it about in an exhauſted glaſs, it will appear all luminous.

Elementary fire of itſelf always lies concealed; nay, it may be perfectly undiſcoverable, where it is in the greateſt quantity; as is evident in the torrid zone, where the ſnow never melts, notwithſtanding the great abundance of fire.

This fire, in itſelf thus perfectly latent, may diſcover itſelf to be preſent by five effects; 1ſt, by rarefying bodies, and particularly air; 2dly, by light; 3dly, by colour; 4thly, by heat; and 5thly, by burning.

That there is a good quantity of fire even in the coldeſt places, and in the coldeſt bodies, is confirmed by the following experiment: if you take two large iron plates, and rub them briſkly together in Iceland, which is only twelve degrees ſhort of the north pole, in the moſt froſty ſeaſon, and at midnight, they will grow warm, glow, ſhine, and heat to ſuch a pitch as not only to rarefy the ſpirit in the thermometer, but even to ignite, and at laſt to fuſe.

Now the fire here found is either created de novo, or it was there before, but nobody will aſſert its creation; and accordingly, unleſs it be furniſhed with a proper fuel, it will be ſoon diſſipated again, but not annihilated; and of conſequence it pre-exiſted, and it appears to be true fire by its rarefying the ſpirit in the thermometer.

From this, and many other experiments, it is evident, that fire is always found in all parts of ſpace, and in all bodies equally ſpread on the utmoſt top of the higheſt mountain, as in the ſubject valley, or in the deepeſt cavern under ground, and in every climate, and at every ſeaſon.

The equable diſtribution of fire in all places being proved, it ſhould thence follow, that there is the ſame degree thereof every where; which would really be ſo, were it not that fire happens by one means or other to be more collected in one place than another.

But, notwithſtanding the equable difference, &c. of fire through all the mundane ſpace does not hinder, but that, to our ſenſes, it appears very unequal in different places; and hence we have two vulgarly reputed ſources or funds of fire, viz. in the ſun, and the center of the earth.

As for the firſt, we have the concurrent opinions of the philoſophers of all ages, but one excepted, who held the ſun to be cold.

As to the ſecond, the central fire, it is manifeſt that there is an ample proportion of fire under ground; and even, that fire appears much more abundant there than on the ſurface; ſo that at leaſt, a ſubterraneous fire muſt be granted.

Thus they who dig mines, wells, &c. conſtantly obſerve, that while they are but a little below the ſurface, they find it a little cool; and as they proceed lower, it proves much colder, as being beyond the reach of the ſun's heat, inſomuch that water will freeze almoſt inſtantaneouſly, and hence is the uſe of houſes.

But a little lower, about forty or fifty feet deep, it begins to grow warmer, ſo that no ice can bear it; and then the deeper they go, ſtill the greater heat; till at length it endangers the ſtoppage of reſpiration, and puts out their candles. If they venture yet farther with a lighted candle, the place ſhall be immediately found full of flame, as once happened in the coal-pits in Scotland, where a hardy digger, deſcending to an unuſual depth, with a light in his hand, the fumes, which were there found very copious, caught fire thereby, and burnt the whole mountain down.

Therefore it ſeems as if nature had lodged another ſun in the center of the earth, to contribute on its part to the giving motion to bodies, and for the promoting of generation, nutrition, vegetation, germination, &c. of animals, vegetables, and foſſils.

As to the origin of this ſubterraneous ſun, ſome doubt whether it were formed there in the beginning, like the ſun in the firmament, or gradually produced by a ſecondary collection of vague fire into this place.

What makes in favour of the former opinion, are volcanos or burning mountains, which ſeem to have exiſted from the firſt ages; for the flames of mount Ætna are mentioned as of great antiquity, and there are likewiſe ſuch mountains found in the coldeſt regions, viz. Nova Zembla and Iceland, as well as the hotteſt, as Borneo, &c.

It cannot be reaſonably pretended, ſays Mr. Boyle, that the ſubterraneous heat proceeds from the rays of the ſun, ſince they heat not the earth above ſix or ſeven feet deep, even in the ſouthern countries; and if the lower part of the earth were of its own nature cold, and received the heat it affords only from the ſun and ſtars, the deeper men deſcend therein, the leſs degree of heat and ſteams they would meet with.

The ſun contributes much in bringing fire to light, by reaſon of his rapid motion round his axis; whereby the fiery particles, every where diffuſed, are directed and determined in parallel lines toward certain places where its effects become apparent.

And from thence it is, that the fire is perceived by us when the ſun is above; but that when he diſappears, his impulſe or preſſion being then taken away, the fire continues diſperſed at large through the ethereal ſpace.

There is not, in effect, leſs fire in our hemiſphere in the night time, than there is in the day time; only it wants the proper determination to cauſe it to be perceived.

The effects of elemental fire may be increaſed divers ways, viz. firſt, by attrition, or a ſwift rubbing or agitating one body againſt another. This is very manifeſt in ſolids. The attrition of a flint againſt a ſteel produces ſparks of fire; and likewiſe in fluids, the violent agitation of cream, by churning, will produce a ſenſible warmth, and ſeparate it into butter; and this effect is rendered ſtill more diſcernible by a thermometer.

And the heat of animal bodies is owing to the agitation and attrition of the parts of theſe juices againſt each other, and the ſides of the veſſels.

The ſecond manner of increaſing the effect of elementary fire is, by throwing a quantity of moiſt or green vegetables, cut down while full of ſap, into a large heap, and preſſing them cloſe down; by which they grow warm, hot, ſmoke, and break out into flame,

A third way is by mixing certain cold bodies: thus water, and ſpirit of wine, being firſt warmed, grow much hotter by being mixed; alſo oil of cloves, cinnamon, &c. being mixed with ſpirit of wine, become exceeding hot, and burſt forth like volcanos.

The like effects may be had from ſeveral hard and dry bodies, as ſulphur and ſteel filings.

To conclude: on fire and the effects thereof, depend all fluidity of humours, juices, &c. all vegetation, putrefaction, fermentation, animal heat, &c.

As all the four elements, water, air, earth, and fire, are very conducive to the work of vegetation, and no one of them more than this of fire; I conclude, that theſe few hints, which I have collected from the moſt approved authors, concerning the nature and properties of it, as they may be uſeful, would not be unacceptable to the ingenious and ſtudious practiſers of horticulture, which induced me to inſert them here.

FIR-TREE. See Abies.

FISTULAR FLOWERS [Flores Fiſtulares, of Fiſtula, *Lat.* a pipe] ſuch as are compounded of many long, hollow, ſmall flowers, like pipes.

FLAMMULA JOVIS. See Clematis.

FLESH, among botaniſts, is all the ſubſtance of any fruit that is between the outer rind and the ſtone, or that part of any root that is fit to be eaten.

FLORIFEROUS [florifer, *Lat.*] bearing flowers.

FLORIST, one who is converſant with, or ſkilled in flowers.

FLORULENT, FLORULOUS [florentulus, florulus, *Lat.*] Flowery, full of flowers; alſo bloſſoming.

FLOS AFRICANUS. See Tagetes.

FLOS PASSIONIS. See Passiflora.

FLOS SOLIS. See Helianthus.

FLOS TRINITATIS. See Viola.

FLOWER: a flower is a natural production which precedes the fruit, which includes the grain or ſeed. Though a flower is a thing ſo well known, yet the definition of this part of a plant is as various almoſt as the authors who define it. Jungius defines it to be the more tender part of a plant, remarkable for its colour, or form, or both, cohering with the fruit. Yet this author himſelf confeſſes, that this definition is too narrow; for ſome of thoſe bodies which he allows to be flowers are remote from the fruit.

Mr. Ray ſays, it coheres, for the moſt part, with the rudiments of the fruit. Thus the words, for the moſt part are hardly to be admitted into definitions.

Tournefort defines it to be a part of a plant very often remarkable for its peculiar colours, for the moſt part adhering to the young fruit, to which it ſeems to afford the firſt nouriſhment, in order to explicate its moſt tender parts. Which definition is ſtill more deficient than the former, by this uncertain mode of expreſſion.

Pontedera, the profeſſor of botany at Padua, defines it to be a part of a plant unlike the reſt in form and nature; if the flower has a tube, it always adheres to the embryo, or is very near it, for whoſe uſe it is ſubſervient; but if it wants a tube, there is no embryo adhering.

This definition is far from being clear, for it is ſcarce intelligible, and is liable to this objection, that it may include ſome parts of a plant which no perſon ever called by that name; for a root, a ſtalk, or a leaf, are parts of a plant unlike the reſt in form and nature, having no tube, and ſo do not adhere to any embryo, and thus by Pontedera's definition are flowers.

Monſ. Juſſieu, the Paris profeſſor, ſeems not to have ſucceeded much better in this affair: he ſays, That is properly called a flower, which is compoſed of chives, and a piſtillum, and is of uſe in generation. But this is too defective; for there are many plants in which the piſtillium or ſtyle is found a conſiderable diſtance from the chives; there are many flowers that have no piſtillum, whether that word be taken to ſignify the embryo of the fruit, or its appendix, and many which have no chives.

But the late Monſieur Vaillant ſeems to be happier, in forming a clearer idea of this part of a plant. We find in the lecture he read in the Royal Garden at Paris, that the flowers, ſtrictly ſpeaking, ought to be reckoned the organs which conſtitute the different ſexes in plants; ſeeing they are ſometimes found without any covering, and that the coats or petals, which immediately encompaſs them, are deſigned only to cover and defend them: but (ſays he) as theſe coats are the moſt conſpicuous and moſt beautiful part of the compoſition, which is called by the name of flower; to theſe coats therefore I give the name of flower, of whatſoever ſtructure or colour they be; whether they encompaſs the organs of both ſexes together, or contain only one of them, or only ſome parts depending on one of them, provided always that they be not of the ſame figure of the leaves of the plant.

But, in my opinion, Dr. Martyn has been happier, in his definition of a flower, than all thoſe abovementioned: he defines a flower to be the organs of generation of both ſexes adhering to a common placenta, together with their common coverings; or of either ſex ſeparately, with its proper coverings, if it have any.

The parts of a flower are, 1. The germen or ovary; which is the rudiment of the fruit, and ſo is properly the female organ of generation.

2. The ſtyle, which is a body accompanying the ovary, either ariſing from the top of it, or ſtanding as an axis in the middle, with the embryos of the ſeeds round it.

3. The ſummits, or apices, which are thoſe bodies that contain the prolific powder, analogous to the male ſperm in animals; and generally hang upon ſlender threads, which are called the chives or ſtamina.

The petals are thoſe tender fine coloured leaves, which are generally the moſt conſpicuous parts of a flower.

The empalement, or calyx, is thoſe tender leaves which cover the other parts of a flower.

Flowers, according to the number of their petals, are called monopetalous, dipetalous, tripetalous, tetrapetalous, &c.

The ſtructure of flowers is indeed very various; but, according to Dr. Grew, the generality have theſe three parts in common, viz. the empalement, the foliation, and the attire.

Mr. Ray reckons, that every perfect flower has the petals, ſtamina, apices, and ſtylus or piſtil; and ſuch as want any of theſe parts, he accounts imperfect flowers.

In moſt plants there is a perianthum, calyx, or flower-cup; which is of a ſtronger conſiſtence than the flower itſelf, and deſigned to ſtrengthen or preſerve it.

Flowers are diſtinguiſhed into male, female, or hermaphrodite.

The male flowers are thoſe in which are the ſtamina, but have no germen or ſtyle, the ſame which botaniſts call ſtamineous flowers; theſe have no fruit.

The female flowers are ſuch as contain the germen and ſtyle, or piſtil, which is ſucceeded with fruit, and are called fruitful, or knitting flowers.

The hermaphrodite flowers are ſuch in which the two ſexes are contained, i. e. the male and female parts are found in the ſame flower, which are the moſt general kind; ſuch are the Daffodil, Lily, Tulip, Althæa, Geranium, Roſemary, Sage, Thyme.

The ſtructure of parts is much the ſame in thoſe where the ſexes are divided; the difference between them conſiſting in this, that the ſtamina and ſummits or apices, i. e. the male parts in theſe are ſeparate from the ſtyles or piſtils; being ſometimes on the ſame plants, and ſometimes on different ones.

Among the plants which bear both male and female parts, but at a diſtance from each other are reckoned the Cucumber, Melon, Gourd, Turky-Wheat, Walnut, Oak, Beech, &c.

FLUIDITY. [Fluiditas, of fluere, *Lat.* to flow.] Having occaſion to mention fluids and fluidity, in ſpeaking of the properties of the elements air, water, fire, &c. I thought it neceſſary, in this place, to give the following account of that property, which I have extracted from the moſt approved authors.

A fluid, or fluid body, is by ſome defined to be a body, whoſe particles are but weakly connected, their mutual coheſion being, in a great meaſure, prevented from ſome external cauſe: in which ſenſe, a fluid ſtands oppoſed to a ſolid; and is, by the excellent Sir Iſaac Newton, defined to be one whoſe parts eaſily give place, or move out of the way, on any force impelled upon them, and by that means do ſo eaſily move one over another. Which definition is much better than that of Deſcartes, That a fluid is a body whoſe parts are in continual motion, becauſe it is neither apparent that the parts of all fluids are ſo, nor that the parts of ſome ſolid bodies are not ſo.

Fluidity is the ſtate or affection of bodies, which denominates or renders them fluid, and ſtands in direct oppoſition to firmneſs and ſolidity.

It is diſtinguiſhed from liquidity and humidity, in that the idea of fluidity is abſolute, and the property contained within the thing itſelf; whereas that of humidity is relative, and implies wetting, or adhering, i. e. ſomething that gives us the ſenſation of wetneſs or moiſture, and would have no exiſtence, but for our ſenſes.

Thus melted metals, air, æther, and even ſmoke, and flame itſelf, are fluid bodies, and not liquid ones; the parts of them being actually dry, and not leaving any ſenſe of moiſture.

Fluidity ſeems to conſiſt in this, that the parts of any body, being fine and ſmall, are ſo diſpoſed by motion and figure, as that they can eaſily ſlide over one another's ſurfaces all manner of ways. Mr. Boyle alſo obſerves, That it is requiſite they ſhould be variouſly and ſeparately agitated to and fro, and that they ſhould touch one another but in ſome parts only of their ſurfaces. And the ſame gentleman ſays, in his Hiſtory of Fluidity, That the conditions requiſite to conſtitute a fluid body, are chiefly the three following.

1ſt, The minuteneſs or ſmallneſs of its parts: thus we ſee the fire, by dividing metals into parts very fine and ſmall, will melt them, and make them fluid; and after the ſame manner do acid menſtruums diſſolve them, ſuſpend their liquor, and render them fluid; and that fire turns the hard body of common ſalt almoſt wholly into a liquor by diſtillation: though it is not improbable, but that the ſhape and figure of theſe ſmall parts may conduce much towards producing this quality of fluidity; for it is found in the diſtillation of Olive oil (which is a fluid made only by preſſure) that moſt of the oil will, by the action of the parts of the fire (if it be done in a retort) be turned into a kind of conſiſtent ſubſtance like butter.

Likewiſe mercury, whoſe parts are, without doubt, much groſſer than thoſe of oil and water, is yet more fluid than either of them.

2dly, It ſeems requiſite to fluidity, that there be ſtore of vacuities, or vacant ſpaces, interſperſed between the corpuſcles of the fluid body; for elſe there will not be room for each particle to continue its motion and agitation on the ſurfaces of the neighbouring ones. For,

3dly, The chief condition requiſite to conſtitute a fluid body is, that its particles be agitated variouſly and apart, either by their own proper motion, or by ſomething of ſubſtance, that tumbles them up and down by its paſſage through them.

That this qualification is chiefly requiſite to fluidity, you may gather from that common experiment of putting a little dry powder of alabaſter, or plaſter of Paris, finely ſifted, in a flat-bottomed veſſel over the fire; for in a little time it will boil like water, and imitate all the motions of a boiling liquor; it will tumble variouſly over in great waves like that; it will bear ſtirring with a ſtick or ladle without reſiſting, as it will do when cold; nay, if it be ſtirred ſtrongly near the ſide of the veſſel, its waves will apparently daſh up againſt the ſides: yet if any of it be ſpeedily taken out, and laid on a piece of paper, you will ſee nothing but a dry powder.

So that it is evident from hence, that there is a real difference between a fluid body and a wetting liquor; for not only this boiling powder and melted metals, but the air and æther, and even flame itſelf, are properly fluid bodies, though not moiſt liquors.

This ingenious gentleman found alſo, that by blowing the ſmoke of Roſemary into a glaſs pipe, and then holding the pipe (when filled) upright, the ſurface of the ſmoke would accommodate itſelf to a level ſituation; and which way ſoever the tube was inclined, the ſuperficies of the ſmoke would be parallel to the horizon; and when the glaſs was much inclined, would run along it like water.

From whence he infers, that, in order to the rendering a body fluid, there is no need that its parts ſhould be cloſely condenſed, as thoſe of water are.

And Dr. Hook, in his Micrograph. p. 12. preſents us with a very pretty experiment or two, to prove this account of fluidity, viz. That a diſh of ſand being ſet on a drum head, briſkly beaten by the ſticks, or on the upper ſtone of a mill, turning ſwiftly round on the (empty) lower one, it in all reſpects, emulate the properties of a fluid body; for a heavy body will immediately ſink in it to the bottom, and a light one emerge to the top; each grain of ſand hath a conſtant vibrating, dancing motion; and if a hole be made in the ſide of the diſh, the ſand will ſpin out like water.

The corpuſcular philoſophy, before it was wonderfully improved by Sir Iſaac Newton, did not go to the bottom of this matter; for it gave no account of the cauſe of the chief condition requiſite to conſtitute a fluid body, viz. the various motions and agitations of its particles: but this may, in a great meaſure, be accounted for, if it be ſuppoſed to be one of the primary laws of nature, That as all particles of matter attract one another when they come within a certain diſtance, ſo likewiſe they fly away from, and avoid one another, at all greater diſtances from one another.

For then, though their common gravity may keep them together in a maſs (it may ſometimes be) together with the preſſure of other bodies upon them; yet their continual endeavour to avoid one another ſingly, and the adventitious impulſes of light, heat, or other external cauſes, may make the particles of fluids continually move round about one another, and ſo produce this quality.

It is indeed a difficulty not eaſily got over, to account for the particles of fluids always keeping at ſuch a diſtance from one another, as not to come within the ſphere of one another's attraction.

The fabric and conſtitution of that fluid body, water, is amazing; that a body ſo very rare, and which has a vaſt over-proportion of pores, or interſperſed vacuity, to ſolid matter, ſhould yet be perfectly incompreſſible by the greateſt force; and yet this fluid is eaſily reducible into that firm, tranſparent, friable body which we call ice, by being only expoſed to a certain degree of cold.

One would think, that though the particles of water cannot come near enough to attract each other, yet the intervening frigorific matter doth, by being mingled per minima, ſtrongly attract them, and is itſelf likewiſe ſtrongly attracted by them, and wedges or fixes all the maſs into a firm body; which ſolid body loſes its ſolidity again, when by heat the vinculum is ſolved, and theſe frigorific particles are diſjoined from thoſe of the water, and are forced to fly out of it; and, perhaps, juſt thus may the fumes of lead fix quickſilver.

When a firm ſolid body, ſuch as a metal, is by heat reduced into a fluid, doth not the fire disjoin and ſeparate its conſtituent particles, which mutual attraction cauſed to cohere before, and keep them at ſuch a diſtance from each other, as that they are without the ſphere of one anothers attraction as long as that violent motion laſts? And do not they, when that is over, and the heat is flown out, come nearer to, attract one another, and coaleſce again?

As therefore the cauſe of coheſion of the parts of ſolid bodies appears to be their mutual attraction, ſo the chief cauſe of fluidity ſeems to be a contrary motion impreſſed on the particles of fluids, by which they avoid and fly one another, as ſoon as they come at, and as long as they keep at, ſuch a diſtance from each other.

It is obſerved alſo in fluids, that the direction of their preſſure againſt the veſſels which contain them, is in lines perpendicular to the ſides of ſuch veſſels; which property being the neceſſary reſult of the particles of any fluid's being ſpherical, it ſhews that the parts of all fluids are ſo, or of a figure nearly approaching thereto.

Dr. Clarke ſays, That if the parts of a body do not touch each other, or eaſily ſlide over one another, and are of ſuch a magnitude as that they may be eaſily agitated by heat, and the heat be ſufficiently great to agitate them; though perhaps it may be leſs than ſuffices to prevent water from freezing; or even though the parts be not actually moved, yet if they be ſmall, ſmooth, ſlippery, and of ſuch a figure and magnitude as diſpoſes them to move and give way, that body is fluid.

And yet the particles of ſuch fluid bodies do, in ſome meaſure, cohere; as is evident hence, that mercury, when well purged of air, will be ſuſtained in the barometer to the height of ſixty or ſeventy inches; that water will aſcend in capillary tubes, even in vacuo; and that the drops of liquors in vacuo run into a ſpherical form, as adhering by ſome mutual coheſion, like that between poliſhed marble planes.

To this may be added, that theſe ſaid bodies, if they conſiſt of particles which are eaſily entangled with each other, as oil; or if they be capable of being ſtiffened by cold, and joined by the interpoſition of certain cunei or wedges, as water, they are eaſily rendered hard; but if their particles are ſuch as can neither be entangled as air, nor ſtiffened by cold, as quickſilver, then they never grow hard and fixed.

In ſhort, the Carteſians define a fluid to be a body, the parts of which are in continual inteſtine motion; and Dr. Hook, Mr. Boyle, and Dr. Boerhaave, tho' they differ in opinion widely from Carteſianiſm, ſubſcribe to the definition, and alledge arguments to prove, that the parts of fluids are in continual motion, and even that it is this motion which conſtitutes fluidity; and the latter of them aſcribes this, and all motion, to fire. See Fire.

Fluids then are either natural, as water and mercury; or animal, as blood, milk, bile, lympha, urine, &c. or factitious, as wines, ſpirits, oils, &c.

FŒNICULUM. Tourn. Inſt. R. H. 311. tab. 164. Anethum. Lin. Gen. Plant. 326. *Fennel*; in French, *Fenouil.*

The Characters are,

It hath an umbellated flower; the great umbel is compoſed of many ſmaller, which have no involucrum; the umbel is uniform; the flowers have five incurved petals, and five ſtamina, terminated by roundiſh ſummits: the germen is ſituated under the flower, ſupporting two ſmall ſtyles, crowned by roundiſh ſtigmas. The germen afterward turns to an oblong fruit, deeply channelled, dividing into two parts, each containing a ſingle ſeed, flat on one ſide, but convex and channelled on the other.

This genus of plants is ranged in the ſecond ſection of Tournefort's ſeventh claſs, which includes the herbs with umbellated flowers diſpoſed circularly, whoſe empalement turns to two narrow, oblong, thick ſeeds. Dr. Linnæus has joined this genus to Anethum, which is placed in the ſecond ſection of his fifth claſs, with thoſe plants whoſe flowers have five ſtamina and two ſtyles. But as the ſeeds of Fennel are oblong, thick, and channelled, and thoſe of Dill flat and bordered, it is much better to keep them ſeparate, than to join them in the ſame genus.

The Species are,

1. Foeniculum (*Vulgare*) foliis decompoſitis, foliolis brevioribus multifidis, ſemine breviore. *Fennel with decompounded leaves, whoſe ſmall leaves are ſhorter and end in many points, and a ſhorter ſeed.* Fœniculum vulgare Germanicum. C. B. P. 147. *Common Fennel.*
2. Foeniculum (*Dulce*) foliis decompoſitis, foliolis longioribus, ſemine longiori. *Fennel with decompounded leaves, whoſe ſmall leaves are very long, and a longer ſeed.* Fœniculum dulce, majore & albo ſemine. J. B. 3. p. 2, 4. *Sweet Fennel having a larger white ſeed.*
3. Foeniculum (*Azoricum*) humilius, radice cauleſcente carnoſo, ſeminibus recurvis, radice annuâ. *Dwarf Fennel with a fleſhy ſtalk, recurved ſeeds, and an annual root.* Fœniculum dulce Azoricum. Pluk. Alm. *Sweet Azorian Fennel, called Finochio.*

The firſt ſort is the common Fennel, which is cultivated in the gardens, and has ſown itſelf in many places, where it has been introduced in ſuch plenty, as to appear as if it were a native in England; but it is no where found at a great diſtance from gardens, ſo has been undoubtedly brought into England. There are two varieties of this, one with light green leaves, and the other with very dark leaves; but theſe I believe are only varieties which ariſe from the ſame ſeeds; but this is very difficult to aſcertain; for unleſs the ſeeds were ſown ſeparately in ſome place where neither of theſe plants have been growing before, it cannot be done; for the ſeeds of theſe plants which have ſcattered, will remain in the ground ſome years, and when expoſed near the ſurface will grow; ſo that the plants become troubleſome weeds, wherever their ſeeds have been ſuffered to ſcatter; and they frequently come up where other ſeeds are ſown, and thereby the two ſorts may accidentally mix.

The common Fennel is ſo well known, as to need no deſcription. This hath a ſtrong fleſhy root, which penetrates deep into the ground, and will continue ſeveral years. It flowers in July, and the ſeeds ripen in autumn. The beſt time to ſow the ſeeds, is ſoon after they are ripe; the plants will come up in the autumn or the following ſpring, and require no other care but to keep them clean from weeds, and thin the plants where they are too cloſe; it will grow in any ſoil or ſituation. The leaves, ſeeds, and roots of this, are uſed in medicine; the root is one of the five opening roots, and the ſeed one of the greater carminative ſeeds. There is a ſimple water made from the leaves, and a diſtilled oil from the ſeed.

The ſweet Fennel has been by many ſuppoſed only a variety of the common ſort, but I have cultivated it in the ſame ground with that, where it has always retained its differences. The leaves of this are very long and ſlender, growing more ſparſedly, and do not end in ſo many points as thoſe of the common ſort; the ſtalks do not riſe ſo high, and the ſeeds are longer, narrower, and of a lighter colour. Theſe ſeeds are generally imported from Germany or Italy, and are by ſome preferred to thoſe of the common ſort for uſe, being much ſweeter.

This may be propagated in the ſame manner as the former ſort, being very hardy, but the roots are not of ſo long duration.

The third ſort is ſuppoſed to have been originally brought from the Azorian Iſlands; it has been long cultivated in Italy as a ſallad herb, under the title of Finochio; and there are ſome few gardens in England, where it is now cultivated, but in ſmall quantities, for there are not many Engliſh palates which reliſh it, nor is it eaſy to be furniſhed with good ſeeds; thoſe which are annually brought from Italy ſeldom prove good; and it is difficult to ſave it in England, becauſe the winter frequently kills thoſe plants which are left for ſeeds; and when any good plants of the early ſowing are left for ſeeds, they do not ripen, unleſs the winter proves very favourable.

This ſort hath very ſhort ſtalks, which ſwell juſt above the ſurface of the ground, to four or five inches in breadth, and almoſt two thick, being fleſhy and tender: this is the part which is eaten when blanched, with oil, vinegar, and pepper, as a cold ſallad. When theſe plants are permitted to run for ſeeds, the ſtalks do not riſe more than a foot and a half high, having a large ſpreading umbel ſtanding on the top. The ſeeds of this ſort are narrow, crooked, and of a bright yellow colour; they have a very ſtrong ſmell like Aniſeed, and are very ſweet to the taſte.

The manner of cultivating this plant is as follows: Your firſt care muſt be to procure good ſeeds from ſome perſon who has been careful in the choice of the plants, otherwiſe there will be little hope of having it good; for the plants will run up to ſeeds before they ſwell to any ſize, ſo will not be fit for uſe: then make choice of a good ſpot of light rich earth, not dry nor very wet, for in either extreme this plant will not thrive. The firſt crop may be ſown about a fortnight in March, which, if it ſucceeds, will be fit for uſe in July; and by ſowing at ſeveral times, there may be a ſupply for the table till the froſt puts a ſtop to it. After having well dug and levelled the ground ſmooth, you muſt make a ſhallow drill by a line, into which you muſt ſcatter your ſeeds pretty thin; for if your plants are ſix inches aſunder in the rows, it will be full near enough; but however, you muſt expect ſome of your ſeeds to fail, and therefore you ſhould ſcatter them about two inches diſtance; then cover the ſeeds about half an inch thick with earth, laying it ſmooth: theſe drills ſhould be made eighteen inches aſunder, or more, that there may be room to clean the ground, as alſo to earth up the plants when they are full grown. When the plants come up, which will be in about three weeks or a month after ſowing, you muſt with a ſmall hoe cut up all the weeds between them, and where the plants are too cloſe, they ſhould be thinned to about three inches diſtance; and as they advance, and the weeds ſpring again, they ſhould, from time to time, be hoed; and at the laſt time of thinning them, they ſhould be left ſeven or eight inches aſunder at leaſt. If your kind be good, the ſtems of the plants will increaſe to a conſiderable bulk juſt above the ſurface of the ground; which part ſhould be earthed up in the manner of Celery, to blanch, about a fortnight or three weeks before it is uſed, and this will cauſe it to be very tender and criſp.

Your ſecond crop ſhould be ſown about three weeks after the firſt, and ſo continue ſowing every three weeks or a month till the end of July, after which time it will be too late for the plants to come to any perfection. But you ſhould obſerve to ſow in April, May, and June, on a moiſter ſoil than that which you ſowed the firſt on; as alſo what you ſow in the latter part of July, ſhould be ſown on a drier ſoil, and in a warmer ſituation; becauſe this crop will not be fit for uſe till late in autumn, and therefore will be ſubject to injuries from too much wet or cold weather, if on a moiſt ſoil. But as the ground is often extreme dry in June and July, and the ſeeds more apt to miſcarry and not come up, you ſhould therefore obſerve to water and ſhade the beds where this ſeed is ſown at that ſeaſon, until the plants come up. And if the ſeaſon ſhould prove dry, the plants muſt be duly watered, otherwiſe they will run up to ſeed before they are of any ſize; therefore there ſhould be a channel made where every row of plants grow, to detain the water which is poured on them, to prevent its running off. In the autumn, if there ſhould happen ſharp froſts, it will be very proper to cover the plants with ſome Peas-haulm, or other light covering, to prevent their being pinched; by which method they may be continued for uſe till the middle of winter.

A ſmall bed of this plant will be ſufficient at each ſowing for a middling family; and for a large family, a bed of about twenty feet long, and four feet broad, will be full enough at a time.

FŒNUM BURGUNDIACUM. See Medica Sativa.

FŒNUM GRÆCUM. See Trigonella.

FOOT-STALKS, are thoſe ſmall ſtalks which immediately ſuſtain the leaves, flowers, or fruit.

FOUNTAINS are ſources or ſprings of living water, ariſing out of the ground. As to the original of them, ſee under the article Springs.

Of artificial fountains there are great variety, the mechaniſm of which not being to my purpoſe, I will not dwell upon it; though I may aſſert, that they are not only great ornaments to a fine garden, but alſo of great uſe. But they ought not to be placed too near the houſe by reaſon of the vapours that ariſe from the water, which may be apt to ſtrike a damp to the wall, and ſpoil the paintings, &c. and the ſummer vapours may cauſe a malignity in the air, and ſo be prejudicial to the health of the family; and likewiſe the noiſe may be incommodious in the night.

Fountains in a garden ſhould be ſo diſtributed, that they may be ſeen almoſt all at one time, and that the water-ſpouts may range all in a line one with another, which is the beauty of them; for this occaſions an agreeable confuſion to the eye, making them appear to be more in number than they really are. See Jet d'Eau, Springs, Vapours, Water, &c.

FRAGARIA. Lin. Gen. Plant. 558. Tourn. Inſt. R. H. 295. tab. 152. [is ſo called for its fragrant aromatic ſcent.] Strawberries; in French, *Fraſier*.

The Characters are,

The empalement of the flower is of one leaf, which is cut into ten parts at the top. The flower hath five roundiſh petals, which are inſerted in the empalement, and ſpread open. It hath twenty ſtamina, which are inſerted in the empalement, terminated by moon-ſhaped ſummits. It hath a great number of germem collected into a head, each having a ſingle ſtyle, inſerted in the ſide of the germen, crowned by ſingle ſtigmas; this head afterward becomes a large, ſoft, pulpy fruit, which, if left, falls away, leaving many ſmall angular ſeeds in the empalement.

This genus of plants is ranged in the fifth ſection of Linnæus's twelfth claſs, which includes thoſe plants whoſe flowers have at leaſt twenty ſtamina and many ſtyles, which are inſerted to the empalement.

The Species are,

1. Fragaria (*Veſca*) foliis ovatis ſerratis, calycibus brevibus, fructu parvo. *Strawberry with oval ſawed leaves, ſhort empalements, and a ſmall fruit.* Fragaria vulgaris. C. B. P. 226. *The common or Wood Strawberry.*
2. Fragaria (*Virginiana*) foliis oblongo-ovatis ſerratis, infernè incanis, calycibus longioribus, fructu ſubrotundo. *Strawberry with oblong, oval, ſawed leaves, hoary on their under ſide, longer empalements, and a roundiſh fruit.* Fragaria Virginiana fructu Coccineo. Hiſt. Ox. 2. 186. *Virginia Strawberry with a ſcarlet fruit, commonly called the Scarlet Strawberry.*
3. Fragaria (*Muricata*) foliis ovato-lanceolatis rugoſis, fructu ovato. *Strawberry with oval, ſpear-ſhaped, rough leaves, and an oval fruit.* Fragaria fructu parvi pruni magnitudine. C. B. P. 327. *Strawberry with fruit as large as a ſmall Plumb, commonly called Hautboy Strawberry.*
4. Fragaria (*Chiloenſis*) foliis ovatis carnoſis hirſutis fructu maximo. *Strawberry with oval, fleſhy, hairy leaves, and a large fruit.* Fragaria Chiloenſis, fructu maximo foliis carnoſis hirſutis. Hort. Elth. 145. tab. 120. *Strawberry of Chili with a large fruit, and hairy fleſhy leaves, called Frutilla, in America.*

There are ſome other varieties of this fruit, which are now cultivated in England; but I have not ſeen any other which can be called a diſtinct ſpecies, than are here enumerated, and theſe, I think, may be allowed to be ſo, for they never alter from one to the other, by any cultivation, though the fruit is frequently improved, ſo as to be of a larger ſize thereby; therefore thoſe who have ſuppoſed them but one ſpecies, have greatly erred in ſo doing; I ſhall therefore mention the ſeveral varieties of Strawberry, which are at preſent to be found in the gardens under the ſpecies to which they naturally belong.

The firſt ſort is the common Wood Strawberry, which grows naturally in the woods in many parts of England, and is ſo well known as to need no deſcription; of this there are three varieties, 1. The common ſort with red fruit. 2. The white Wood Strawberry, which ripens a little later in the ſeaſon, and is by many perſons preferred to it for its quick flavour, but as it ſeldom produces ſo large crops of fruit as the red ſort, it is not very generally cultivated. 3. The green Strawberry, by ſome called the Pine Apple Strawberry, from its rich flavour. The fruit of this is greeniſh when ripe; it is very firm, and hath a very high flavour; this is a late ripe fruit, but unleſs it is planted in a moiſt loamy ſoil, it is a very bad bearer; but in ſuch land where it does ſucceed, it merits cultivation as much as any of the ſorts.

The Scarlet Strawberry is the ſort which is firſt ripe, for which reaſon it merits eſteem, had it nothing elſe to recommend it; but the fruit is ſo good, as by many perſons of good taſte to be preferred to moſt other ſorts. This was brought from Virginia, where it grows naturally in the woods, and is ſo different from the Wood Strawberry in leaf, flower, and fruit, that there need be no doubt of their being diſtinct ſpecies.

There is a variety of this which hath been of late years introduced from the northern parts of America, which has the appearance of a diſtinct ſpecies. The leaves of this are rounder, and not ſo deeply veined; the crenatures on their edges are broader and more obtuſe. The leaves which compoſe the empalement are much longer, and are hairy, and the fruit is larger; but as in other reſpects it approaches near to the Scarlet Strawberry, I have choſen to join it to that, rather than make a diſtinct ſpecies of it; this I have been informed grows naturally in Louiſiana.

There has alſo been another variety of this (if not a diſtinct ſpecies) lately introduced to our gardens, which is commonly known by the title of Alpine Strawberry; the plants of this greatly reſemble thoſe of the Scarlet Strawberry, but the fruit is more pointed; it is a well flavoured fruit, and continues bearing from the common ſeaſon of Strawberries, until the froſt in autumn puts a ſtop to it, which renders the ſort very valuable: I have frequently gathered the fruit in the beginning of November; this has occaſioned the Dutch gardeners titling it Everlaſting Strawberry.

The Hautboy Strawberry, which the French call Capitons, came originally from America, but it has been long cultivated in the Engliſh gardens, and is very different from the other ſorts in leaf, flower, and fruit, as that no one can doubt of their being different ſpecies; there is an improvement of this ſort, which is commonly called the Globe Hautboy. The fruit of this is larger, and of a globular form, but this difference has certainly ariſen from culture; for where theſe have been neglected a year or two, they have degenerated to the common Hautboy again; where the ground is proper for this plant, and their culture is well managed, the plants will produce great plenty of fruit, which will be large, and well flavoured, and by ſome perſons are preferred to all the other ſorts.

The Chili Strawberry was brought to Europe by Monſ. Frazier, an engineer, who was ſent to America by the late king of France, and was firſt planted in the Royal Garden at Paris, from whence it was communicated to ſeveral curious perſons in Holland, and in the year 1727, I brought a parcel of the plants to England, which were communicated to me by Mr. George Clifford, of Amſterdam, who had large beds of this ſort growing in his curious gardens at Hartecamp. The leaves of this ſort are hairy, oval, and of a much thicker ſubſtance than any ſort yet known, and ſtand upon very ſtrong hairy foot-ſtalks; the runners from the plants are very large, hairy, and extend to a great length, putting out plants at ſeveral diſtances. The foot-ſtalks which ſuſtain the flowers are very ſtrong; the leaves of the empalement are long and hairy. The flowers are large, and are often deformed; and ſo is the fruit, which is very large, and when cultivated in very ſtrong land, the plants produce plenty of fruit, which is firm, and very well flavoured; but as it is a bad bearer in moſt places where it has been cultivated, it has generally been neglected.

The Strawberries in general love a gentle hazelly loam, in which they will thrive and bear greater plenty of fruit than in a light rich ſoil. The ground ſhould alſo be moiſt, for if it is very dry, all the watering which is given to the plants in warm dry ſeaſons, will not be ſufficient to procure plenty of fruit; nor ſhould the ground be much dunged, for that will cauſe the plants to run into ſuckers, and grow luxuriant, and render them leſs fruitful.

The beſt time to remove theſe plants is in October, that they may get new roots before the hard froſt ſets in, which looſens the ground; ſo that if the roots of the plants are not pretty well eſtabliſhed in the ground, the plants are frequently turned out of the ground by the firſt thaw; therefore the ſooner they are planted when the autumnal rains begin, the better will their roots be eſtabliſhed, ſo there will be leſs danger of their miſcarrying, and ſometimes thoſe which are well rooted, will produce a few fruit the firſt year; there are ſome who tranſplant their plants in the ſpring; but where that is done, they muſt be duly ſupplied with water in the dry weather, otherwiſe they will not ſucceed.

The ground in which theſe are planted ſhould be thoroughly cleaned from the roots of Couch, and all other bad weeds; for as the Strawberry plants are to remain three years before they are taken up, ſo if any of the roots of thoſe bad weeds are left in the ground, they will have time to multiply ſo greatly as to fill the ground, and overbear the Strawberry plants. The ground ſhould alſo be well trenched and made level; then the uſual method is to lay it out into beds of four feet broad, with paths two feet or two feet and a half broad between each; theſe paths are neceſſary for the convenience of gathering the fruit, and for weeding and dreſſing of the beds, and alſo for watering the plants; after the beds are marked out, there ſhould be four lines drawn in each, at a foot diſtance, which will leave ſix inches ſpace on each ſide, between the outſide rows and the paths; then the plants ſhould be planted at about a foot diſtance from each other in the rows, in a quincunx order, being careful to cloſe the ground to the roots of the plants when they are planted; and if there ſhould not happen rain ſoon after, the plants ſhould be well watered to ſettle the earth to their roots.

The diſtance here mentioned for the plants to be placed muſt be underſtood for the Wood Strawberries only, for as the other ſorts grow much larger, their diſtances muſt be proportioned to their ſeveral growths; therefore the Scarlets and Hautboys ſhould have but three rows of plants in each bed, which ſhould be at fifteen inches diſtance, and the plants in the rows ſhould be allowed the ſame ſpace from each other, and the Chili Strawberry muſt have but two rows of plants in each bed, which ſhould alſo be two feet apart in the rows; for as theſe grow very ſtrong, if they have not room to ſpread, they will not be very fruitful.

In chuſing proper plants of any of the ſorts, depends the whole ſucceſs; for if they are promiſcuouſly taken from beds without care, great part of the plants will become barren; theſe are generally called blind, which is when there are plenty of flowers, but no fruit produced; if theſe flowers are well examined, they will be found to want the female organs of generation, moſt of them abounding with ſtamina, but there are few, if any ſtyles; ſo that it frequently happens among theſe barren plants, that ſome of them will have a part of an imperfect fruit formed, which will ſometimes ripen; this barrenneſs is not peculiar to Strawberries, but is general to all thoſe plants which have creeping roots, or ſtalks; and the more they increaſe from either, the ſooner they become barren, and this in ſome degree runs through the vegetable kingdom; for trees and ſhrubs which are propagated by cuttings, are generally barren of ſeeds in two generations, that is, when they are propagated by cuttings, which were taken from plants raiſed by cuttings; this I have conſtantly found to hold in great numbers of plants, and in fruit-trees it often happens, that thoſe ſorts which have been long propagated by grafts and buds, have no kernels. But to return to the choice of the Strawberry plants; theſe ſhould never be taken from old neglected beds, where the plants have been ſuffered to ſpread or run into a multitude of ſuckers, nor from any plants which are not very fruitful; and thoſe offſets which ſtand neareſt to the old plants, ſhould always be preferred to thoſe which are produced from the trailing ſtalks at a farther diſtance; and the Wood Strawberry is beſt when the plants are taken freſh from the woods, provided they are taken from fruitful plants, becauſe they are not ſo liable to ramble and ſpread, as thoſe which are taken from plants, which have been long cultivated in gardens; therefore thoſe who are curious in cultivating this fruit, ſhould be very careful in the choice of their plants.

When the plants have taken new root, the next care is if the winter prove ſevere, to lay ſome old tanners bark over the ſurface of the bed between the plants, to keep out the froſt: this care is abſolutely neceſſary to the Chili Strawberry, which is frequently killed in hard winters, where they are expoſed without any covering; therefore where tanners bark cannot eaſily be procured, ſaw-duſt, or ſea-coal aſhes may be uſed; or in want of theſe, if decayed leaves of trees, or the branches of Evergreen-trees with their leaves upon them, are laid over the beds, to prevent the froſt from penetrating deep into the ground, it will ſecure the plants from injury.

The following ſummer the plants ſhould be conſtantly kept clean from weeds, and all the runners ſhould be pulled off as faſt as they are produced; if this is conſtantly practiſed, the plants will become very ſtrong by the following autumn; whereas when this is neglected (as is too frequently ſeen) and all the runners permitted to ſtand during the ſummer ſeaſon, and then pulled off in the autumn, the plants will not be half ſo ſtrong as thoſe where that care has been taken; therefore there will not be near the ſame quantity of fruit upon them the following ſpring, nor will the fruit be near ſo large and fair; and where proper care is taken of the plants the firſt ſummer, there is generally a plentiful crop of fruit the ſecond ſpring; whereas when this is neglected, the crop will be thin and the fruit ſmall.

As this fruit is very common, there are but few perſons who cultivate it with proper care; therefore I ſhall give ſome directions for the doing of it, which, if carefully practiſed, will be attended with ſucceſs.

The old plants of Strawberries are thoſe which produce the fruit, for the ſuckers ſeldom produce any till they have grown a full year; therefore it appears how neceſſary it is to diveſt the old plants of them; for wherever they are ſuffered to remain, they rob the fruitful plants of their nouriſhment in proportion to their number; for each of theſe ſuckers ſend out a quantity of roots, which interfere, and are ſo cloſely matted together, as to draw away the greateſt part of the nouriſhment from the old roots, whereby they are greatly weakened; and theſe ſuckers alſo render each other very weak, ſo that from hence the cauſe of barrenneſs ariſes; for I have known where the old plants have been conſtantly kept clear from ſuckers, they have continued very fruitful four or five years without being tranſplanted; however, it is the beſt way to have a ſucceſſion of beds, that after three years ſtanding they may be taken up; becauſe by that time they will have exhauſted the ground of thoſe vegetable ſalts, neceſſary for the nouriſhment of that ſpecies of plants; for it is always obſerved, that Strawberries planted on freſh land are the moſt fruitful.

The next thing to be obſerved, is in autumn to diveſt the plants of any ſtrings, or runners, which may have been produced, and alſo of all the decayed leaves, and the beds cleared from weeds; then the paths ſhould be dug up, and the weeds buried which were taken from the beds, and ſome earth laid over the ſurface of the beds between the plants; this will ſtrengthen the plants, and prepare them for the following ſpring; and if after this, there is ſome old tanners bark laid over the ſurface of the ground between the plants, it will be of great ſervice to them. In the ſpring, after the danger of hard froſt is over, the ground between the plants in the beds ſhould be forked with a narrow three-pronged fork, to looſen it, and break the clods; and in this operation, the tan which was laid over the ſurface of the ground in autumn will be buried, which will be a good dreſſing to the Strawberries, eſpecially in ſtrong land; then about the end of March, or the beginning of April, if the ſurface of the beds is covered with moſs, it will keep the ground moiſt, and prevent the drying winds from penetrating the ground, and thereby ſecure a good crop of fruit; and the moſs will preſerve the fruit clean, that when heavy rains may fall after the fruit is full grown, there will be no dirt waſhed over them, which frequently happens, ſo that the fruit muſt be waſhed before it is fit for the table, which greatly diminiſhes its flavour; therefore where this method is practiſed, the fruit may be had in perfection.

The ſoil in which the Chili Strawberry is found to ſucceed beſt, is a very ſtrong brick earth, approaching near to clay; in this ſoil I have ſeen them produce a tolerable good crop, and the fruit has been extremely well flavoured; and if ſome care be taken to pull off the runners as they are produced, ſo as to leave only the old plants, I make no doubt but theſe plants may be as fruitful as the common Hautboy: this I mention from one or two experiments, which have been made by my direction, and not from theory.

There are ſome perſons who are ſo fond of Strawberries, as to be at any expence to obtain them early in the year, and to continue them as late in the ſeaſon as poſſible; and ſhould I omit to give ſome directions for both theſe managements, they would ſuppoſe the book very defective; therefore I ſhall mention the practice of ſome few, who have ſucceeded beſt in the management of theſe fruits; I ſhall begin with directions for obtaining theſe fruits early in the ſpring.

Where there are any hot walls erected in gardens for the producing early fruit, it is very common to ſee Strawberries planted in the borders, that the fire which is applied for ripening the fruit againſt the walls, may alſo ſerve the purpoſe of bringing forward the Strawberries; but where this is practiſed, the Strawberry plants ſhould be annually renewed, taking up the plants as ſoon as their fruit is over, and all the earth of the borders ſhould be taken out, at leaſt two feet deep, and freſh earth brought in, which will be equally good for the wall trees; but, as was before obſerved, that the old plants of Strawberries only are thoſe which produce the fruit, there ſhould be a ſufficient number of plants brought up in pots, to ſupply the border annually; and the ſame muſt be done if they are to be raiſed in a common hot-bed, or in ſtoves; therefore I ſhall begin with giving directions for raiſing and preparing plants for thoſe purpoſes.

The ſorts which are the moſt proper for forcing early, are the Scarlet, the Alpine, and the Wood Strawberries, for the Hautboy grows too large for this purpoſe. In the choice of the plants, there ſhould be an eſpecial care taken to have them from the moſt fruitful plants, and thoſe which grow immediately to the old plants; they ſhould be taken off in autumn, and each planted in a ſeparate ſmall pot filled with loamy ſoil, and placed in a ſhady ſituation till they have taken root; after which they may be removed to an open ſituation, where they may remain till the middle or end of November, when the pots ſhould be plunged into the ground up to their rims, to prevent the froſt from penetrating through the ſide of the pots; if theſe are placed near a wall, pale, or hedge, expoſed to an eaſt aſpect, or north-eaſt, they will ſucceed better than in a warm ſituation, becauſe they will not be forced too forward; the only care they require, is to ſecure them from being turned out of the pots after froſt. The ſpring following the plants will be ſo far advanced as to have filled the pots with their roots by the end of April, when they ſhould be turned out of the pots, and their roots pared; then planted into penny pots filled with the like loamy ſoil, and plunged into the ground in a ſhady ſituation, where they ſhould remain the following ſummer; during which time they muſt be duly kept clean from weeds, and all the runners muſt be taken off as faſt as they are produced; likewiſe if there ſhould be any flowers come out, they ſhould alſo be pinched off, and not ſuffered to bear fruit, which would weaken the plants, for there cannot be too much care taken to have the plants as ſtrong as poſſible, that they may produce plenty of fruit, without which they are not worth the trouble of forcing.

About the middle of October, or earlier, if the autumn proves cold, the pots ſhould be removed into a warmer ſituation, to prepare them for forcing; for they ſhould not be ſuddenly removed from a very cold ſituation immediately into the ſtove or hot-bed, but be gradually prepared for it; but where they are deſigned for the borders near a hot wall, they may then be turned out of the pots, and planted into the borders, that they may have time to get freſh rooting, before the fires are made to heat the walls; when theſe are planted, they may be placed very cloſe to each other; for as they are deſigned to remain there no longer than till they have ripened their fruit, they will not require much room, as their roots will find ſufficient nouriſhment below, and alſo from the earth which is filled into the ſpaces between the balls of earth, about their roots; and it is of conſequence to get as much fruit as poſſible in a ſmall ſpace, where there is an expence to force them early. If the fires are lighted about Chriſtmas, the Strawberries in theſe borders will be ripe the end of March; or if the ſeaſon ſhould prove very cold, it may be the middle of April before they will be fit for the table.

In the management of the plants there muſt be care taken to ſupply them with water when they begin to ſhew their flowers, otherwiſe they will fall off without producing any fruit; and, in mild weather, there ſhould be freſh air admitted to them every day; but as fruit-trees againſt the wall muſt be ſo treated, the ſame management will agree with the Strawberries.

If the Strawberries are intended to be forced in a ſtove, where there are Pine-apples, and no room to plunge them in the tan-bed, then the plants ſhould be tranſplanted into larger pots in September, that they may be well rooted before they are removed into the ſtove, which ſhould not be till December; but if they are placed under a frame the beginning of November, where they may be ſcreened from the froſt, it will prepare the plants better for forcing; and thoſe who are deſirous to have them very early, make a hot-bed under frames, upon which they place their plants the latter end of October, which will bring them forward to flower, and then they remove the plants into the ſtove; when theſe plants are removed into the ſtove, they ſhould be placed as near to the glaſſes as poſſible, that they may enjoy the full ſun and air; for when they are placed backward, the plants will draw up weak, and the flowers will drop without producing fruit. As the earth in the pots will dry pretty faſt when they ſtand dry upon the pavement of the hot-houſe, or on ſhelves, ſo the plants muſt be duly watered; but it muſt be done with diſcretion, and not too much given to them, which will be equally hurtful to them; if theſe plants are properly managed, they will produce ripe fruit in February, which is as early as moſt people will chuſe to eat them. When the fruit is all gathered from the plants, they ſhould be turned out of the ſtove; for as they will be of no farther ſervice, they ſhould not remain to take up the room; nor ſhould thoſe plants which are planted in the borders near the hot walls be left there after their fruit is gathered, but immediately taken up, that they may rob the fruit-trees of their nouriſhment as little as poſſible.

Where there is no conveniency of ſtoves, or hot-walls for this purpoſe, the fruit may be ripened upon common hot-beds; and though they may not be quite ſo early as with the other advantages, yet I have ſeen great crops of the fruit ripe in April, which were upon common hot-beds under frames, and executed at a ſmall expence in the following manner.

The plants were prepared in pots after the manner before directed, which were placed in a warm ſituation in the beginning of October, and about Chriſtmas the hot-bed was made in the ſame manner as for Cucumbers, but not ſo ſtrong; and as ſoon as the firſt violent ſteam of the dung was over, ſome old rotten dung laid over the hot-bed to keep down the heat, or where it can be eaſily procured, neats dung is preferable for this purpoſe; then the plants ſhould be turned out of the pots, and placed upon the bed as cloſe together as poſſible, filling up the interſtices between the plants with earth; afterward the plants muſt have air admitted to them every day; and if the heat of the bed is too great, the plants ſhould be raiſed up, to prevent their roots being ſcorched; and if the bed is too cold, the ſides of it ſhould be lined with ſome hot dung: this firſt bed will bring the plants to flower by the latter end of February, or the beginning of March, by which time the heat of the bed will be ſpent, therefore another hot-bed ſhould be prepared to receive the plants, which need not be ſo ſtrong as the firſt; but upon the hot dung ſhould be laid ſome neats dung about two inches thick, which ſhould be equally ſpread and ſmoothed; this will prevent the heat of the bed from injuring the roots of the plants, upon this ſhould be laid two inches of a loamy ſoil; when this has laid two days to warm, the plants ſhould be taken out of the firſt hot-bed, and turned carefully out of the pots, preſerving all the earth to their roots, and placed cloſe together upon this new hot-bed, filling up the vacuities between the balls with loamy earth: the roots of the plants will ſoon ſtrike out into this freſh earth, which will ſtrengthen their flowers, and cauſe their fruit to ſet in plenty; and if proper care is taken to admit freſh air to the plants, and ſupply them properly with water, they will have plenty of ripe fruit in April, which will be full two months before their natural ſeaſon.

The methods practiſed to retard this fruit, is firſt by planting them in the coldeſt part of the garden, where they may be as much in ſhade as poſſible, and the ſoil ſhould be ſtrong and cold; when there are ſuch places in a garden, the fruit will be near a month later than in a warm ſituation; the next is to cut off all the flowers when they firſt appear, and if the ſeaſon proves dry, to water them plentifully, which will cauſe them to put out a freſh crop of flowers; and if they are ſupplied with water, there will be a late crop of fruit, but theſe are not ſo well flavoured as thoſe which ripen in their natural ſeaſon.

But ſince the Alpine Strawberry has been introduced in the Engliſh gardens, there is little occaſion for practiſing this method of retarding the fruit; becauſe this ſort will ſupply the table the whole ſummer, eſpecially if care is taken to pull off the runners; and in dry ſeaſons to water the plants, without which the bloſſoms will fall off, without producing fruit.

There are ſome perſons ſo curious as to raiſe the plants from ſeeds, by which they have greatly improved ſome of the ſorts; and if this was more practiſed, I am certain it would be found of ſingular ſervice, where the faireſt of the fruit of each kind are choſen. The ſeeds ſhould be immediately ſown when the fruit is eaten; the beſt way is to ſow the ſeeds in pots, placing them in the ſhade.

In the ſpring of the year 1724, there was ſcarce any rain from February till about the middle of July, ſo that moſt of the Strawberries and Raſpberries in the gardens near London, were burnt up, and came to no perfection; but upon plenty of rain falling in July, they recovered and put out plenty of flowers, which were ſucceeded by fruit, which ripened in September, when the markets of London were ſupplied with a great plenty of both thoſe fruits at that ſeaſon of the year.

FRANGULA. Tourn. Inſt. R. H. 612. tab. 383. Rhamnus. Lin. Gen. Plant. 235. [is ſo called of frangendo, breaking, becauſe of the brittleneſs of its wood.] Berry-bearing Alder.

The Characters are,

The empalement of the flower is of one leaf, cut at the top into five ſegments, which are erect. The flower hath one petal, which is cut into five acute ſegments; theſe are placed between the ſegments of the empalement, into which they are inſerted, but are ſhorter, and ſtand erect. It hath five ſtamina, which are the length of the petal, terminated by obtuſe ſummits; in the center is ſituated a globular germen, ſupporting a ſlender ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a round berry, incloſing two plain roundiſh ſeeds.

This genus of plants is ranged in the ſecond ſection of Tournefort's twenty-firſt claſs, which includes the trees and ſhrubs with a Roſe flower, whoſe pointal turns to a berry. Dr. Linnæus has joined this genus with the Paliurus, Alaternus, and Ziziphus, to the Rhamnus, making them only ſpecies of one genus; but according to his own ſyſtem, they ſhould be ſeparated to a great diſtance from Rhamnus, and be placed in his twenty-ſecond claſs, becauſe it hath male and female flowers on different plants; whereas it is placed in the firſt ſection of his fifth claſs, from the flower having five ſtamina and but one ſtyle.

The Species are,

1. Frangula (*Alnus*) foliis ovato-lanceolatis glabris. *Frangula with oval, ſpear-ſhaped, ſmooth leaves.* Frangula, ſive alnus, nigra baccifera. Park. Theat. Black Berry-bearing Alder.
2. Frangula (*Latifolia*) foliis lanceolatis rugoſis. *Frangula with rough ſpear-ſhaped leaves.* Frangula rugoſiore & ampliore folio. Tourn. Berry-bearing Alder with a larger and rougher leaf.
3. Frangula (*Rotundifolia*) foliis ovatis nervoſis. *Frangula with oval veined leaves.* Frangula montana pumila ſaxatilis, folio ſubrotundo. Tourn. Low mountain, rocky, berry-bearing Alder, with a round leaf.
4. Frangula (*Americana*) foliis oblongo-ovatis nervoſis, glabris. *Frangula with oblong, oval, ſmooth veined leaves.* Frangula Americana foliis glabris. Dale. *American Berry-bearing Alder with ſmooth leaves.*

The firſt ſort grows naturally in the woods in many parts of England, ſo is ſeldom planted in gardens; this riſes with a woody ſtem to the height of ten or twelve feet, ſending out many irregular branches, which are covered with a dark bark, and garniſhed with oval ſpear-ſhaped leaves, about two inches long, and one inch broad, having ſeveral tranſverſe veins from the midrib to the ſides, and ſtand upon ſhort foot-ſtalks. The flowers are produced in cluſters at the end of the former year's ſhoots, and alſo upon the firſt and ſecond joints of the ſame year's ſhoot, each ſtanding upon a ſhort ſeparate foot-ſtalk, on every ſide the branches; theſe are very ſmall, of an herbaceous colour, and do not expand; they are ſucceeded by ſmall round berries, which turn firſt red, but afterward black when ripe. The flowers appear in June, and the berries ripen in September; this ſtands in the Diſpenſary as a medicinal plant, but is ſeldom uſed.

The ſecond ſort hath larger rough leaves than the firſt. It grows naturally on the Alps and other mountainous parts of Europe, and is preſerved in ſome gardens for the ſake of variety.

The third ſort is of humble growth, ſeldom riſing above two feet high; this grows on the Pyrenean Mountains, and is ſeldom preſerved unleſs in botanic gardens for variety; it may be increaſed by laying down the branches, but muſt have a ſtrong ſoil.

The fourth ſort grows naturally in North America, from whence I received the ſeeds; this is pretty like the firſt ſort, but the leaves are longer and broader; they are ſmooth, of a lucid green, and have many veins. The flowers are very like thoſe of the firſt ſort.

Theſe ſhrubs are eaſily propagated by ſeeds, which ſhould be ſown as ſoon as they are ripe, and then the plants will come up the ſpring following; but if they are kept out of the ground till ſpring, the plants will not come up till the year after. When the plants come up, they muſt be kept clean from weeds till autumn, then they may be taken up and planted in a nurſery in rows, two feet aſunder, and at one foot diſtance in the rows; in this nurſery they may remain two years, and may then be planted where they are to remain; they may alſo be propapated by layers and cuttings, but the ſeedling plants are beſt.

The fruit of the firſt ſort is often brought into the markets of London, and ſold for Buckthorn berries; of which cheat, all ſuch as make ſyrup of Buckthorn ſhould be particularly careful; they may be eaſily diſtinguiſhed by breaking the berries, and obſerving how many ſeeds are contained in each, the berries of this tree having but two, and thoſe of Buckthorn generally four ſeeds in each berry, and the juice of the latter dies paper of a green colour.

FRAXINELLA. See Dictamnus.

FRAXINUS. Lin. Gen. Plant. 1026. Tourn. Inſt. R. H. 577. tab. 343. The Aſh-tree; in French, *Frêne*.

The Characters are,

It hath hermaphrodite and female flowers on the ſame tree, and ſometimes on different trees. The hermaphrodite flowers have no petals, but a ſmall four-pointed empalement, including two erect ſtamina, which are terminated by oblong ſummits, having four furrows. In the center is ſituated an oval compreſſed germen, ſupporting a cylindrical ſtyle, crowned by a bifid ſtigma. The germen afterward becomes a compreſſed bordered fruit, ſhaped like a bird's tongue, having one cell, incloſing a ſeed of the ſame form. The female flowers are the ſame, but have no ſtamina.

This genus of plants is ranged in the ſecond ſection of Linnæus's twenty-third claſs, which includes the plants which have flowers of different ſexes on the ſame or different plants, which are fruitful.

The Species are,

1. Fraxinus (*Excelſior*) foliolis ſerratis, floribus apetalis. Lin. Sp. Plant. 1057. *Aſh-tree whoſe ſmaller leaves are ſerrated, and flowers having no petals.* Fraxinus excelſior. C. B. P. 416. *The common Aſh.*
2. Fraxinus (*Rotundifolia*) foliolis ovato-lanceolatis ſerratis, floribus coloratis. *Aſh-tree whoſe ſmaller leaves are oval, ſpear-ſhaped, and ſawed, and the flowers coloured.* Fraxinus rotundiore folio. C. B. P. 416. *Aſh-tree with a rounder leaf, commonly called Manna Aſh.*
3. Fraxinus (*Ornus*) foliolis ſerratis, floribus coloratis. Lin. Sp. Plant. 1057. *Aſh-tree whoſe ſmaller leaves are ſawed, and flowers having petals.* Fraxinus humilior ſive altera Theophraſti, minore & tenuiore folio. C. B. P. 416. *Dwarf Aſh of Theophraſtus with ſmaller and narrower leaves.*
4. Fraxinus (*Paniculata*) foliolis lanceolatis glabris, floribus paniculatis terminatricibus. *Aſh-tree with ſmooth ſpear-ſhaped leaves, and flowers growing in panicles at the ends of the branches.* Fraxinus florifera botryoides. Mor. Præl. 265. *The flowering Aſh.*
5. Fraxinus (*Nova Anglia*) foliolis integerrimis, petiolis teretibus. Flor. Virg. 122. *Aſh-tree with the ſmall leaves entire, and taper foot-ſtalks.* Fraxinus ex Novâ Angliâ, pinnis foliorum in mucronem productioribus. Rand. Cat. Hort. Chelſ. *New England Aſh with long acute points to the wings of the leaves.*
6. Fraxinus (*Caroliniana*) integerrimis petiolis teretibus fructu latiore. Prod. Leyd. 533. *Aſh-tree with entire leaves and taper foot-ſtalks.* Fraxinus Caroliniana, latiore fructu. Rand. Cat. H. Chelſ. *Carolina Aſh with a broad fruit.*

The firſt ſort is the common Aſh-tree, which grows naturally in moſt parts of England, and is ſo well known as to need no deſcription. The leaves of this ſort have generally five pair of lobes, and are terminated by an odd one; they are of a very dark green, and their edges are ſlightly ſawed. The flowers are produced in looſe ſpikes from the ſide of the branches, which are ſucceeded by flat ſeeds, which ripen in autumn; there is a variety of this with variegated leaves, which is preſerved in ſome gardens.

The ſecond ſort grows naturally in Calabria, and is generally ſuppoſed to be the tree from whence the manna is collected, which is an exſudation from the leaves of the tree. The ſhoots of this tree are much ſhorter, and the joints cloſer together than thoſe of the firſt ſort; the ſmall leaves are ſhorter, and deeper ſawed on their edges, and are of a lighter green. The flowers come out from the ſide of the branches, which are of a purple colour, and appear in the ſpring before the leaves come out. This tree is of humble growth, ſeldom riſing more than fifteen or ſixteen feet high in England.

The third ſort is a low tree, which riſes about the ſame height as the ſecond; the leaves of this ſort are much ſmaller and narrower than thoſe of the firſt, but are ſawed on their edges, and are of the ſame dark colour. The flowers of this ſort have petals, which are wanting in the common Aſh.

The fourth ſort was raiſed by the late Dr. Uvedale at Enfield, from ſeeds which were brought from Italy by Dr. William Sherard, where the trees grow naturally; but it was ſuppoſed to be a different ſort from that mentioned by Dr. Morriſon, in his Præludia Botanica, but by comparing them together they appear to be the ſame.

The leaves of this ſort have but three or four pair of lobes (or ſmall leaves) which are ſhort, broad, and ſmooth, of a lucid green, and irregularly ſawed on the edges; the midrib of the great leaf is jointed, and ſwelling where the leaves come out. The flowers grow in looſe panicles at the end of the branches; theſe are moſt of them male, having two ſtamina in each, but no germen or ſtyle; they are of a white herbaceous colour, and appear in May. As this ſort very rarely produces ſeeds in England, it is propagated by grafting or budding it upon the common Aſh.

The fifth ſort was raiſed from ſeeds, which were ſent from New England in the year 1724, by Mr. Moore. The leaves of this tree have but three, or at moſt but four pair of lobes (or ſmall leaves) which are placed far diſtant from each other, and are terminated by an odd lobe, which runs out into a very long point; they are of a light green and entire, having no ſerratures on their edges: this tree ſhoots into ſtrong irregular branches, but doth not grow to a large ſize in the trunk. It is propagated by grafting it upon the common Aſh.

The ſixth ſort was raiſed from ſeeds which were ſent from Carolina in the year 1724, by Mr. Cateſby. The leaves of this ſort hath ſeldom more than three pair of lobes, the lower being the leaſt, and the upper the largeſt; theſe are about five inches long and two broad, of a light green colour, and ſlightly ſawed on their edges; the foot-ſtalk, or rather the midrib, of the leaves is taper, and has ſhort downy hairs; the ſeeds are broader than thoſe of the common Aſh, and are of a very light colour. As this ſort hath not yet produced ſeeds in England, it is propagated by grafting it upon the common Aſh.

Theſe trees are now propagated in plenty in the nurſeries for ſale, as there has been of late years a great demand for all the hardy ſorts of trees and ſhrubs, which will live in the open air; but all thoſe trees which are grafted upon the common Aſh, are not ſo valuable as thoſe which are raiſed from ſeeds, becauſe the ſtock grows much faſter than the grafts; ſo that the lower part of the trunk, ſo far as the ſtock riſes, will often be twice the ſize of the upper; and if the trees ſtand much expoſed to the wind, the grafts are frequently broken off to the ſtock, after they are grown to a large ſize, which is a great diſappointment to a perſon after having waited ſeveral years, to ſee their trees ſuddenly deſtroyed. Beſide, if the wood of either of the ſorts is valuable, it can be of little uſe when the trees are ſo raiſed.

The fourth ſort is generally planted for ornament, the flowers making a fine appearance when they are in beauty, for almoſt every branch is terminated by a large looſe panicle; ſo that when the trees are large, and covered with flowers, they are diſtinguiſhable at a great diſtance.

All the other ſorts ſerve to make a variety in plantations, but have little beauty to recommend them; and as their wood ſeems to be greatly inferior to that of the common Aſh, ſo there ſhould be few of theſe planted, becauſe they will only fill up the ſpace where better trees might grow.

The common Aſh propagates itſelf in plenty by the ſeeds which ſcatter in the autumn, ſo that where the ſeeds happen to fall in places where cattle do not come, there will be plenty of the plants come up in the ſpring; but where any perſon is deſirous to raiſe a quantity of the trees, the ſeeds ſhould be ſown as ſoon as they are ripe, and then the plants will come up the following ſpring; but if the ſeeds are kept out of the ground till the ſpring, the plants will not come up till the year after, which is the ſame with all the ſorts of Aſh; that when any of their ſeeds are brought from abroad, as they ſeldom arrive here before the ſpring, the plants muſt not be expected to appear till the next year; therefore the ground ſhould be kept clean all the ſummer where they are ſown, and not diſturbed, leſt the ſeeds ſhould be turned out of the ground, or buried too deep to grow; for many perſons are too impatient to wait a year for the growth of ſeeds, ſo that if they do not come up the firſt year, they dig up the ground, and thereby deſtroy the ſeeds.

When the plants come up, they muſt be kept clean from weeds during the ſummer; and if they make good progreſs in the ſeed-bed, they will be fit to tranſplant by the autumn; therefore there ſhould be ſome ground prepared to receive them, and as ſoon as their leaves begin to fall, they may be tranſplanted. In taking them up, there ſhould be care taken not to break or tear off their roots; to prevent which, they ſhould be taken up with a ſpade, and not dranw up, as is frequently practiſed; for as many of the plants which riſe from ſeeds will out-ſtrip the others in their growth, ſo it is frequently practiſed, to draw up the largeſt plants, and leave the ſmaller to grow a year longer before they are tranſplanted; and to avoid hurting thoſe which are left, the others are drawn out by hand, and thereby many of their roots are torn off or broken; therefore it is much the better way to take all up, little or big together, and tranſplant them out, placing the larger ones together in rows, and the ſmaller by themſelves. The rows ſhould be three feet aſunder, and the plants a foot and a half diſtance in the rows; in this nurſery they may remain two years, by which time they will be ſtrong enough to plant where they are to remain; for the younger they are planted out, the larger they will grow; ſo that where they are deſigned to grow large, they ſhould be planted very young; and the ground where the plants are raiſed, ſhould not be better than that where they are deſigned to grow; for when the plants are raiſed in good land, and afterward tranſplanted into worſe, they very rarely thrive; ſo that it is much the beſt method to make the nurſery upon a part of the ſame land, where the trees are deſigned to be planted, and then a ſufficient number of trees may be left ſtanding upon the ground, and theſe will out-ſtrip thoſe which are removed, and will grow to a larger ſize.

Where people live in the neighbourhood of Aſh-trees, they may ſupply themſelves with plenty of ſelf-ſown plants, provided cattle are not ſuffered to graze on the land, for they will eat off the young plants, and not ſuffer them to grow; but where the ſeeds fall in hedges, or where they are protected by buſhes, the plants will come up and thrive; and in theſe hedges the trees frequently are permitted to grow till they have deſtroyed the hedge, for there is ſcarce any tree ſo hurtful to all kinds of vegetables as the Aſh, which robs every plant of its nouriſhment within the reach of its roots, therefore ſhould never be ſuffered to grow in hedge rows; for they not only kill the hedge, but impoveriſh Corn, or whatſoever is ſown near them. Nor ſhould Aſh-trees be permitted to grow near paſture grounds, for if any of the cows eat of the leaves or ſhoots of the Aſh, all the butter which is made of their milk will be rank and of no value; which is always the quality of the butter which is made about Guildford, Godalmin, and ſome other parts of Surry, where there are Aſh-trees growing about all their paſtures, ſo that it is very rare to meet with any butter in thoſe places which is fit to eat; but in all the good dairy countries, they never ſuffer an Aſh-tree to grow.

If a wood of theſe trees is rightly managed, it will turn greatly to the advantage of its owner; for by the under-wood, which will be fit to cut every ſeven or eight years, for poles or hoops, there will be a continual income more than ſufficient to pay the rent of the ground, and all other charges; and ſtill there will be a ſtock preſerved for timber, which in a few years will be worth forty or fifty ſhillings per tree.

This timber is of excellent uſe to the wheelwright and cartwright, for ploughs, axle-trees, wheel-rings, harrows, bulls, oars, blocks for pullies, and many other purpoſes.

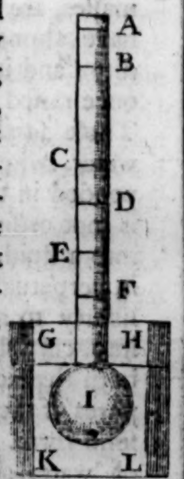
The beſt ſeaſon for felling of theſe trees is from November to February; for if it be done either too early in autumn, or too late in the ſpring, the timber will be ſubject to be infeſted with worms, and other inſects; but for lopping pollards, the ſpring is preferable for all ſoft woods.

FREEZING is the fixing of a fluid, or the depriving it of its natural mobility by the action of cold; or it is the act of converting a fluid ſubſtance into a firm, coherent, rigid one, called ice.

The principal phænomena of freezing are,

1ſt, That Water being dilated or rarefied, and all fluids, oil excepted, i. e. in freezing, take up more ſpace, and are ſpecifically lighter than they were before.

That the bulk and dimenſions of water are increaſed by freezing, is found by many experiments, and it may not be improper here to take notice of the proceſs of nature.



A glaſs veſſel then, I A, full of water to A, being immerged in a veſſel of water mixed with ſalt G H K L, the water preſently riſes from D to C; which ſeems owing to the ſudden conſtriction of the veſſel, haſtily plunged into ſo cold a medium: ſoon after, from the point C, it continually deſcends condenſing, till it arrives at the point F; where, for ſome time, it ſeems to remain at reſt: but it ſoon recovers itſelf, and begins to expand, riſing from F to E, and from thence ſoon after, by one violent leap, mounts to B; and here the water in I is immediately ſeen all thick and cloudy, and, in the very inſtant of this leap, is converted into ice. Add, that while the ice is growing harder, and ſome of the water near the neck of the veſſel I is freezing, the flux of the water is continued above B towards A, and at length runs out at the veſſel.

2dly, That they loſe not only of the ſpecific, but alſo of their abſolute gravity, by freezing; ſo that when they are thawed again, they are found conſiderably lighter than before.

3dly, That frozen water is not quite ſo tranſparent as when it was liquid, and that bodies do not perſpire ſo freely through it.

4thly, That water, when frozen, evaporates almoſt as much as when fluid.

5thly, That water does not freeze in vacuo, but requires the preſence and contiguity of air.

6thly, That water which has been boiled, does not freeze ſo readily as that which has not.

7thly, That water, being covered over with a ſurface of oil of Olives, does not freeze ſo readily as it does without it; and that nut oil abſolutely preſerves it under a ſtrong froſt, when Olive oil will not.

8thly, That ſpirit of wine, nut oil, and oil of turpentine, do not freeze at all.

9thly, That the ſurface of the water, in freezing, appears all wrinkled; the wrinkles being ſometimes in parallel lines, and ſometimes like rays proceeding from a center to the circumference.

The theories of freezing, or the method of accounting for theſe phænomena, are very many.

The chief principles that different authors have gone upon, are, either that ſome foreign matter is introduced within the pores of the fluid, by means of which it is fixed, its bulk increaſed, &c.

Or that ſome matter which was naturally contained in the fluid is now expelled, by reaſon of the abſence of which, the body becomes fixed.

Or that there is ſome alteration produced in the texture or form, either of the particles of the fluid itſelf, or of ſomething that is contained within it.

To ſome one of theſe principles all the ſyſtems of freezing are reducible.

The Carteſians explicate freezing by the receſs or going out of the ethereal matter from the pores of the water, or other liquor; which being once done, the finer parts are too ſmall and flexible to keep the long, ſlender, and eel-like particles of water fluent, or in the form of a liquor.

But the Corpuſcularians, or Gaſſendiſts, aſcribe the freezing of water, with more probability, to the ingreſs of multitudes of cold or frigorific particles, as they call them; which, entering the liquor in ſwarms, and diſperſing themſelves every way through it, croud into the pores of the water, and hinder the wonted agitation of its parts, and wedge it up, as it were, into the hard or conſiſtent body of ice; and from hence proceeds its increaſe of dimenſions, coldneſs, &c.

That ice is ſpecifically lighter than the water out of which it is by freezing made, is certain by its ſwimming in it; and that this lightneſs of ice proceeds from thoſe numerous bubbles which are produced in it by its congelation, is equally plain; but how thoſe bubbles come to be generated in freezing, and what ſubſtance they contain in them, if they are not quite empty, is an inquiry of great importance; and, perhaps, if diſcovered, may contribute much to the underſtanding the nature of cold.

Mr. Hobbes will have it common air, which, intruding into the water in congelation, entangles itſelf with the particles of the fluid, prevents their motion, and produces thoſe numerous bubbles, thus expanding its bulk, and rendering it ſpecifically lighter.

But, in anſwer to this, no ſuch ingreſs of air into water appears in its coagulation; and that it does not get into frozen oil is plain, becauſe that body is condenſed by being frozen.

And Mr. Boyle has alſo ſhewn, by undoubted experiments, that water will freeze in veſſels hermetically ſealed; and in braſs bodies or veſſels cloſely ſtopped, and into which the air can have no ingreſs, hath yet been turned into ice, abounding with theſe bubbles as numerous as thoſe frozen in the open air.

He alſo has proved by experiment, that water kept a while in the exhauſted receiver, till all its bubbles were emerged and gone, being afterwards turned into ice by a freezing mixture, the ice had ſcarce any bubbles in it; whence it is plain, that theſe bubbles are filled with ſome matter which is within the water, if they are filled with any thing. But he proves alſo, by plain experiments, that they have none, or exceedingly little, true elaſtic air contained in them.

Others, and thoſe of the greateſt number, are of opinion, that the freezing matter is a ſalt; and they argue that an exceſs of cold will render water torpid, but never congeal it without ſalt: they ſay that thoſe particles that are the chief cauſe of freezing are ſaline, mixed in a due proportion, congelation bearing a near relation to cryſtallization.

This ſalt is ſuppoſed to be of the nitrous kind, and to be furniſhed by the air, which is generally found to abound in nitre.

It is indeed no difficult matter, to account for the particles of nitre preventing the fluidity of water. Theſe particles are ſuppoſed to be ſo many rigid pointed ſpicula, which are eaſily impelled or driven into the ſtamina or globules of water; which, by this means, becoming variouſly mingled and entangled with it, do, by degrees, weaken and deſtroy the motion of it.

The reaſon that this effect ariſes only in ſevere winter weather, is, that it is then only that the retracting action of the nitrous ſpicula is more than equal to the power or principle by which the fluid is otherwiſe kept in motion, or diſpoſed for motion.

Several experiments of artificial freezing ſupport this opinion.

For if you mix a quantity of common ſaltpetre with ſnow, or ice pulverized, and diſſolve the mixture in the fire, and then immerge a tube full of water in the ſolution; the water, that part of it next the mixture, will freeze preſently, even in a warm air.

Whence they argue, that the ſpicula of the ſalt are driven through the pores of the glaſs, and mixed with the water, by the gravity of the mixture, and of the incumbent air; for that it is evident, that the ſalt has this effect, inaſmuch as it is certainly known, that the particles of water cannot find their way through the pores of the glaſs.

In theſe artificial freezings, in whatever part the mixture is applied, there is preſently a ſkin or lamina of ice produced, whether at the top, bottom, or ſides, by reaſon that there is always a ſtock of ſaline corpuſcles, ſufficient to overpower the particles of fire; but natural congelations are confined to the top of the water, where the laſt moſt abounds.

But this ſyſtem is oppoſed by the author of the Nouvelle Conjecture pour expliquer la Nature de la Glace, who objects, that it does not appear, that the nitre always enters the compoſition of ice; but if it did, it would fall ſhort of accounting for ſome of the principal effects; as,

How ſhould the particles of nitre, by entering the pores of the water, and fixing the parts, cauſe the water to dilate, and render it ſpecifically lighter? They ſhould naturally augment its weight.

This and ſome other difficulties, ſhew the neceſſity of a new theory; and therefore the ingenious author advances this which follows, which ſeems to ſolve the phænomena in a manner that is more eaſy and ſimple, as not depending upon the admiſſion or extruſion of any heterogeneous matter.

The water freezes in the winter only, becauſe its parts, then being more cloſely joined together, mutually embarraſs one another, and loſe all the motion they had; and that the air, or rather an alteration in the ſpring and force of the air, is the cauſe of this cloſer union of water.

It is evident from experiment, that there are an infinite number of particles of groſs air interſperſed among the globules of water; and it is allowed, that each particle of air has the virtue of a ſpring; and hence this author argues, that the ſmall ſprings of groſs air, mixed with water, have more force in cold winter weather, and do then unbend themſelves more, than at other times. Hence thoſe ſprings thus unbending themſelves on one ſide, and the external air continuing to preſs the ſurface of the water on the other, the particles of the water, being thus conſtringed and locked up together, muſt loſe their motion and fluidity, and form a hard, conſiſtent body, till a relaxation of the ſpring of the air, from an increaſe of heat, reduce the particles to their old dimenſions, and leave room for the globules to flow again.

But this ſyſtem ſeems to be built upon a falſe principle, for the ſpring or elaſticity of the air is not increaſed by cold, but diminiſhed; air condenſes by cold, and expands itſelf by heat; and it is demonſtrable in pneumatics, that the elaſtic force of expanded air is to that of the ſame air condenſed, as the bulk when rarefied is to its bulk when condenſed.

Indeed, ſome authors, in order to account for the increaſe of the bulk and dimenſion of the ſpecific gravity of frozen water, have advanced as follows, viz. That the aqueous particles, in their natural ſtate, were nearly cubes, and ſo filled their ſpace without the interpoſition of many pores; but that they are changed from cubes to ſpheres, by congelation; from whence it will neceſſarily follow, that there muſt be a great deal of empty ſpace between them.

But, in oppoſition to this hypotheſis, the nature of fluidity and firmneſs eaſily ſuggeſts, that ſpherical particles are much properer to conſtitute a fluid than cubical ones, and leſs diſpoſed to form a fixed than cubic one.

But after all, in order to come to a conſiſtent theory of freezing, we muſt either have recourſe to the frigorific matter of the Corpuſcularians, conſidered under the new light and advantages of the Newtonian philoſophy, or to the ethereal matter of the Carteſians, under the improvements of Monſ. Gauteron.

The true cauſe of freezing, or the congelation of water into ice, ſay the former, ſeems plainly to be the introduction of the frigorific particles into the pores or interſtices between the particles of the water, and by that means getting ſo near them, as to be juſt within the ſpheres of one another's attracting force, and then they muſt cohere into one ſolid or firm body; but heat afterwards ſeparating them, and putting them into various motions, breaks this union, and ſeparates the particles ſo far from one another, that they get out of the diſtance of the attracting force, and into the verge of the repelling force, and then the water re-aſſumes its fluid form.

Now, that cold and freezing proceed from ſome ſubſtance of a ſaline nature floating in the air, ſeems probable from hence:

That all ſalts, and more eminently ſome particular ones, do prodigiouſly increaſe the force and effects of cold, when mixed with ſnow or ice. It is alſo evident, that all ſaline bodies produce a ſtiffneſs and rigidity in the parts of thoſe bodies into which they enter.

It appears, by microſcopical obſervations upon ſalts, that the figure of ſome ſalts, before they ſhoot into maſſes, are thin, double wedged, like particles which have abundance of ſurface, in reſpect to their ſolidity; and is the reaſon why they ſwim in water, when once raiſed in it, though ſpecifically heavier.

Theſe ſmall points, getting into the pores of the water, whereby they are alſo, in ſome meaſure, ſuſpended in the winter time, when the heat of the ſun is not ordinarily ſtrong enough to diſſolve the ſalts into a fluid, to break their points, and to keep them in perpetual motion, being leſs diſturbed, are at more liberty to approach one another; and, by ſhooting into cryſtals of the form above-mentioned, do, by both their extremities, inſinuate themſelves into the pores of the water, and by that means freeze it into a ſolid form. And it is apparent, that the dimenſions of water are increaſed by freezing, the particles of it being kept at ſome diſtance from one another, by the intervention of the frigorific matter.

But beſides this, there are many little volumes, or ſmall particles of air, included at ſeveral diſtances, both in the pores of the watery particles, and in the interſtices formed by their ſpherical figure. Now, by the inſinuation of the cryſtals, the volumes of air are driven out of the watery particles, and many of them uniting, form larger volumes, which thereby have a greater force to expand themſelves than when they are diſperſed; and ſo both enlarge the dimenſions, and leſſen the ſpecific gravity of water thus congealed into ice.

And hence (ſays Dr. Cheyne, from whom this laſt account is taken) we may gueſs at the manner how water,

ter, impregnated with ſalts, ſulphurs, or earths, which are not eaſily diſſolvable, may form itſelf into metals, minerals, gums, and other foſſils; the parts of theſe mixtures becoming a cement to the particles of water, or getting into their pores, change them into theſe different ſubſtances.

For the ſecond: as an ethereal matter or medium is generally allowed to be the cauſe of the motion of fluids, and as the air itſelf has all its motion from the ſame principle, it follows, that all fluids muſt remain in a ſtate of reſt or fixity, when that matter loſes of its neceſſary force. And conſequently, the air being leſs warmed in the winter time, by reaſon of the obliquity of the ſun's rays, is more denſe and fixed in winter than any other ſeaſon of the year.

But farther: it is evident, from divers experiments, that the air does contain a ſalt which is ſuppoſed to be of the nature of nitre. If this be granted, and the denſity of the air allowed, it will follow, that the particles of this nitre muſt likewiſe be brought nearer together, and thickened by the condenſation of the air; as on the contrary, a rarefaction of the air, and an augmentation of its fluidity, muſt divide and ſeparate them.

And if the ſame happens to all liquors that have imbibed or diſſolved any ſalt, if the warmth of the liquid keep the ſalt exactly divided, and if the coolneſs of a cellar, or of ice, cauſe the particles of the diſſolved ſalt to approach, run into each other, and ſhoot into cryſtals; why ſhould the air, which is allowed to be a fluid, be exempt from the general law of fluids?

It is true, that the nitre of the air, being groſſer in cold weather than in hot, muſt have a leſs velocity; but ſtill the product of its augmented maſs into the velocity that remains, will give it a greater momentum, or quantity of motion. Nor is there any thing farther required to make this ſalt act with greater force againſt the parts of fluids, and this may probably be the cauſe of the great evaporation in froſty weather.

This aereal nitre muſt neceſſarily promote the concretion of liquids; for it is not the air, nor yet the nitre that it contains, which gives the motion to fluids; it is the ethereal medium, therefore a diminution of the motion of reſt ariſes from the diminution of that force.

Now the ethereal matter, which in the winter time is weak enough, muſt ſtill loſe more of its force by its action againſt air condenſed, and loaded with large particles of ſalt. It muſt therefore loſe of its force in cold weather, and become leſs diſpoſed to maintain the motion of the fluids.

In fine, the air, during froſt, may be eſteemed like the ice impregnated with ſalt wherewith liquors are iced in ſummer time. It is very probable that theſe liquors freeze by reaſon of a diminution of the motion of the ethereal medium, by its acting againſt the ice and ſalt together, and the air is not able to prevent its concretion by all its ſcorching heat.

The air (ſays Mr. Boyle) being a fluid as well as water, and impregnated with ſalts of different kinds, it is not improbable, that what happens in water impregnated with ſuch ſalts, may alſo happen in the air. Two proper quantities of different ſalts being diſſolved in hot water, they floated undiſtinguiſhably in it, and retained a capacity to act in conjunction upon ſeveral occaſions; yet when the liquor becomes cold, the ſaline particles of one kind being no longer agitated by a due degree of heat, ſhot into cryſtals; and, loſing their fluidity and motion, viſibly ſeparated themſelves from the other, which ſtill continued fluid in the liquor, and capable of acting ſeparately.

We have divers accounts in the Philoſophical Tranſactions, of a freezing rain which fell in the weſt of England in December 1672. This rain, as ſoon as it touched any thing above the ground, as a bough, or the like, immediately ſettled into ice; and, by multiplying and enlarging the icicles broke all down with its weight; the rain that fell on the ſnow immediately froze into ice, without ſinking into the ſnow at all.

It made an incredible deſtruction of trees beyond any thing in all hiſtory. A certain gentleman weighed a ſprig of an Aſh-tree of juſt three quarters of a pound, the ice which was on it weighed 16 pounds; that ſome perſons were frighted with the noiſe in the air, till they underſtood that it was the clatter of icy boughs daſhed againſt each other.

Dr. Beale remarks, that there was no conſiderable froſt obſerved on the ground during the whole time; whence he concludes, that a froſt may be very fierce and dangerous on the tops of ſome hills and plains, while in other places it keeps at two, three, or four feet diſtance above the ground, rivers, lakes, &c. and may wander about very furious in ſome places, and remiſs in others not far off. The froſt was followed by glowing heats, and a wonderful forwardneſs of flowers and fruits. The effects of freezing vegetables, is farther explained under the article of FROST.

FRITILLARIA. Lin. Gen. Plant. 372. Tourn. Inſt. R. H. 376. tab. 201. Corona Imperialis. Tourn. Inſt. R. H. 372. tab. 197, 198. Fritillary, or Chequered Tulip and Crown Imperial.

The CHARACTERS are,

The flower hath no empalement; it hath ſix oblong petals, is bell-ſhaped, and ſpreading at the baſe; in the hollow, at the baſe of each petal, is ſituated a nectarium; the flower hath ſix ſtamina ſtanding near the ſtyle, which are terminated by oblong four-cornered ſummits. In the center is ſituated an oblong three-cornered germen, ſupporting a ſingle ſtyle which is longer than the ſtamina, crowned by a ſpreading obtuſe ſtigma. The germen afterward becomes an oblong capſule with three lobes having three cells, which are filled with flat ſeeds, ranged in a double order.

The capſule of Fritillaria is oblong and ſmooth, but that of Corona Imperialis hath acute borders, or membranaceous wings.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, which includes the plants which have ſix ſtamina in their flowers, and but one ſtyle.

Theſe two genera of Fritillary and Crown Imperial, have been always ſeparated, till Dr. Linnæus joined them together; indeed by their flowers they may be properly enough placed in the ſame genus; but, if their fruit may be allowed as a characteriſtic note, they ſhould be ſeparate; however, as this new ſyſtem is generally received, I ſhall, in compliance with the preſent taſte, join them together.

The SPECIES are,

1. FRITILLARIA (*Melagris*) foliis linearibus alternis, floribus terminalibus. *Fritillary with narrow leaves placed alternate, and flowers terminating the ſtalk.* Fritillaria præcox, purpurea, variegata. C. B. P. 64. *Early, purple, variegated, chequered Tulip.*
2. FRITILLARIA (*Aquitanica*) foliis infimis oppoſitis. Hort. Cliff. 81. *Fritillary whoſe lower leaves are oppoſite.* Fritillaria Aquitanica, flore luteo obſcuro. Swert. Floril. *Aquitain chequered Tulip, with an obſcure yellow flower.*
3. FRITILLARIA (*Nigra*) floribus adſcendentibus. *Fritillary with flowers growing above each other.* Fritillaria nigra. Lob. Adver. 2. 496. *Black chequered Tulip.*
4. FRITILLARIA (*Lutea*) foliis lanceolatis, caule unifloro maximo. *Fritillary with ſpear-ſhaped leaves, and one large flower on each ſtalk.* Fritillaria lutea maxima Italica. Park. Parad. 43. *Largeſt yellow Italian Fritillary.*
5. FRITILLARIA (*Umbellata*) floribus umbellatis. *Fritillary with flowers growing in umbels.* Fritillaria umbellifera. C. B. P. 64. *Umbellated chequered Tulip.*
6. FRITILLARIA (*Perſica*) racemo nudiuſculo, foliis obliquis. Hort. Upſal. 82. *Fritillary with a naked ſpike of flowers and oblique leaves.* Lilium Perſicum. Dod. Pempt. 220. *The Perſian Lily.*
7. FRITILLARIA (*Racemoſa*) floribus racemoſis. *Fritillary with flowers growing in bunches.* Fritillaria ramoſa, ſeu lilium Perſicum minus. Mor. Hort. Reg. Bleſ. *Branching Fritillary, or ſmaller Perſian Lily.*

8. Fritillaria (*Imperialis*) racemo comoſo infernè nudo, foliis integerrimis. Lin. Hort. Upſal. 82. *Fritillary with a tufted bunch of leaves over the flowers, which is naked below, and entire leaves.* Corona Imperialis. Dod. Pempt. 202. *Crown Imperial.*

9. Fritillaria (*Regia*) racemo comoſo infernè nudo, foliis crenatis. Lin. Sp. Plant. 303. *Fritillary with a tufted bunch of leaves over the flowers, which is naked below, and crenated leaves.* Corona regalis lilii folio crenato. Hort. Elth. 110. *Royal Crown with a crenated Lily leaf.*

10. Fritillaria (*Autumnalis*) racemo infernè nudo, foliis oblongis mucronatis. *Fritillary with a naked ſtalk, and oblong pointed leaves.*

The firſt ſort grows naturally in Italy, and other warm parts of Europe; and from the ſeeds of this there have been great varieties raiſed in the gardens of the floriſts, which differ in the ſize and colour of their flowers; and as there are frequently new varieties produced, ſo it would be to little purpoſe to enumerate thoſe which are at preſent in the Engliſh and Dutch gardens, which amount to a great number in the catalogues of the Dutch floriſts, who are very fond of any little diſtinction, either in the colour or ſhape, to enlarge their liſts.

The ſorts which are here enumerated, I think may be allowed as diſtinct ſpecies, notwithſtanding Dr. Linnæus has reduced them to five; for I have raiſed many of all the ſorts from ſeed, which have conſtantly produced the ſame as the ſeeds were taken from, and have only differed in the colour or ſize of the flowers; for the ſort with broad leaves produced the ſame ſort again, and the umbellated and ſpiked ſorts produced the ſame, though there are ſeveral varieties in the colours of their flowers.

The firſt hath a round compreſſed root, in ſhape like that of Cornflag, but is of a yellowiſh white colour; the ſtalk riſes about fifteen inches high, having three or four narrow long leaves placed alternately, and the top is divided into two ſlender foot-ſtalks which turn downward, each ſuſtaining one bell-ſhaped inverted flower, compoſed of ſix petals, which are chequered with purple and white like a cheſs-board; and in the center is ſituated a germen ſupporting one ſtyle, crowned by a trifid ſtigma; the ſix ſtamina ſtand about the ſtyle, but are ſhorter. At the bottom of each petal there is a cavity, in which is ſituated a nectarium, filled with a ſweet liquor; after the flower is fallen, the germen ſwells to a pretty large three-cornered blunt capſule, and then the foot-ſtalk is turned and ſtands erect; when the ſeeds are ripe, the capſule opens in three parts and lets out the flat ſeeds, which were ranged in a double order. The flowers of this appear the latter end of March or beginning of April, and the ſeeds are ripe in July. There is a variety of this with a double flower.

The ſecond ſort grows naturally in France; the leaves of this are broader, and of a deeper green than the former; the lower leaves are placed oppoſite, but thoſe above are alternate; the ſtalk riſes a foot and a half high, and is terminated by two flowers of an obſcure yellow colour, which ſpread more at the brim than thoſe of the firſt ſort, but are turned downward in the ſame manner. This flowers three weeks after the firſt. There is a variety of this with greeniſh flowers, which grows naturally in ſome parts of England.

The third ſort ſeldom riſes more than a foot high, the leaves are narrow like thoſe of the firſt ſort, but are ſhorter; each ſtalk is terminated by three or four flowers, which ariſe above each other; they are of a very dark purple, chequered with yellowiſh ſpots. This flowers in April, about the ſame time with the ſecond.

The fourth ſort riſes about a foot high, the ſtalk is garniſhed with ſpear-ſhaped leaves four inches long and one broad, of a graſs-green colour; theſe are ſometimes placed oppoſite, but are generally alternate; the ſtalk is terminated by one large bell-ſhaped flower of a yellowiſh colour, chequered with light purple. This ſort flowers about the ſame time as the firſt. There are two or three varieties of this, which differ in the ſize and colour of their flowers and the breadth of their leaves, but retain their ſpecific difference, ſo as to be eaſily diſtinguiſhed from the other ſorts.

The fifth ſort riſes a foot and a half high; the ſtalk is garniſhed with ſhorter and broader leaves than the firſt ſort, which are of a grayiſh colour; the flowers are produced round the ſtalks like thoſe of the Crown Imperial; they are of a dark purple colour, chequered with a yellowiſh green. This flowers about the ſame time with the ſecond ſort.

The ſixth ſort is commonly called the Perſian Lily, and is ſuppoſed to grow naturally in Perſia, but has been long cultivated in the Engliſh gardens; the root of this ſort is round and large, the ſtalk riſes three feet high; the lower part of it is cloſely garniſhed with leaves which are three inches long, and half an inch broad, of a gray colour, ſtanding on every ſide of the ſtalks, but are twiſted obliquely; the flowers grow in a looſe ſpike at the top of the ſtalk, forming a pyramid; they are ſhaped like thoſe of the other ſpecies, but are much ſhorter, and ſpread wider at their brims, and are not bent downward like thoſe. They are of a dark purple colour, and appear in May, but are ſeldom ſucceeded by ſeeds in England, ſo are only propagated by offſets.

The ſeventh ſort hath a much ſhorter ſtalk than the laſt, but is garniſhed with leaves like thoſe, only they are ſmaller; the ſtalks branch out at the top into ſeveral ſmall foot-ſtalks, each ſuſtaining one dark coloured flower. This is commonly called the ſmall Perſian Lily, from its reſemblance to the former ſort.

Theſe plants are propagated either by ſeeds, or offſets from the old roots; by the firſt of which methods new varieties will be obtained, as alſo a larger ſtock of roots in three years, than can be obtained in twenty or thirty years in the latter method: I ſhall therefore firſt treat of their propagation by ſeeds.

Having provided yourſelf with ſome good ſeeds, ſaved from the faireſt flowers, you muſt procure ſome ſhallow pans or boxes, which muſt have ſome holes in their bottoms to let out the moiſture; theſe you ſhould fill with light freſh earth, laying a few potſheards over the holes, to prevent the earth from ſtopping them; then, having laid the earth very level in the boxes, &c. you muſt ſow the ſeeds thereon pretty thick, covering it with fine ſifted earth a quarter of an inch thick. The time for ſowing the ſeed is about the beginning of Auguſt, for if it be kept much longer out of the ground it will not grow; then place the boxes or pans where they may have the morning ſun until eleven o'clock, obſerving, if the ſeaſon proves dry, to water them gently, as alſo to pull up all weeds as ſoon as they appear; for if they are ſuffered to remain until they have taken deep root into the earth, they would draw the ſeeds out of the ground whenever they are pulled up. Toward the latter end of September you ſhould remove the boxes, &c. into a warmer ſituation, placing them cloſe to a hedge or wall expoſed to the ſouth; if they are ſown in pots, theſe ſhould be plunged into the ground, but they are beſt in tubs; theſe ſhould be covered in ſevere froſt. In this ſituation they may remain until the middle of March, by which time the plants will be come up an inch high; you muſt therefore remove the boxes, as the weather increaſes hot, into a more ſhady ſituation; for while the plants are young, they are liable to ſuffer by being too much expoſed to the ſun: and in this ſhady ſituation they may remain during the heat of the ſummer, obſerving to keep them clear from weeds, and to refreſh them now and then with a little moiſture; but be careful not to give them much water after their leaves are decayed, which would rot their roots. About the beginning of Auguſt, if the roots are very thick in the boxes, you ſhould prepare a bed of good light freſh earth, which muſt be levelled very even, upon which you ſhould ſpread the earth in the boxes in which the ſmall roots are contained, equally covering it about one fourth of an inch thick with the ſame freſh earth: this bed ſhould be ſituated in a warm poſition, but not too cloſe to hedges, walls, or pales, which would cauſe their leaves to be long and ſlender, and make the roots weaker than if placed in a more open expoſure.

In this bed they may remain until they flower, which is generally the third year from ſowing; at which time you ſhould put down a mark to the roots of all ſuch as produce fair flowers, that at the time of taking them out of the ground (which ought to be ſoon after their green leaves are decayed) they may be ſelected into a bed amongſt your old roots of this flower, which, for their beauty, are preſerved in the beſt gardens; but the other leſs valuable flowers may be planted in the borders of the parterre-garden for their variety, where, being intermixed with other flowers of different ſeaſons, they will make a good appearance.

The fine ſorts of this flower ſhould remain undiſturbed three years, by which time they will have produced many offſets; and ſhould be taken up when their leaves are decayed, and planted into a freſh bed, taking ſuch of their offſets as are large enough to produce flowers to plant in the flower-garden; but the ſmaller roots may be planted into a nurſery-bed, until they have obtained ſtrength enough to flower; but you muſt never ſuffer theſe roots to lie out of the ground when you remove them, but plant them again immediately, otherwiſe they will periſh.

During theſe three years which I have adviſed the roots to remain in the beds, the ſurface of the earth ſhould be ſtirred every autumn with a trowel, obſerving not to go ſo deep as to bruiſe the root, and at the ſame time lay a thin cover of very rotten dung or tanners bark upon the ſurface of the beds; which, being waſhed into the ground, will cauſe the flowers to be larger, as alſo the roots to make a greater increaſe: you muſt alſo obſerve to keep them conſtantly clear from weeds, and thoſe roots which you would preſerve with care, ſhould not be ſuffered to ſeed.

When a ſtock of good flowers are obtained, they may be preſerved and increaſed in the ſame manner as other bulbous rooted flowers, which is by offſets ſent out from their roots, which ſhould be taken off every other year from the fineſt ſorts; but the ordinary flowers may remain three years undiſturbed, in which time they will have multiplied ſo much, as that each root will have formed a cluſter; ſo that if they are left longer together, the roots will be ſmall, and the flowers very weak; therefore, if theſe are taken up every other year, the roots will be the ſtronger. Theſe roots may be treated in the ſame manner as Tulips, and other bulbous rooted flowers, with this difference only, that the roots will not bear to be kept out of the ground ſo long; therefore, if there ſhould be a neceſſity for keeping them out of the ground any time, it will be beſt to put the roots into ſand to prevent their ſhrinking.

As theſe flowers come out early in the ſpring, they make a pretty appearance in the borders of the pleaſure-garden, where they are planted in ſmall clumps; for when they ſtand ſingle in the borders, they make but a poor figure.

The eighth ſort is the Crown Imperial, which is now very common in the Engliſh gardens. This grows naturally in Perſia, from whence it was firſt brought to Conſtantinople, and about the year 1570, was introduced to theſe parts of Europe; of this flower there are a great variety now preſerved in the gardens of floriſts, but as they have been produced accidentally from ſeeds, they are but one ſpecies; however, for the ſatisfaction of the curious, I ſhall here mention all the varieties which have come to my knowledge.

1. The common Crown Imperial; this is of a dirty red colour.
2. The yellow Crown Imperial; this is of a bright yellow.
3. The bright red Crown Imperial, called Fuſal.
4. The pale yellow Crown Imperial.
5. The yellow ſtriped Crown Imperial.
6. The large flowering Crown Imperial.
7. The broad leaved late red Crown Imperial.
8. The double and triple crowned Imperial Crown.
9. The double red Crown Imperial.
10. The double yellow Crown Imperial.
11. The ſilver ſtriped leaved Crown Imperial.
12. The yellow ſtriped leaved Crown Imperial.

There are ſome few other varieties which are mentioned in the catalogues of the Dutch floriſts, but their diſtinctions are ſo minute, that they are not diſtinguiſhable, ſo I ſhall paſs them over, as thoſe here inſerted are all that I have ſeen growing either in England or Holland, which deſerved any diſtinction.

The Crown Imperial hath a large round ſcaly root of a yellow colour, and a ſtrong odour of a fox; the ſtalk riſes to the height of four feet or upward; it is ſtrong, ſucculent, and garniſhed two-thirds of the length on every ſide, with long narrow leaves ending in points, which are ſmooth and entire; the upper part of the ſtalk is naked, a foot in length; then the flowers come out all round the ſtalk upon ſhort foot-ſtalks, which turn downward, each ſuſtaining one large, ſpreading, bell-ſhaped flower, compoſed of ſix ſpear-ſhaped petals; at the baſe of each petal is a pretty large cavity, in which is ſituated a large white nectarium, filled with a mellous liquor. In the center of the flower is fixed a three-cornered oblong germen, upon which reſts the ſingle ſtyle, which is the length of the petals, and is crowned by a ſpreading obtuſe ſtigma; round the ſtyle there are ſix awl-ſhaped ſtamina which are ſhorter than the ſtyle, and are terminated by oblong four-cornered ſummits. Theſe flowers hang downward, and above them riſes a ſpreading tuft of green leaves, which are erect, and from between theſe come out the foot-ſtalks of the flowers: when the flowers decay, the germen ſwells to a large hexagonal capſule, ſhaped like a water-mill, having ſix cells, which are filled with flat ſeeds. This plant flowers the beginning of April, and the ſeeds are ripe in July.

The ſort with yellow flowers, that with large flowers, and thoſe with double flowers, are the moſt valuable; but that which hath two or three whorls of flowers above each other, makes the fineſt appearance; though this ſeldom produces its flowers after this manner the firſt year after removing, but the ſecond and third year after planting, the ſtalks will be taller, and frequently have three tier of flowers, one above another, which is called the Triple Crown. The ſtalks of this ſort frequently run flat and broad, when they produce a greater number of flowers than uſual; but this is only a luxuriancy of nature, not conſtant; though many of the writers have mentioned it as a particular variety.

As this is one of the earlieſt tall flowers of the ſpring, it makes a fine appearance in the middle of large borders, at a ſeaſon when ſuch flowers are much wanted to decorate the pleaſure-garden: but the rank fox-like odour which they emit, is too ſtrong for moſt people, ſo hath rendered the flowers leſs valuable than they would have been; for there is ſomething very pleaſing in the ſight of them at a diſtance, ſo that were it not for the offenſive ſmell of the leaves and flowers, it would be more frequently ſeen in all gardens for pleaſure.

This may be propagated by ſeeds, or offſets from the root; the firſt is too tedious for moſt of the Engliſh floriſts, becauſe the plants ſo raiſed, are ſix or ſeven years before they flower; but the Dutch and Flemiſh gardeners, who have more patience, frequently raiſe them from ſeeds, ſo get ſome new varieties, which rewards their labour. The method of propagating theſe flowers from ſeeds, being nearly the ſame as for the Tulip, the reader is deſired to turn to that article, where there are full directions for performing it.

The common method of propagating them here, is by offſets ſent out from the old roots, which will flower ſtrong the ſecond year after they are taken from the roots; but in order to have plenty of theſe, the roots ſhould not be tranſplanted oftener than every third year, by which time each root will have put out ſeveral offſets, ſome of which will be large enough to flower the following year, ſo may be planted in the borders of the flower-garden, where they are to remain; and the ſmaller roots may be planted in a nurſery-bed, to grow a year or two according to their ſize; therefore they ſhould be ſorted, and the ſmalleſt roots planted in a bed together, which ſhould remain there two years, and the larger by themſelves to ſtand one year, by which time they will have acquired ſtrength enough to flower, ſo may then be removed into the pleaſure-garden.

The time for taking up theſe roots is in the beginning of July, when their ſtalks will be decayed; and they may be kept out of the ground two months, but they ſhould be laid ſingle in a dry ſhady room, but not in heaps, or in a moiſt place, which will cauſe them to grow mouldy and rot. The offſets ſhould be firſt planted, for as theſe are ſmall, they will be apt to ſhrink if they are kept long out of the ground.

As the roots are large, they muſt not be planted too near other flowers; and when they are planted in beds by themſelves, they ſhould not be nearer than a foot and a half in the rows, and two feet row from row; they ſhould be planted ſix inches deep at leaſt, eſpecially the ſtrong roots: they delight in a light ſoil, not too wet, nor very full of dung; therefore, if any dung is laid upon the borders where they are planted, it ſhould be buried pretty deep, ſo as to be two or three inches below the roots.

The ninth and tenth ſorts grow naturally at the Cape of Good Hope, from whence they were brought into the European gardens. The ninth has been many years an inhabitant, where it has been uſually titled Corona Regalis. This has a tuberoſe root, from which ariſe in the autumn ſix or eight obtuſe leaves, near five inches long and two broad toward the top, growing narrower at their baſe, and are crenated on their borders, lying flat on the ground; theſe continue all the winter: in the ſpring ariſes the flower-ſtalk in the center of the leaves, about ſix inches high, naked at the bottom; but the upper part is ſurrounded by bell-ſhaped flowers, compoſed of ſix greeniſh petals, with an oval germen ſituate at the bottom, ſurrounded by ſix ſtamina, ſupporting a triangular ſtyle, crowned by a trifid ſtigma; the germen afterwards becomes a roundiſh capſule, but rarely perfects ſeeds in England. This flowers in April, and the leaves decay in June.

The ſecond ſort I raiſed from ſeeds, which were ſent me from the Cape of Good Hope: the root of this is like that of the ninth ſort, but the leaves are more than a foot long, broad at their baſe, but are narrowed to the top, where they end in acute points; the flower-ſtalk riſes rather higher than that of the ninth, but the flowers are of the ſame ſhape and colour: this ſeldom flowers till Auguſt. The roots of this ſort were ſtolen out of the Chelſea garden the following ſpring after it had flowered, and were ſold to ſome perſons whoſe love for rare plants exceeded their honeſty.

FRITILLARIA CRASSA. See Asclepias.

FRONDOSE [frondoſus, *Lat.*] full of leaves, or ſhoots.

FROST may be defined to be an exceſſive cold ſtate of the weather; whereby the motion and fluidity of the liquors are ſuſpended; or, it is that ſtate of the air, &c. whereby fluids are converted into ice.

By froſt metals contract, or are ſhortened. Monſ. Auzout found by an experiment, that an iron tube twelve feet long, upon being expoſed to the air in a froſty night, loſt two lines of its length; but this may be ſuppoſed to be wholly the effect of cold.

On the contrary, froſt does not contract fluids, but, on the other hand, ſwells or dilates them near one tenth of their bulk.

Mr. Boyle gives us ſeveral experiments of veſſels made of metals exceeding thick and ſtrong, which being filled with water, cloſe ſtopped, and expoſed to the cold, the water, being expanded by freezing, and not finding either room or vent, burſt the veſſels.

A ſtrong barrel of a gun, with water in it, being ſtopped cloſe, and frozen, was rent the whole length; and a ſmall braſs veſſel, five inches deep, and two in diameter, filled with water, &c. and frozen, lifted up its lid, which was preſſed with a weight of fifty-ſix pounds.

There are alſo related many remarkable effects of froſt on vegetables. Morery, Hiſt. de France, ſays, That trees are frequently ſcorched and burnt up with froſt, as with the moſt exceſſive heat, and that even in ſo warm a climate as Provence.

Mr. Bobart relates, That in the great froſt anno 1683, Oaks, Aſhes, Walnut-trees, &c. were miſerably ſplit and cleſt, ſo as they might be ſeen through; and this too with terrible noiſes like the exploſion of fire arms; that the clifts were not only in the bodies, but continued to the larger boughs, roots, &c. Philoſ. Tranſact. N° 105.

Dr. Derham ſays, That the froſt in 1708, was remarkable through the greateſt part of Europe; and the greateſt in degree, if not the moſt univerſal, in the memory of man; that it extended throughout England, France, Germany, Denmark, Italy, &c. but was ſcarce felt in Scotland and Ireland. All the Orange-trees and Olives in Italy, Provence, &c. and all the Walnut-trees throughout France, with an infinity of other trees, periſhed by the froſt.

Monſ. Gouteron ſays, They had a gangrene on them, which he takes to be the effect of a corroſive ſalt, which corrupted and deſtroyed their texture. He adds, That there is ſo much reſemblance between the gangrene befalling plants through froſt, and that which the parts of animals are liable to, that they muſt have ſome analogous cauſe. Corroſive humours burn the parts of animals, and the aëreal nitre, condenſed, has the ſame effects on the parts of plants. Memoires de l' Academie Royale de Sciences, an. 1709.

Dr. Derham ſays, That the greateſt ſufferers in the animal kingdom were birds and inſects, but vegetables were much the greateſt ſufferers; that few of the tender ſorts of vegetables eſcaped the ſeverity of the froſt; Bays, Laurels, Roſemary, Cypreſs, Alaternuſes, Phillyreas, Arbutuſes, Lauruſtinuſes, and even Furz, with moſt ſort of the fruteſcent herbs, as Lavenders, Abrotanums, Rue, Thyme, &c. were generally deſtroyed. He adds, that the ſap of the finer wall-fruit was ſo congealed and deſtroyed, that it ſtagnated in the limbs and branches, and produced diſorders like to chilblains in human bodies, which would turn to mortifications in many parts of the trees; that the very buds of the finer trees, both in the leaf, buds, and bloſſom buds, were quite killed, and dried into a farinacious matter.

Dr. Derham relates it as a common obſervation, That vegetables ſuffered more from the ſun than from the froſt, in that the ſun-ſhine, melting the ſnow, and opening the ground, left it more expoſed to the rigour of the enſuing night. It was likewiſe obſerved, at a meeting of the Royal Society, That the calamities which befel trees, aroſe not purely from their being frozen, but principally from the winds ſhaking and rocking them when they are frozen, which rent and parted their fibres. Philoſ. Tranſact. N° 324.

Hoar froſt, or white froſt, is the dew frozen, or congealed early in cold mornings, chiefly in autumn. This (as Mr. Regis obſerves) is an aſſemblage of little parcels of ice or cryſtals, which are of various figures, according to the diſpoſition of the vapours which meet and are condenſed by cold.

Dew is, to all appearance, the matter of hoar froſt, though many of the Carteſians ſuppoſe it to be formed of a cloud, and either congealed in the cloud, and ſo let fall, or ready to be congealed as ſoon as it arrives at the earth.

In the year 1728-9, there was a remakable froſt, which continued for ſome months, and deſtroyed a great number of trees and plants in ſeveral parts of Europe, a brief account of which may not be improper to be here inſerted.

The autumn began with cold north and eaſt winds, and early in November the nights were generally froſty, though the froſt did not enter the ground deeper than the ſun thawed the following day; but toward the end of November the winds blew extremely cold from the north, which was ſucceeded by a great ſnow, which fell in ſuch quantities in one night, as to break off large arms, as alſo the tops of many Evergreen-trees, on which it lodged. After the ſnow had fallen, it began to freeze again, the wind continuing to blow from the north; the days were dark and cloudy for ſome time, but afterwards it cleared up, and the ſun appeared almoſt every day, which melted the ſnow where expoſed to it, whereby the froſt penetrated deeper into the ground. It was obſervable, that, during theſe clear days, a great miſt or vapour, appeared in the evenings, floating near the ſurface of the ground until the cold of the night came on, when it was ſuddenly condenſed, and diſappeared. About the 8th of December, the nights were extremely cold; the ſpirits in the thermomoter fell 18 degrees below the freezing point, and on the 10th of the ſame month the froſt was as ſevere as had been known in the memory of man; the ſpirits of the thermometer fell to 20 degrees below the freezing point. At this time vaſt numbers of Lauruſtinuſes, Phillyreas, Alaternuſes, Roſemary, Arbutus, and other Evergreen-trees and ſhrubs began to ſuffer; eſpecially ſuch as had been trimmed up to heads with naked ſtems, or had been clipped late in autumn. At this time alſo there were great numbers of large deciduous trees diſbarked by the froſt, as Pear-trees, Plane-trees, Walnut-trees, with many other ſorts, and it was chiefly on the weſt and ſouth-weſt ſide of the trees, that the bark came off.

About the middle of December the froſt abated of its intenſeneſs, and ſeemed to be at a ſtand till the 23d of the ſame month, when the wind blew extremely ſharp and cold from the eaſt, and the froſt increaſed again, continuing very ſharp till the 28th day, when it began to abate again, and ſeemed to be going off, the wind changing to the ſouth; but it did not continue long in this point, before it changed to the eaſt again, and the froſt returned, though it was not ſo violent as before.

Thus the weather continued for the moſt part froſty, till the middle of March, with a few intervals of mild weather, which brought forward ſome of the early flowers; but the cold returning, ſoon deſtroyed them: ſo that thoſe plants which uſually flower in January and February, did not this year appear till March, and before they were fully blown, were cut off by the froſt; of this number were all the Spring Crocuſes, Hepaticas, Perſian Iriſes, Black Hellebores, Mezereons, with ſome others.

The Cauliflower plants, which were planted out of the beds in the open ground, during the intervals between the froſt, were moſt of them deſtroyed, or ſo much cut, that they loſt moſt of their leaves; the early Beans and Peas were moſt of them killed, and many fruit and foreſt trees, which had been lately removed, were quite deſtroyed. The loſs was very great to ſome curious perſons, who had been many years endeavouring to naturalize great numbers of exotic trees and ſhrubs, abundance of which were either totally killed, or deſtroyed to the ſurface of the ground; amongſt this number there were many ſorts deſtroyed, which had endured the open air many years, without receiving the leaſt injury from the cold, ſuch as Paſſion Flowers, Cork-trees, Ciſtuſes, Roſemary, Stœchas, Sage, Maſtich, and ſome others. In ſome places the young Aſh and Walnut-trees were killed; but when the froſt went off, there appeared to have been much more damage done in the gardens, than there really was, which occaſioned many people to dig up and deſtroy large quantities of trees and ſhrubs, which they ſuppoſed were killed; whereas thoſe who had more patience, and ſuffered them to remain, fared better; for great numbers of them ſhot out again, ſome from their ſtems and branches, and others from their roots, the following ſummer.

Nor was the froſt more ſevere in England, than in other parts of Europe; but, on the contrary, in compariſon, favourable; for in the ſouthern parts of France, the Olives, Myrtles, Ciſtuſes, Alaternuſes, and ſeveral other trees and ſhrubs, which grow there almoſt ſpontaneouſly, were either deſtroyed, or at leaſt were killed to their roots; and about Paris, and the northern parts of France, the buds of their fruit-trees were deſtroyed, although they remained cloſed, ſo that there were very few bloſſoms which opened that ſpring. The Fig-trees were in ſeveral parts of France quite killed, and in England their tender branches were deſtroyed, ſo that there was very little fruit on thoſe trees the following ſummer, except where they were protected from the froſt.

In Holland the Pines and Firs, with ſeveral other trees, which are natives of cold countries, were greatly injured by the cold; and moſt of the trees and ſhrubs, which were brought from Italy, Spain, or the ſouth parts of France, which had been planted in the full ground, in that country, were entirely killed, though many other ſorts, which had been brought from Virginia and Carolina, eſcaped very well in the ſame gardens; but the perſon who ſuffered moſt in that country, was the learned Dr. Boerhaave, who had been ſeveral years endeavouring to naturalize as many exotic trees and ſhrubs as he could poſſibly obtain from the ſeveral parts of the world, great numbers of which were entirely deſtroyed by the froſt this winter.

In ſome parts of Scotland they not only loſt many of their curious flowers, plants, and trees, but great numbers of ſheep, and other cattle, were buried under the ſnow, where they periſhed; and many poor people, who went to look after their cattle, were equal ſufferers with them, being buried in the ſnow, which in ſome places fell eight or nine feet deep in one night.

It has been obſerved by thermometers, when that kind of hovering lambent fog ariſes (either mornings or evenings) which frequently betokens fair weather, that the air, which in the preceding day was much warmer, has, upon the abſence of the ſun become many degrees cooler than the ſurface of the earth, which being near 1500 times denſer than the air, cannot be ſo ſoon affected with the alteration of heat and cold; whence it is probable, that thoſe vapours which are raiſed by the warmth of the earth, are by the cooler air ſoon condenſed into a viſible form. The ſame difference has been obſerved between the coolneſs of the air, and the warmth of water in a pond, by putting a thermometer, which hung all night in the open air in ſummer time, into the water, juſt before the riſing of the ſun, when the like reek, or fog, was riſing on the ſurface of the water.

In the year 1739-40, we had another ſevere winter, which did great miſchief to the gardens, fields, and woods, the effects of which are yet, and will be many years, felt in Europe. Some particulars of theſe depredations, may not, perhaps, be unacceptable to the reader, if they are here mentioned.

The wind ſet in blowing from the north and north-eaſt, about the autumnal equinox, and continued to blow from the ſame quarter, with little variation, upward of ſix months. Early in November, there was a continued ſharp froſt for nine days, in which time the ice upon large ponds, and other ſtanding waters, was frozen ſo hard as to bear perſons who ſkated thereon; but toward the end of November the froſt abated, and there was little more than ſlight morning froſts until Chriſtmas day, when it froze pretty hard that morning, and continued every morning ſo to do; but on the 28th day of December, the wind blew with great ſtrength from the north-eaſt, and brought on ſevere cold; that night the froſt penetrated very deep into the ground, and the next day, viz. the 29th, the wind changed to the ſouthward of the eaſt, and blew with great fury; the thermometer fell this day to twenty-five degrees below froſt; in the morning ſome little ſnow fell, but the violence of the wind carried it off; but cold ſtill increaſing, the waters were all frozen over, and that day it was ſo intenſe, as to freeze the water of the river, which was raiſed by the force of the wind into ice, before it fell down again. The wind continued to blow with the ſame force, and from the ſame quarter, all the 30th day, the cold ſtill increaſing, ſo that at this time the froſt penetrated into moſt of the green-houſes in England, but eſpecially into all thoſe whoſe fronts had the leaſt inclination to the eaſt; and ſuch of them as fronted the ſouth-weſt eſcaped beſt, where the back walls were of a ſufficient thickneſs to keep out the froſt; the ſpirits in the thermometer fell in the night of the 30th day to thirty-two degrees below the freezing point, which was lower than it had been known in England before; the violence of the wind made it very troubleſome for perſons of the moſt robuſt conſtitutions to be abroad, and this alſo cauſed the froſt to penetrate through thick walls, and in the ſpace of two days, the Evergreen-trees and ſhrubs appeared as if they had been ſcorched by fire, ſo that they ſeemed to have no life; the only trees of all the ſorts of Evergreens which retained their verdure at this time, were the Portugal Laurel, Savin, and ſhrubby Hartwood; theſe in the midſt of this ſevere froſt remained unhurt, when all the others were as brown as if they had been dead a year; and it was very late in the ſpring, before any of them reſumed their uſual verdure: during theſe ſevere days there had but little ſnow fallen, ſo that the froſt penetrated deep in the ground, and deſtroyed the roots of great part of the vegetables, where they were not well ſecured; the Artichoke roots were moſt of them killed in all the kitchen-gardens, ſome few only eſcaped, theſe were ſuch as were not intended to be preſerved. A ſingle row of theſe roots, which were growing in a place where a great quantity of dung had been wheeled over them, whereby the ground was rendered as hard as that of a common foot-way, though there was no covering upon theſe roots, yet they ſurvived the froſt and did well; another parcel which was growing near a tan-yard, where, by accident, ſome tan had been thrown, were preſerved, ſo that from ſome of theſe accidents we were ſo lucky as to retrieve the good kind of Artichoke, which the Engliſh gardens were ſo famous for being ſtocked with.

By the ſharp piercing winds the Graſs was almoſt totally burned up, ſo that there was not the leaſt verdure to be ſeen in the fields, and in many places the ſweeteſt and beſt kinds of the herbage were entirely killed, ſo that there remained only the ſtrong rough kinds of graſs, whereby the paſtures were in general much damaged; but on the 31ſt day in the evening, the wind being much abated, the ſeverity of the froſt was not ſo great, and there ſeemed an appearance of a thaw on the firſt and ſecond of January, but on the third in the evening the froſt ſet in again with great violence; and on the fourth of January in the morning, the thermometer was fallen one degree lower than it had been before. The ſame morning there was the greateſt hoary froſt which had been ſeen, the woods, trees, and hedges, appeared as if they had been covered with ſnow; and although there was no wind ſtirring, yet the air was ſo ſharp and penetrating, as to render it difficult to endure the cold, even with great exerciſe.

The timber-trees ſuffered greatly that morning, eſpecially the Oaks, which were ſplit with great violence; and the noiſe in the woods that morning, reſembled that of great branches breaking down in every part of the woods, and when heard at a diſtance, like the firing of guns. This was little attended to at the time, but the timber which has been ſince fallen, ſufficiently proves the great damage which the woods then ſuſtained; nor was it here the calamity ſtopped, for the Oaks in general had received ſo much injury from the froſt, as to occaſion ſuch a weakneſs and diſtemper among them, that the following ſpring they were infeſted with inſects to ſuch a degree, as that their leaves were eaten and entirely deſtroyed by them; ſo that at Midſummer the trees were as naked as if it had been the beginning of April; and this diſtemper continued for two years after, almoſt as bad as at firſt, and has leſſened by degrees, as the trees have recovered their ſtrength; and where the trees were old and weak, they have not yet gotten the better of this diſtemper.

The herbage was alſo ſo much weakened by the ſeverity of the froſt, as not to be able to reſiſt the attack made upon it by inſects, ſo that innumerable quantities of them were diſcovered in the paſtures in many parts of Europe, beginning firſt in the northern countries, and afterward ſpreading to the ſouth; and theſe inſects in many places were ſo numerous, as to deſtroy the ſward of Graſs, and it is to be feared the diſtemper which ſo long raged among the cattle may have been owing to this cauſe; for wherever the diſtemper ſpread, it has been obſerved, that numbers of theſe inſects have harboured about the roots of the Graſs: and as a farther proof of this, it has conſtantly been remarked, that, when theſe grubs are changed into a ſort of beetle, and take their flight (which is commonly about the beginning of May,) the diſtemper ceaſes; and when theſe beetles have depoſited their eggs in autumn, the diſtemper has raged again. Another remark has been made, that theſe beetles always chuſe to depoſit their eggs not at a great diſtance from rivers, or large pieces of water, and in ſuch places the cattle have been moſt attacked. There might be many other circumſtances mentioned in favour of this opinion, as alſo the ſeveral experiments which have been made by ſome of the members of the Academy of Sciences at Paris, which are ſufficient to prove, that the diſtemper was not infectious, nor can be communicated by the cattle, notwithſtanding it has been treated as ſuch in many countries, where has been an immenſe loſs to the public of ſuch numbers of cattle and their hides; but this may require a particular treatiſe, therefore I ſhall not enlarge farther on this head at preſent.

The froſt ſtill continued very hard till toward the end of January, but not ſo violent as at the beginning; for had the wind continued to blow with ſo much force as it had done the three firſt days of the froſt, for any conſiderable time longer, there would have been few vegetables able to have reſiſted the cold, nor would the animal kingdom have fared much better; for the cold was ſo intenſe during thoſe few days, as to kill ſeveral of the weaker ſort of cattle, where they were much expoſed to the wind.

The Walnut-trees, Aſh, and ſeveral other trees, had moſt of their ſhoots of the former year deſtroyed, which cauſed them to be very late before they put out their new ſhoots the following ſpring, and theſe ſhoots were produced from the two and three years branches. The Fig-trees in many places were killed almoſt to the ground, eſpecially thoſe which were growing againſt the beſt aſpected walls, for thoſe on the north and north-weſt aſpects, as alſo the old ſtandard Fig-trees eſcaped better; but all thoſe ſtools and layers of theſe trees, which were growing in the nurſery-gardens, were ſo much injured by the froſt, as not to be recovered under three years, during which time there were ſcarce any of theſe plants to be ſold. The layers of Vines, as alſo of the Oriental Plane-tree, in the nurſeries, were likewiſe killed to the ground, and the old ſtools ſo much injured, that they had better have been dug up and thrown away, than to have continued them; for in ten years after they did not recover their former vigour, making their ſhoots ſo late in the ſummer, that their wood had not time to harden, and the firſt froſt in autumn frequently killed them half way to the ground.

Many other deciduous trees were equal ſufferers by this ſevere froſt, and the Evergreens were more generally injured, and abundance of them killed. The Pine and Pinaſter were ſo much hurt, as to loſe all their verdure, and in ſome places the young plants of the former ſort were entirely killed. The Roſemary, Lavender, Stœchas, Sage, and many other aromatic plants, were in many places quite deſtroyed, ſo that it was two or three years before the markets could be ſupplied with theſe; and in general the eſculent plants in the kitchen-gardens were killed, ſo that for ſome months the markets were not ſupplied with any quantity of garden ſtuff. The flower-gardens alſo were great ſufferers by this winter; for as the ſeaſons for ſome years before had been very temperate, few perſons had made any proviſion for a hard winter; and the cold ſetting in ſo very intenſe at the beginning, the miſchief was done before people could be provided with covering.

The Wheat in many parts of England, but eſpecially in the open common fields, was very much hurt, particularly on the top of the ridges, where, in ſeveral places there were broad naked ſpaces on the middle of the ridges, which in the ſpring appeared like ſo many foot-paths. And as the ſpring following was very dry, and the wind continuing to blow from the north and eaſt; theſe piercing winds entered the ground, which had been looſened by the froſt, and dried up the tender roots of the Corn, to the great prejudice of it; but ſome of the more expert farmers, who rolled their Wheat after the froſt was over, were well repaid by the great crops which their land produced them.

Were I to enter into all the particulars of the damages ſuſtained by this ſevere froſt in the gardens and fields, it would ſwell this work beyond the limits intended; ſo I hope, on the other hand, I ſhall not be condemned for having inſerted thus much, ſince, by the mention of theſe things, perſons may be inſtructed how to ſave many of their valuable plants in future winters, as alſo what ſorts are more liable to danger from froſts than others.

FRUCTIFEROUS [fructifer, *Lat.*] fruit-bearing, fruitful.

FRUCTUS. See Fruit.

FRUIT is the production of a tree or plant, for the propagation or multiplication of its kind; in which ſenſe fruit includes all kinds of ſeeds, with their furniture, &c. botaniſts uſe it to ſignify properly, that part of a plant wherein the ſeed is contained, which the Latins call Fructus, and the Greeks Καρπός.

The fruit of ſome plants are produced ſingly, as are their flowers, and ſometimes they are produced in cluſters, as in moſt fruit-trees, which are alſo fleſhy, but in many plants they are dry.

The word fruit is alſo uſed to ſignify an aſſemblage of ſeeds in a plant; as in a Pea, Bean, Ranunculus, &c. and in its general ſignification, for all kinds of grain, whether naked, or incloſed in cover, capſula, or pod, whether bony, fleſhy, ſkinny, membranous, or the like.

Fruit is the product or reſult of the flower, or that for whoſe production, nutrition, &c. the flower is intended.

The ſtructure and parts of different fruits are different in ſome things, but in all the ſpecies the eſſential parts of the fruit appear to be only continuations or expanſions of thoſe which are ſeen in the other parts of the tree.

Dr. Beale ſuggeſts ſome very good reaſons for a direct communication between the remoteſt parts of the tree and the fruit; ſo that the ſame fibres which conſtitute the root, trunk, and boughs, are extended into the very fruit.

Thus, if you cut open an Apple tranſverſly, you will find it to conſiſt chiefly of four parts, viz. 1ſt, a ſkin, or cortex, which is only a production of the ſkin or outer bark of the tree. 2dly, A parenchyma or pulp, which is an expanſion and intumeſcence of the inner bark of the tree. 3dly, The fibres, or ramifications of the woody part of the tree. 4thly, The core, which is the produce of the pith, or medulla of the plant, indurated or ſtrengthened by twigs of the wood and fibres inoſculated therewith. This ſerves to furniſh a cell, or lodge, for the kernels, filtrates the juice of the parenchyma, and conveys it thus prepared to the kernel.

Of the fibres, authors generally reckon fifteen branches, of which ten penetrate the parenchyma, and incline to the baſis of the flower; the other five aſcend more particularly from the pedicle or ſtalk, and meet with the former at the baſe of the flower, to which branches the capſulæ, or coats of the kernels are faſtened.

Theſe branches being firſt extended through the parenchyma to the flower, furniſh the neceſſary matter for the vegetation of it; but as the fruit increaſes, it intercepts the aliment, and thus the flower is ſtarved, and falls off.

In a Pear there are five parts to be diſtinguiſhed, viz. the ſkin, parenchyma, ramification, kernel, and acetarium.

The three firſt parts are common to the Apple. The kernel, obſerved chiefly in Choke Pears, or Breaking Pears, is a congeries of ſtrong corpuſcles, that are diſperſed throughout the whole parenchyma, but in the greateſt plenty, and cloſeſt together about the center, or acetarium; it is formed of the ſtony or calculous part of the nutritious juice.

The acetarium is a ſubſtance of a tart acid taſte, of a globular figure, incloſed in an aſſemblage of ſeveral of the ſtony parts before-mentioned.

In a Plumb, Cherry, &c. there are four parts, viz. a coat, parenchyma, ramification, and nucleus, or ſtone. The ſtone conſiſts of two very different parts; the external or harder part, called the ſtone, or ſhell, is a concretion of the ſtony, or calculous parts of the nutritious juice, like the kernel in Pears, within it. The inner, called the kernel, is ſoft, tender, and light, being derived from the pith, or medulla of the tree by ſeminal branches, which penetrate the baſe of the kernel.

The nut, or acorn, conſiſts of a ſhell, cortex, and medulla; the ſhell conſiſts of a coat and parenchyma, derived from the bark and wood of a tree.

The cortex conſiſts of an inner and outer part, the firſt is a duplicature of the inner tunic of the ſhell; the ſecond is a moſſy ſubſtance, derived from the ſame ſource as the parenchyma of the ſhell. But authors are not agreed, whether the medulla, or pulp of the kernel does ariſe from the pith of the tree, or the cortical part thereof.

Berries, as the Grape, &c. contain (beſides three general parts, viz. coat, parenchyma, and ramification) grains of a ſtony nature, to do the offices of ſeeds.

Fruits in general are ſerviceable in guarding, preſerving, and feeding the incloſed ſeed, in filtrating the coarſer more earthy, and ſtrong parts of the nutritious juice of the plant, and retaining it to themſelves, ſending none but the moſt pure, elaborated, and ſpirituous parts to the ſeed, for the ſupport and growth of the tender delicate embryo or plantule, which is therein contained.

FRUMENTACEOUS [Frumentaceous, *Lat.*] a term applied by botaniſts to all ſuch plants as have a conformity with Wheat (called in *Latin* Frumentum,) in reſpect either of their fruits, leaves, ears, or the like.

FRUMENTUM INDICUM. See Zea.

FRUTEX, a ſhrub; a vegetable of a genus between a tree and an herb, but of a woody ſubſtance. It is pretty difficult to determine wherein moſt of the writers on gardening and agriculture have made the diſtinction between trees and ſhrubs, or where to fix the difference or boundary, between the trees and ſhrubs, to ſay where one ends, and the other begins, for that cannot be determined by their growth; therefore the beſt definition which can be made of a ſhrub, to diſtinguiſh it from a tree, is its ſending forth many ſtems from the roots, whereas the trees have a ſingle trunk or body.

FRUTEX PAVONIUS. See Poinciana.

FRUTICOSE [Fruticoſus, *Lat.* ſhrubby,] are thoſe plants which are of a hard woody ſubſtance, and do not riſe to the height of trees.

FUCHSIA. Plum. Nov. Gen. 14. Lin. Gen. Plant. 1097. This plant was ſo named by Father Plumier, who diſcovered it in America, in honour of the memory of Leonard Fuchſius, a learned botaniſt.

The CHARACTERS are,

The flower hath no empalement; it hath one petal, with a cloſed tube, which is ſlightly cut into eight parts at the brim, ending in acute points; it hath four ſtamina the length of the tube, which are terminated by obtuſe ſummits. The oval germen is ſituated under the flower, ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a ſucculent berry with four furrows, having four cells, containing ſeveral ſmall oval ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flower having four ſtamina and one ſtyle.

We know but one SPECIES of this genus at preſent, viz.

FUCHSIA (*Triphylla.*) Lin. Sp. Plant. 1191. *Three-leaved Fuchſia.* Fuchſia triphylla, flore coccineo. Plum. Nov. Gen. *Three-leaved Fuchſia with a ſcarlet flower.*

This plant is a native in the warmeſt parts of America; it was diſcovered by Father Plumier, in ſome of the French Iſlands in America, and was ſince found by the late Dr. William Houſtoun, at Carthagena in New Spain, from whence he ſent the ſeeds into England.

This is propagated by ſeeds, which muſt be ſown in pots filled with rich light earth, and plunged into a hot-bed of tanners bark, and treated in the ſame way as other ſeeds from warm countries. In about a month or ſix weeks after the ſeeds are ſown, the plants will begin to appear, when they ſhould be carefully cleared from weeds, and frequently refreſhed with water to promote their growth; and when they are about two inches high, they ſhould be ſhaken out of the pot, and ſeparated carefully; then plant each into a ſmall pot filled with light rich earth, and plunge them again into a hot-bed of tanners bark, being careful to ſcreen them from the ſun until they have taken new root; after which time they muſt have freſh air admitted to them every day in proportion to the warmth of the ſeaſon, and ſhould be frequently watered. As the ſeaſon advances and becomes warm, the glaſſes of the hot-bed ſhould be raiſed higher, to admit a greater ſhare of air to the plants, to prevent their drawing up weak; and when the plants are grown ſo tall as to reach the glaſſes, they ſhould be removed into the bark-ſtove, and plunged into the tan-bed. In winter theſe plants require to be kept very warm, and at that ſeaſon they muſt not have much water, but in ſummer it muſt be often repeated.

Theſe plants are too tender to thrive in the open air in this country, even in the hotteſt part of the year; therefore they ſhould conſtantly remain in the ſtove, obſerving to let in a large ſhare of freſh air in ſummer, but in winter they muſt be kept warm; with this management the plants will produce their flowers, and make a beautiful appearance in the ſtove, amongſt other tender exotic plants.

FUMARIA. Lin. Gen. Plant. 760. Tourn. Inſt. R. H. 421. tab. 237. Fumatory; in French, *Fumeterre.*

The CHARACTERS are,

The empalement of the flower is compoſed of two equal leaves placed oppoſite. The flower is of the ringent kind, approaching near to the butterfly flowers. The upper lip is plain, obtuſe, indented at the top, and reflexed; the nectarium at the baſe of this is obtuſe, and a little prominent. The under lip is like the upper in all its parts, but the baſe is keel-ſhaped; the nectarium at the baſe is leſs prominent. The chaps of the flower is four-cornered, obtuſe, and perfectly bifid; there are ſix equal broad ſtamina in each flower, divided in two bodies, included in the two lips, each being terminated by three ſummits. In the center is ſituated an oblong germen, ſupporting a ſhort ſtyle, crowned by an orbicular compreſſed ſtigma. The germen afterward becomes a ſhort pod with one cell, including roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Hexandria, which includes the plants whoſe flowers have their ſtamina in two bodies, and have ſix ſtamina. To this genus Dr. Linnæus has joined the Capnoides of Tournefort, the Cyſticapnos of Boerhaave, the Corydalis of Dillenius, and the Cucularia of Juſſieu, making them only ſpecies of the ſame genus.

The SPECIES are,

1. FUMARIA (*Officinalis*) pericarpis monoſpermis racemoſis, caule diffuſo. Lin. Sp. Plant. 700. *Fumatory with ſeed-veſſels growing in a racemus, with a ſingle ſeed and a diffuſed ſtalk.* Fumaria officinarum & Dioſcoridis, flore purpureo. C. B. 143. *The common Fumatory with a purple flower.*
2. FUMARIA (*Spicata*) pericarpiis monoſpermiis ſpicatis, caule erecto, foliolis filiformibus. Sauv. Monſp. 263. *Fumatory with ſeed-veſſels growing in a ſpike, with one ſeed, an upright ſtalk, and thread-like leaves.* Fumaria minor tenuifolia. C. B. 143. *Leſſer narrow-leaved Fumatory.*
3. FUMARIA (*Alba*) ſiliquis linearibus tetragonis, caulibus diffuſis acutangulis. Lin. Sp. Plant. 700. *Fumatory with narrow four-cornered pods, and diffuſed ſtalks, having acute angles.* Fumaria ſempervirens & floreas, flore albo. Flor. Bat. *Evergreen Fumatory with a white flower.*
4. FUMARIA (*Capnoides*) ſiliquis teretibus, caulibus diffuſis, angulis obtuſis. *Fumatory with taper pods and diffuſed ſtalks, having obtuſe angles.* Fumaria lutea. C. B. 143. *Yellow Fumatory.*
5. FUMARIA (*Claviculata*) ſiliquis linearibus, foliis cirrhiferis. Lin. Sp. Plant. 701. *Fumatory with narrow pods, and leaves having claſpers.* Fumaria claviculis donata. C. B. P. 143. *Fumatory with tendrils.*
6. FUMARIA (*Capreolata*) pericarpiis monoſpermis racemoſis, foliis ſcandentibus ſubcirrhoſis. Lin. Sp. Plant. 701. *Fumatory with ſeed-veſſels growing in a racemus, with one ſeed, and climbing leaves having ſhort tendrils.* Fumaria major ſcandens, flore pallidiore. Raii Hiſt. 405. *Greater climbing Fumatory with a paler flower.*
7. FUMARIA (*Cava*) caule ſimplici, bracteis longitudine florum. Lin. Sp. Plant. 699. *Fumatory with a ſingle ſtalk, and bracteæ as long as the flowers.* Fumaria bulboſa, radice cavâ, major. C. B. P. 143. *Greater bulbous Fumatory with a hollow root.*
8. FUMARIA (*Bulboſa*) caule ſimplici, bracteis brevioribus multifidis, radice ſolida. *Fumatory with a ſingle ſtalk, ſhorter many pointed bracteæ, and a ſolid root.* Fumaria bulboſa, radice non cavâ, major. C. B. P. 144. *Greater bulbous Fumatory with a ſolid root.*
9. FUMARIA (*Cucularia*) ſcapo nudo. Hort. Cliff. 351. *Fumatory with a naked ſtalk.* Capnorchis Americana. Boerh. Ind. alt. 1. 309. and the Fumaria tuberoſa inſipida. Cornut. 129. *Tuberous inſipid Fumatory.*
10. FUMARIA (*Veſicaria*) ſiliquis globoſis inflatis. Hort. Upſal. 207. *Fumatory with globular inflated pods.* Cyſticapnos Africana ſcandens. Boerh. Ind. alt. 1. 310. *Climbing African Cyſticapnos.*
11. FUMARIA (*Eneaphylla*) foliis triternatis, foliolis cordatis. Lin. Sp. Plant. 700. *Fumatory with leaves compoſed of three trifoliate ſmall leaves, which are heart-ſhaped.* Fumaria enneaphyllos Hiſpanica ſaxatilis. Bocc. Muſ. 2. p. 83. *Five-leaved Rock Fumatory of Spain.*
12. FUMARIA (*Sempervirens*) ſiliquis linearibus paniculatis, caule erecto. Hort. Upſal. 207. *Fumatory with narrow pods growing in panicles, and an upright ſtalk.* Capnoides. Tourn. Inſt. R. H. 423. *Baſtard Fumatory.*

The firſt ſort is the common Fumatory which is uſed in medicine. This grows naturally on arable land in moſt parts of England; it is a low annual plant, and flowers in April, May, and June; and very often from plants which riſe late in the ſummer, there will be a ſecond crop in autumn. The juice of this plant is greatly commended for bilious cholics. It is never cultivated in gardens.

The ſecond ſort grows naturally in the ſouth of France, Spain, and Portugal, but is preſerved in botanic gardens for the ſake of variety. It is an annual plant, which riſes from the ſcattered ſeeds better than when it is ſown with care; the ſtalks of this grow more erect, the leaves are very finely divided, and the flowers grow in a cloſe ſpike; they are of a deep red colour, and flower about the ſame time as the common ſort.

The third ſort grows naturally on the borders of the Mediterranean Sea; it was firſt brought to England from Tangier. This is a perennial plant, which ſends out from the root many branching ſtalks, which riſe about ſix or eight inches high, growing in tufts or bunches; the leaves are very much divided, the ſtalks are angular, and the flowers grow in looſe panicles upon naked foot-ſtalks, which come out from the diviſions of the branches; they are of a whitiſh yellow colour, and there is a ſucceſſion of them moſt part of the year.

The fourth ſort hath an appearance very like the third, and by ſome it is ſuppoſed to be only a variety of that, but is undoubtedly a diſtinct ſpecies; for I have cultivated both more than forty years, and never yet found either of them to vary. The ſtalks of this ſort have blunt angles, whereas thoſe of the third are acute; they are of a purpliſh colour, and the flowers grow in looſer panicles, each having a longer foot-ſtalk than thoſe of the other; they are of a bright yellow colour, and there is a ſucceſſion of them great part of the year.

Theſe two ſorts continue green all the year, and except in very ſevere froſt, are always in flower, which make a pretty appearance; they grow beſt on walls or rocks, and are very proper for the joints of grottos, or any rock-work; where, if a few plants are planted, or the ſeeds ſcattered, they will multiply faſt enough from their ſcattering ſeeds, which are caſt out of the pods by the elaſtic ſpring of the valves when ripe, to a conſiderable diſtance; and as the plants will require no care to cultivate them, they ſhould not be wanting in gardens.

The fifth ſort grows in ſtony and ſandy places in ſome parts of England; it is an annual plant with trailing ſtalks, ſending out claſpers from the leaves, which faſten to any of the neighbouring plants. It flowers in May and June, but is never cultivated in gardens.

The ſixth ſort is an annual plant with many trailing ſtalks, which grow about a foot long, ſending out a few ſhort tendrils, whereby they faſten to any neighbouring ſupport; the flowers come out from the ſide of the ſtalks in looſe bunches; they are of a whitiſh herbaceous colour, with a purple ſpot on the upper lip. This flowers in May and June. It grows in France and Italy, on ſtony places in the ſhade.

The ſeventh ſort grows naturally in the ſouth of France and Italy, and was ſome years paſt preſerved in the Engliſh gardens by way of ornament, but is now rarely to be found here; it was titled Radix cava, or hollow root, from its having a pretty large tuberous root hollowed in the middle. The ſtalk of this ſort riſes about ſix inches high, and does not divide, but is garniſhed toward the bottom with one ramous leaf, ſomewhat like the common Fumatory, but the lobes are broader; the flowers grow in a ſpike at the top of the ſtalk; they are of a pale herbaceous colour, and appear in April. This plant delights in the ſhade, and is multiplied by offſets, for it rarely ripens ſeeds in England.

The eighth ſort is pretty common in many of the old gardens in England; it grows naturally in the ſouth of France, in Germany and Italy. This hath a pretty large round ſolid root of a yellowiſh colour, from which come out branching leaves like thoſe of the laſt ſort, but the lobes are longer; the flowers grow in ſpikes on the top of the ſtalks; they are of a purple colour, and come out early in April. The ſtalks of this ſort are ſingle, and riſe about four or five inches high.

There is a variety of this with green flowers, which is mentioned in moſt of the books; but all the plants of this ſort which I have yet ſeen, are only abortive, having no real flower, only a green bractea, which has been generally taken for the flowers: there is alſo mentioned a larger ſort; but if there is one which is really different from the common ſort, I have not ſeen it in the Engliſh gardens, nor the yellow and white flowering ſorts, which are alſo mentioned in many of the books.

The ninth ſort grows naturally in North America; this hath a ſcaly root about the ſize of a large Hazel Nut, from which come out three or four leaves upon ſlender foot-ſtalks; theſe are divided into three parts, each of theſe parts is compoſed of many ſmaller diviſions, which have narrow lobes, divided into three parts almoſt to the bottom; the flower-ſtalk is naked, and eight or nine inches long; this is terminated by four or five flowers, growing in a looſe ſpike; theſe have two petals, which are reflexed backward, and form a ſort of fork toward the foot-ſtalk, and at their baſe are two horned nectariums, which ſtand horizantal. The flowers are of a dirty white colour and appear in May, but rarely produce ſeeds here.

This is propagated by offſets from the root; it loves a ſhady ſituation and a light ſoil; the beſt time to tranſplant the roots is in autumn, when the leaves are decayed, for it ſhoots pretty early in the ſpring, therefore it would not be ſafe to remove them at that ſeaſon.

The tenth ſort grows naturally at the Cape of Good Hope; this is an annual plant, with trailing ſtalks which are two or three feet long, dividing into many ſmaller, which are garniſhed with ſmall branching leaves ſhaped like thoſe of the common Fumatory, but end with tendrils, which claſp to any neighbouring plants, and thereby the ſtalks are ſupported; the flowers are produced in looſe panicles, which proceed from the ſide of the ſtalks; they are of a whitiſh yellow colour, and are ſucceeded by globular ſwollen pods, in which are contained a row of ſmall ſhining ſeeds.

This is propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed in the ſpring; and when the plants are fit to remove, they muſt be each planted in a ſmall pot filled with light earth, and plunged again into the hot-bed, where they muſt be ſhaded from the ſun till they have taken new root; after which they ſhould have a large ſhare of air admitted to them at all times in mild weather, to prevent their drawing up weak; and as ſoon as the ſeaſon is favourable, they ſhould be inured to bear the open air, to which they may be removed the beginning of June, when they may be ſhaken out of the pots, preſerving all the earth to their roots, and planted in a warm border, where their ſtalks ſhould be ſupported with ſticks to prevent their trailing on the ground; and in July the plants will flower, and continue a ſucceſſion of flowers till the froſt deſtroys the plants; the ſeeds ripen in autumn.

The eleventh ſort grows naturally upon old walls, or rocky places in Spain and Italy; this hath weak trailing ſtalks which are much divided, and are garniſhed with ſmall leaves divided into three parts, each of which hath three heart-ſhaped lobes; the flowers are produced in ſmall looſe panicles from the ſide of the ſtalks, they are of a greeniſh white, and appear moſt of the ſummer months. It is an abiding plant, which propagates itſelf by the ſeeds that ſcatter, and thrives beſt in a ſhady ſituation, and on old walls or buildings.

The twelfth ſort is an annual plant with an upright ſtalk, which grows a foot and a half high, round and very ſmooth, ſending out ſeveral branches upward; theſe are garniſhed with ſmooth branching leaves, of a pale colour, which are divided like the common ſort, but the ſmall leaves are larger and more obtuſe; the flowers are produced in looſe panicles from the ſides of the ſtalks, and at the extremity of the branches; they are of a pale purple colour, with yellow chaps (or lips); theſe are ſucceeded by taper narrow pods an inch and a half long, which contain many ſmall ſhining black ſeeds. This flowers during moſt of the ſummer months, and the ſeeds ripen in July, Auguſt,

guſt, and September. If the ſeeds of this plant are permitted to ſcatter, the plants will come up without any trouble, and require no other care but to thin them where they are too cloſe, and keep them clean from weeds.

Theſe plants may be ſuffered to grow on walls, and in ſome abject part of the garden; for if they are admitted into the borders of the pleaſure-garden, they will ſcatter their ſeeds, and become troubleſome weeds; but they are very proper plants to grow on ruins, or on the ſides of grottos or rock-work, where, by their long continuance in flower, they will have a good effect.

The fifth, ſixth, ſeventh, and eighth ſorts are propagated by offsets, as other bulbous-rooted flowers; theſe produce their flowers in the beginning of April, and are very pretty ornaments to borders in a ſmall flower-garden. They are extreme hardy, but do not increaſe very faſt, ſeldom producing ſeeds with us; and their bulbs do not multiply very much, eſpecially if they are often tranſplanted. They love a light ſandy ſoil, and ſhould be ſuffered to remain three years undiſturbed, in which time they will produce ſeveral offsets. The beſt ſeaſon for tranſplanting them is from May to Auguſt, when the leaves begin to die off; for if they are taken up when their leaves are freſh, it will greatly weaken their roots.

FURZ. See GENISTA.

G.

GALANTHUS. Lin. Gen. Plant. 362. Narciſſo-leucoium. Tourn. Inſt. R. H. 387. tab. 208. The Snow-drop; in French, *Perce-neige*.

The CHARACTERS are,

The ſpatha or ſheath of the flower is oblong, blunt, and compreſſed. This opens ſideways, and becomes a dry ſkin; the flower has three oblong concave petals, which ſpread open, and are equal; in the bottom is ſituated the three-leaved nectarium, which is cylindrical, obtuſe, and indented at the top; under the flower is ſituated the oval germen, ſupporting a ſlender ſtyle, which is longer than the ſtamina, crowned by ſingle ſtigma; this is attended by ſix ſhort hairy ſtamina, terminated by oblong pointed ſummits, which are gathered together. The germen afterward becomes an oval capſule which is obtuſe and three-cornered, opening in three cells, which are filled with roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, which includes the plants whoſe flowers have ſix ſtamina and one ſtyle.

This plant, as alſo the great Snow-drop, was by Dr. Tournefort ranged together under the title of Narciſſo-leucoium; which being a compound name, Dr. Linnæus has altered it to this of Galanthus; and has ſeparated the great Snow-drop from this, and given the ſimple name of Leucoium to that genus.

We know but one SPECIES of this genus, viz.

GALANTHUS (*Nivalis.*) Lin. Hort. Cliff. 134. The common Snow-drop. *Leucoium bulboſum trifolium minus.* C. B. P. The leaſt bulbous Snow-drop with three leaves.

There is a variety of this with double flowers.

Theſe flowers are valued for their early appearance in the ſpring, for they uſually flower in February when the ground is often covered with ſnow. The ſingle ſort comes out the firſt, and though the flowers are but ſmall, yet when they are in bunches, they make a very pretty appearance; therefore theſe roots ſhould not be planted ſingle, as is ſometimes practiſed by way of edging to borders; for when they are ſo diſpoſed, they make very little appearance. But when there are twenty or more roots growing in a cloſe bunch, the flowers have a very good effect; and as theſe flowers thrive well under trees or hedges, they are very proper to plant on the ſides of the wood-walks, and in wilderneſs-quarters; where, if they are ſuffered to remain undiſturbed, the roots will multiply exceedingly. The roots may be taken up the latter end of June, when their leaves decay, and may be kept out of the ground till the end of Auguſt, but they muſt not be removed oftener than every third year.

GALE. See MYRICA.

GALEGA. Lin. Gen. Plant. 770. Tourn. Inſt. R. H. 398. tab. 222. Goat's-rue.

The CHARACTERS are,

The empalement of the flower is ſhort, tubulous, and of one leaf, indented in five parts. The flower is of the butterfly kind; the ſtandard is oval, large, and reflexed; the wings are near the length of the ſtandard; the keel is erect, oblong, and compreſſed; the under ſide toward the point is rounded, but the upper is acute; there are ten ſtamina, which join above their middle, and are terminated by ſmall ſummits. In the center is ſituated a narrow, cylindrical, oblong germen, ſupporting a ſlender ſtyle, crowned by a ſtigma terminated by a puncture. The germen afterward becomes a long pointed pod, incloſing ſeveral oblong kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, which includes thoſe plants whoſe flowers have ten ſtamina joined in two bodies.

The SPECIES are,

1. GALEGA (*Officinalis*) leguminibus ſtrictis erectis, foliolis lanceolatis ſtrictis nudis. Lin. Sp. Plant. 1062. *Goat's-rue with erect cloſe pods, and ſpear-ſhaped naked leaves.* Galega vulgaris, floribus cæruleis. C. B. P. 352. *Common Goat's-rue with blue flowers.*
2. GALEGA (*Africana*) foliolis lanceolatis obtuſis, floribus ſpicatis longioribus, ſiliquis craſſioribus. *Goat's-rue with obtuſe ſpear-ſhaped leaves, flowers growing in longer ſpikes, and thicker pods.* Galega Africana, floribus majoribus ſiliquis craſſioribus. Tourn. Inſt. R. H. 399. *African Goat's-rue, with larger flowers and thicker pods.*
3. GALEGA (*Fruteſcens*) foliis ovatis, floribus paniculatis alaribus, caule fruticoſo. *Goat's-rue with oval leaves, and flowers growing in panicles from the ſides of the ſtalks, which are ſhrubby.* Galega Americana, foliis ſubrotundis, floribus coccineis. Houſt. MSS. *American Goat's-rue with roundiſh leaves and ſcarlet flowers.*
4. GALEGA (*Virginiana*) leguminibus retrofalcatis compreſſis villoſis ſpicatis, calycibus lanatis, foliolis ovali-oblongis acuminatis. Amœn. Acad. 3. p. 18. *Goat's-rue with hairy, compreſſed, ſickle-ſhaped pods, oblong oval-*

oval-pointed leaves, and woolly empalements. Orobus Virginianus, foliis fulva lanugine incanis, foliorum nervo in ſpinam aberunte. Pluk. Mant. 142.

5. GALEGA (*Purpurea*) leguminibus ſtrictis adſcendentibus glabris racemoſis terminalibus, ſtipulis ſubulatis, foliis oblongis glabris. Flor. Zeyl. 301. *Goats-rue with cloſe, ſmooth, aſcending pods, terminating the ſtalks in an oblong bunch, awl-ſhaped ſtipulæ, and oblong ſmooth leaves.* Coronilla Zelanica herbacea, flore purpuraſcente. Burm. Zeyl. 77.

The firſt ſort grows naturally in Italy and Spain, but is propagated in the Engliſh gardens for medicinal uſe. This hath a perennial root, compoſed of many ſtrong fibres, which are frequently jointed, from which ariſe many channelled hollow ſtalks, from two to three feet high, which are garniſhed with winged leaves, compoſed of ſix or ſeven pair of narrow ſpear-ſhaped lobes, terminated by an odd one, which are ſmooth and entire; the flowers terminate the ſtalks growing in ſpikes, they are of the Pea-bloſſom ſhape, and of a pale blue colour, and are diſpoſed in looſe ſpikes. They appear in June, and are ſucceeded by taper pods about one inch and a half in length, having one row of kidney-ſhaped ſeeds, which ripen toward the end of Auguſt.

There is a variety of this with white flowers, and another with variegated flowers, which have accidentally been produced from ſeeds, ſo are not conſtant, therefore are only mentioned here.

The ſecond ſort grows naturally in Africa; this differs from the former, in having larger leaves, which are compoſed of eight or ten pair of lobes, broader and blunter at their ends than thoſe of the common ſort; the flowers are larger, and the ſpikes are longer; the ſeed-pods are alſo much thicker than thoſe of the common ſort, but in other reſpects are very like it.

Theſe plants are propagated by ſeeds, which may be ſown either in the ſpring or autumn, upon a bed of ground in an open ſituation; and when the plants come up, they muſt be kept clean from weeds till they are ſtrong enough to remove; then a ſpot of ground ſhould be prepared, in ſize proportionable to the quantity of plants deſigned; this ſhould be well dug, and cleared from the roots of all noxious weeds; then the plants ſhould be carefully taken up, and planted in rows at a foot and a half diſtance, and in the rows one foot aſunder, obſerving to water them till they have taken new root; after which they will require no farther care to keep them clean from weeds, which may be eaſily done by hoeing of the ground frequently between the plants, and in the ſpring the ground between the rows ſhould be dug, which will encourage their roots, and cauſe them to ſhoot out vigorous ſtalks; and if their ſtalks are cut down before the ſeeds are formed every year, the roots will continue the longer, eſpecially if they grow on a light dry ſoil. The ſeeds of theſe will grow whereever they are permitted to ſcatter, ſo that plenty of the plants will come up without any care, and theſe may be tranſplanted and managed in the ſame manner as is before directed.

The firſt ſort is uſed in medicine; it is accounted cordial, ſudorific, and alexipharmic, ſo very good againſt peſtilential diſtempers, expelling the venom through the pores of the ſkin, and is of uſe in all kinds of fevers. Mr. Boyle, in his treatiſe of the Wholſomeneſs and Unwholſomeneſs of the Air, beſtows three or four pages, in celebrating the virtues of Goats-rue in peſtilential and malignant diſeaſes, from his own obſervation and experience.

The third ſort was diſcovered by the late curious botaniſt Dr. William Houſtoun, at Campeachy, from whence he ſent the ſeeds into Europe. This plant is propagated by ſeeds, which muſt be ſown on a hot-bed early in the ſpring; and when the plants come up, and are fit to tranſplant, they muſt be tranſplanted each into a ſeparate ſmall pot, and plunged into a hot-bed of tanners bark, ſhading them from the ſun till they have taken new root; then they muſt be treated as hath been directed for other tender plants, which are kept in the bark-ſtove. With this management they will flower in July, and in September they will perfect their ſeeds, but the plants may be preſerved through the winter in the bark-ſtove.

The fourth ſort grows naturaly in Virginia and Carolina; this hath a perennial root, and an annual ſtalk which riſes three feet high; the lobes of the leaves are oblong and oval, generally ſeven or nine to each leaf: the whole plant is covered with a ſilvery down. The flowers are of a red colour, and are produced in ſpikes at the end of the branches: theſe are ſucceeded by ſickle-ſhaped compreſſed pods of a ſilvery colour, containing one row of kidney-ſhaped ſeeds.

This plant, although it is tolerable hardy, yet it is with difficulty preſerved in gardens; for the ſeeds rarely ripen in England, and the plants are often deſtroyed by froſt in winter. The only method in which I have been able to keep the plant, has been by potting them, and placing them in a common frame in winter, where they enjoyed the free air in mild weather, but were protected from froſt; in this way I have kept the plant three years, but it has not ripened ſeeds here.

The fifth ſort grows naturally in Ceylon, and in many parts of India, from whence I have received the ſeeds. This ſort was annual here, and decayed before the ſeeds were ripe. It hath an herbaceous ſtalk, which riſes two feet high, garniſhed with winged leaves, compoſed of eight or nine pair of oval lobes, terminated by an odd one; the foot-ſtalks of the flowers come out oppoſite to the leaves; theſe ſuſtain a long looſe ſpike or thyrſe of ſmall purple flowers, which are ſucceeded by ſlender erect pods.

This may be cultivated in the ſame way as the third ſort; and if the plants are brought forward early in the ſpring, if the ſummer proves warm, the ſeeds may ripen.

GALENIA. Lin. Gen. Plant. 443. Sherardia. Ponted. Epiſt. 14.

The title of this genus was given to it by Dr. Linnæus, from the famous phyſician Galen.

The CHARACTERS are,

The flower hath a ſmall quadrifid empalement of one leaf; it hath no petals, but hath eight hairy ſtamina the length of the empalement, terminated by double ſummits. In the center is ſituated a roundiſh germen, ſupporting two reflexed ſtyles, crowned by ſimple ſtigmas. The empalement afterward becomes a roundiſh capſule with two cells, containing two oblong angular ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's eighth claſs, intitled Octandria Digynia, which includes thoſe plants whoſe flowers have eight ſtamina and two ſtyles.

We know but one SPECIES of this genus, viz.

GALENIA (*Africana.*) Hort. Cliff. 150. *Shrubby Galenia.* Sherardia. Ponted. Epiſt. 14. and the Atriplex Africana, lignoſa fruteſcens, roſmarini foliis. Hort. Piſ. 20. *Shrubby African woody Atriplex, with Roſemary leaves.*

This ſhrub grows naturally at the Cape of Good Hope, and in other parts of Africa; it riſes with a ſhrubby ſtalk about four or five feet high, ſending out many weak branches, garniſhed with very narrow leaves, which are placed irregularly on every ſide the branches; they are of a light green, with a furrow running longitudinally through the middle; the flowers are produced in looſe panicles from the ſide and at the end of the branches; they are very ſmall, and have no petals, ſo make little appearance. The flowers come out in July and Auguſt, but are not ſucceeded by ſeeds in England.

This plant will not live through the winter in the open air in England, ſo muſt be placed in the green-houſe, or under a frame, with other hardy exotic plants, where it may have a large ſhare of air in mild weather, for it only requires to be protected from froſt. In the ſummer it may be expoſed in the open air, with other plants of the ſame country, and in dry weather it muſt be frequently watered. This may be propagated by cuttings, which, if planted during any of the ſummer months, and watered frequently, will take root in about five or ſix weeks, and may then be treated as is directed for the old plants.

GALEOPSIS. Lin. Gen. Plant. 637. Tourn. Inſt. R. H. 185. tab. 86. Stinking Dead Nettle.

The Characters are,

The empalement of the flower is tubulous, of one leaf, cut into five ſegments, which end in acute points. The flower is of the lip kind, having a ſhort tube; the chaps are a little broader, but the length of the empalement; from the baſe to the under lip, it is on both ſides ſharply indented; the upper lip is concave, roundiſh, and ſawed at the top; the under lip is trifid, the middle ſegment being the largeſt, which is crenated. It hath four ſtamina incloſed in the upper lip, two being ſhorter than the other, terminated by roundiſh bifid ſummits. In the center is ſituated a quadrifid germen, ſupporting a ſlender ſtyle, crowned by a bifid acute ſtigma. The germen afterward become four naked ſeeds, ſitting in the rigid empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, which includes thoſe plants whoſe flowers have two long and two ſhort ſtamina, and the ſeeds are naked.

The Species are,

1. Galeopsis (*Ladanum*) internodiis caulinis æqualibus, verticillis omnibus remotis. Lin. Sp. Plant. 579. *Stinking Hedge Nettle, with equal diſtances between the joints, and whorls growing at a diſtance.* Sideritis arvenſis anguſtifolia rubra. C. B. P. 233. *Red narrow-leaved Field Ironwort.*
2. Galeopsis (*Tetrahit*) internodiis ſuperne incraſſatis, verticillis ſummis ſubcontiguis. Lin. Sp. Plant. 579. *Stinking Hedge Nettle, whoſe joints are thicker above, and the whorls at the top growing near each other.* Lamium cannabino folio vulgare. Raii Syn. Ed. 3. p. 240. *Common Dead Nettle with a Hemp leaf.*
3. Galeopsis (*Specioſa*) corollâ flavâ, labio inferiore maculato. Flor Lapp. 193. *Stinking Hedge Nettle with a yellow flower, whoſe under lip is ſpotted.* Lamium cannabinum aculeatum flore luteo ſpecioſo, labiis purpureis. Pluk. Alm. 204. *Prickly Hemp Dead Nettle, with a beautiful yellow flower and purple lips.*
4. Galeopsis (*Galeobdolon*) verticillis ſexfloris, involucro tetraphyllo. Lin. Sp. Plant. 780. *Stinking Hedge Nettle with ſix flowers in each whorl, and a four-leaved involucrum.* Galeopſis ſive urtica iners flore luteo. J. B. 3. 323. *Stinking or Dead Nettle with a yellow flower.*
5. Galeopsis (*Orientale*) verticillis bifloris, foliis oblongo-cordatis. *Stinking Hedge Nettle with two flowers in each whorl, and oblong heart-ſhaped leaves.* Galeopſis Orientalis ocimaſtri folio, flore majore flaveſcente. H. R. Par. *Eaſtern ſtinking Hedge Nettle, with an Ocimaſtrum leaf, and a larger yellowiſh flower.*
6. Galeopsis (*Hiſpanica*) caule piloſo, calycibus labio corollæ ſuperiore longioribus. Lin. Sp. Plant. 580. *Stinking Hedge Nettle with a hairy ſtalk, and the empalement longer than the upper lip of the petal.* Galeopſis annua Hiſpanica, rotundiore folio. Inſt. R. H. 186. *Annual Spaniſh ſtinking Hedge Nettle, with a rounder leaf.*

Theſe are all of them annual plants, except the fourth ſort; the three firſt grow naturally in England. The firſt is found upon arable land in many places; the ſecond grows upon dunghills, and by the ſide of paths, in many parts of England. The third ſort grows chiefly in the northern counties, but I have found it growing wild in Eſſex, within ten miles of London. Theſe plants are ſeldom cultivated in gardens, for if their ſeeds are permitted to ſcatter, the plants will come up as weeds wherever they are allowed a place.

The fourth is a perennial plant with a creeping root; this grows in the woods and under hedges in moſt parts of England. The fifth grows in the Levant; this is a biennial plant, which periſhes ſoon after the ſeeds are ripe. It is preſerved in botanic gardens for the ſake of variety, but hath no great beauty.

GALEOPSIS FRUTESCENS. See Prasium.

GALIUM. Lin. Gen. Plant. 117. Tourn. Inſt. R. H. 114. tab. 39. Ladies Bedſtraw, or Cheeſe-rennet; in French, *Caillelait*.

The Characters are,

The flower hath a ſmall empalement indented in four parts, ſitting upon the germen. It hath one petal, divided into four ſegments almoſt to the bottom; and four awl-ſhaped ſtamina which are ſhorter than the petal, terminated by ſingle ſummits. It hath a twin germen ſituated under the flower, ſupporting a ſlender half bifid ſtyle, crowned by a globular ſtigma. The germen afterward become two dry berries, which are joined together, each incloſing a large kidney-ſhaped ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, which includes thoſe plants whoſe flowers have four ſtamina and one ſtyle.

The Species are,

1. Galium (*Verum*) foliis octonis linearibus ſulcatis, ramis floriferis brevibus. Hort. Cliff. 34. *Ladies Bedſtraw with eight narrow furrowed leaves, and ſhort flowering branches.* Galium luteum. C. B. P. 335. *Yellow Ladies Bedſtraw.*
2. Galium (*Mollugo*) foliis octonis ovato-linearibus ſubſerratis patentiſſimis mucronatis, caule flaccido, ramis patentibus. Lin. Sp. Plant. 107. *Ladies Bedſtraw with eight oval narrow leaves, which are ſpread open, ſawed, and pointed, a weak ſtalk, and ſpreading branches.* Mollugo montana latifolia ramoſa. C. B. P. 333. *Branching broad-leaved Mountain Mollugo.*
3. Galium (*Purpureum*) foliis verticillatis lineari-ſetaceis, pedunculis folio longioribus. Hort. Cliff. 34. *Ladies Bedſtraw with narrow briſtly leaves growing in whorls, and foot-ſtalks of the flowers longer than the leaves.* Galium nigro-purpureum montanum tenuifolium. Col. Ecphr. 1. p. 298. C. B. P. 335. *Narrow-leaved Mountain Ladies Bedſtraw, with a black purple flower.*
4. Galium (*Glaucum*) foliis verticillatis linearibus pedunculis dichotomis, ſummo caule floriferis. Prod. Leyd. 256. *Ladies Bedſtraw with narrow leaves growing in whorls, foot-ſtalks divided by pairs, and flowers growing at the top of the ſtalk.* Galium ſaxatile glauco folio. Bocc. Muſ. 2. p. 172. *Rock Ladies Bedſtraw with a gray leaf.*
5. Galium (*Rubrum*) foliis verticillatis linearibus patulis, pedunculis breviſſimis. Hort. Cliff. 34. *Ladies Bedſtraw with narrow leaves growing in whorls, and ſhort foot-ſtalks.* Galium rubrum. C. B. P. 335. *Red Ladies Bedſtraw.*
6. Galium (*Boreale*) foliis quaternis lanceolatis trinerviis glabris, caule erecto, ſeminibus hiſpidis. Flor. Lappon. 60. *Ladies Bedſtraw with four ſmooth ſpear-ſhaped leaves having three veins, an upright ſtalk, and rough ſeeds.* Rubia pratenſis lævis acuto folio. C. B. P. 333. *Smooth Meadow Madder with an acute leaf.*
7. Galium (*Album*) foliis verticillatis, lineari-lanceolatis, ramis floriferis longioribus. *Ladies Bedſtraw with narrow ſpear-ſhaped leaves growing in whorls, and longer branches of flowers.* Galium album vulgare. Tourn. Inſt. R. H. 113. *Common white Ladies Bedſtraw.*
8. Galium (*Linifolium*) foliis lineari-lanceolatis glabris, caule erecto ramoſiſſimo. *Ladies Bedſtraw with ſeven narrow, ſmooth, ſpear-ſhaped leaves, and an upright branching ſtalk.* Galium album linifolium. Barrel. Obſer. 99. *White Ladies Bedſtraw with a Flax leaf.*
9. Galium (*Paluſtre*) foliis quaternis obovatis inæqualibus, caulibus diffuſis. Flor. Suec. 119. *Ladies Bedſtraw with four unequal oval leaves, and a diffuſed ſtalk.* Galium paluſtre album. C. B. P. 335. *White Marſh Ladies Bedſtraw.*

The firſt of theſe plants (which is the ſort commonly uſed in medicine) is very common in moiſt meadows, and in paſture grounds, in ſeveral parts of England. The other varieties are preſerved in curious botanic gardens, but as they are plants of very little beauty, and are ſubject to ſpread very far, and over-run whatever plants grow near them, they are ſeldom cultivated in other gardens.

Theſe ſorts may any of them be propagated by parting their roots, which ſpread and increaſe very faſt, either in the ſpring or autumn, and will grow almoſt in any ſoil or ſituation, eſpecially the firſt ſort; the other ſorts require a drier ſoil, but will all grow in any ſituation.

GALLERIES, are ornaments made with trees of various kinds, which are very common in all the French gardens, but are ſeldom introduced into the Engliſh gardens, eſpecially ſince the taſte for clipped trees has been exploded; but as there may be ſome who yet fancy theſe obſolete ornaments, I ſhall juſt mention the way of conſtructing them.

In order to make a gallery in a garden with porticoes and arches, a line muſt firſt be drawn of the length you deſign the gallery to be; which being done, it is to be planted with Hornbeam, as directed under the article Hornbeam; which Hornbeam thus planted, is to be the foundation of the gallery.

The management of them is not very difficult; they require only to be digged about, and ſheared a little when there is occaſion.

The chief curioſity required is in the ordering the fore-part of the gallery, and in forming the arches.

Each pillar of the porticoes or arches ought to be four feet diſtant one from the other; the gallery twelve feet high, and ten feet wide, that there may be room for two or three perſons to walk a-breaſt.

When the Hornbeams are grown to the height of three feet, the diſtance of the pillars well regulated, and the ground-work of the gallery finiſhed, the next thing to be done is to form the frontiſpiece: to perform which you muſt ſtop the Hornbeam between two pillars at the height, and run up a trellis made for that purpoſe, which forms the arch.

As it grows up you muſt with your ſhears even thoſe boughs that outſhoot the others; in time they will grow ſtrong, and may be kept in form by the ſhears.

Portico galleries may be covered with Lime-trees.

GARCINIA. Lin. Gen. Plant. 526. The Mangoſteen.

The Characters are,

The flower hath a one-leaved empalement, which is permanent. It hath four roundiſh concave petals, which ſpread open, and are larger than the empalement. It hath ſixteen ſtamina which are erect, and form a cylinder, terminated by roundiſh ſummits. In the center is ſituated an oval germen, with ſcarce any ſtyle, but is crowned by a buckler-ſhaped plain ſtigma divided into eight parts, and is permanent. The germen afterward becomes a thick globular berry with one cell, including eight hairy fleſhy ſeeds, which are convex and angular.

This genus of plants is ranged in the firſt ſection of Linnæus's eleventh claſs, intitled Dodecandria Monogynia, which includes thoſe plants whoſe flowers have twelve ſtamina and one ſtyle.

We have but one Species of this genus, viz.

Garcinia (*Mangoſtana.*) Hort. Cliff. 182. *The Mangoſtan, or Mangoſteen.* Arbor peregrina aurantio ſimili fructu. Cluſ. Exot. 12. *Foreign Tree with a fruit like the Orange.*

This tree grows naturally in the Molucca Iſlands, and alſo in the inland parts of New Spain, from whence I received perfect ſpecimens, which were ſent me by Mr. Robert Millar, who gathered them near Tolu, but did not know the tree. It riſes with an upright ſtem near twenty feet high, ſending out many branches on every ſide, which are placed oppoſite, and ſtand oblique to each other, and not at right angles; the bark of the branches is ſmooth, of a gray colour, but on the tender ſhoots it is green, and that of the trunk is of a darker colour and full of cracks: the leaves are of the ſpear-ſhape, and entire; they are ſeven or eight inches long, and about half ſo much in breadth in the middle, gradually diminiſhing to both ends, of a lucid green on their upper ſide, and of an Olive colour on their under, having a prominent midrib through the middle, with ſeveral ſmall veins running from that to both ſides of the leaf. The flower is like that of a ſingle Roſe, compoſed of four roundiſh petals, which are thick at their baſe, but are thinner toward their ends; they are of a dark red colour. The fruit which ſucceeds the flower is round, the ſize of a middling Orange; the top is covered by a cap, which was the ſtigma on the top of the ſtyle, and remains to the top of the fruit, and is indented in rays to the number of ſix or ſeven, which are obtuſe. The ſhell of the fruit is like that of the Pomegranate, but ſofter, thicker, and fuller of juice; it is green at firſt, but changes to a dark brown with ſome yellowiſh ſpots; the inſide of the fruit is of a Roſe colour, and divided into ſeveral parts by thin partitions, as in Oranges, in which the ſeeds are lodged, ſurrounded by a ſoft juicy pulp of a delicious flavour, partaking of the Strawberry and the Grape, and is eſteemed one of the richeſt fruits in the world; the trees naturally growing in the form of Pyrabolas, whoſe branches are well garniſhed with large ſhining green leaves: they have an elegant appearance, and afford a kindly ſhade in hot countries, therefore are worthy of cultivation, in all thoſe countries where there is warmth enough to ripen the fruit.

As there are but few of the ſeeds in theſe fruit which come to perfection (for the greateſt part of them are abortive) ſo moſt of thoſe which have been brought to Europe have failed; therefore the ſureſt way to obtain the plants, is to ſow their ſeeds in tubs of earth in the country, and when the plants have obtained ſtrength, they may be brought to Europe; but there ſhould be great care taken in their paſſage, to ſcreen them from ſalt water and the ſpray of the ſea, as alſo not to give them much water, eſpecially when they are in a cool or temperate climate, for theſe plants are very impatient of wet. When the plants arrive in Europe, they ſhould be carefully tranſplanted, each into a ſeparate pot, filled with light kitchen-garden earth, and plunged into the tan-bed, obſerving to ſhade them from the ſun till they have taken new root; then they muſt be treated in the ſame manner as other tender plants from hot countries.

GARDENS are diſtinguiſhed into flower-gardens, fruit-gardens, and kitchen-gardens: the firſt, being deſigned for pleaſure and ornament, are to be placed in the moſt conſpicuous parts, i. e. next to, or juſt againſt the back front of the houſe; the two latter being principally intended for uſe and ſervice, are placed leſs in ſight.

Though the fruit and kitchen-gardens are here mentioned as two diſtinct gardens, and have by the French gardeners, as alſo by ſome of our own countrymen been contrived as ſuch, yet they are now uſually in one; and with good reaſon, ſince they both require a good ſoil and expoſure, and will equally require to be placed out of the view of the houſe. And as it will be proper to incloſe the kitchen-garden with walls, and to ſecure the gates, that no perſons may have acceſs to it, who have no buſineſs in it, for the ſake of preſerving the product, ſo theſe walls will anſwer the purpoſes of both. Moreover, in the diſpoſition of the kitchen-garden, when it is properly divided into quarters, the planting of eſpaliers of fruit-trees round each of the quarters, will be of uſe in ſcreening from the view the kitchen-herbs growing in the quarters; and, by that means, give an elegancy to both parts, and ſave beſides a great expence. The only objection which has been made to this of any conſequence is, that the gardeners are too apt to crowd the borders near the walls with kitchen-herbs, whereby the trees are deprived of their nouriſhment; but this is in every gentleman's power to redreſs, by not ſuffering the borders to be thus crowded. But I ſhall treat more fully of this under the article of Kitchen-Garden.

In the choice of a place to plan a garden in, the ſituation and expoſure of the ground are the moſt eſſential points to be regarded; ſince, if a failure be made in that point, all the care and expence will in a manner be loſt.

In a garden for pleaſure, the principal things to be conſidered, are, 1ſt, the ſituation; 2dly, the ſoil, aſpect, or expoſure; 3dly, water; 4thly, proſpect.

1ſt, Situation: this ought to be ſuch an one as is wholſome, in a place that is neither too high nor too low; for if a garden be too high, it will be expoſed to the winds, which are very prejudicial to trees; if it be too low, the dampneſs of the ground, the vermin, and venomous creatures that breed in ponds and marſhy places, add much to their inſalubrity.

A ſituation on a riſing ground, or on the ſide of a hill, is moſt happy, eſpecially if the ground be not too ſteep; if the ſlope be eaſy, and in a manner imperceptible; if a good deal of level may be had near the houſe; and if it abounds with ſprings of water; for, being ſheltered from the fury of the winds, and the violent heat of the ſun, a temperate air will be there enjoyed; and the water that deſcends from the top of the hills, either from ſprings or rain, will not only ſupply fountains, canals, and caſcades, for ornament, but when it has performed its office, will water the adjacent valleys, and render them fertile and wholſome, if it be not ſuffered to ſtagnate in them.

Indeed, if the declivity of the hill be too ſteep, and if the water be too abundant, a garden on the ſide of it may often ſuffer, by having the trees torn up by the torrents and floods; and the earth above tumbling down, the walls may be demoliſhed, and the walks ſpoiled.

It cannot however be denied, that the ſituation on a plain or flat, has ſeveral advantages that the higher ſituation has not: floods and rains make no ſpoil; there is a continued proſpect of champaigns, interſected by rivers, ponds, brooks, meadows and hills, covered with buildings or woods; and the level ſurface is leſs tireſome to walk on, and leſs chargeable, than that on the ſide of a hill; the terrace-walks and ſteps are not neceſſary; but the greateſt diſadvantage of flat gardens is the want of an extenſive proſpect, which riſing grounds afford.

2dly, The ſecond thing to be conſidered in chuſing a plat for a garden, is a good earth or ſoil.

It is ſcarce poſſible to make a fine garden in a bad ſoil; there are indeed ways to meliorate ground, but they are very expenſive; and ſometimes, when the expence has been beſtowed of laying good earth two feet deep over the whole ſurface, which for a large garden is an expence too great for moſt perſons; and after this a whole garden has been ruined, notwithſtanding the expoſure has been ſoutherly and healthful, when the roots of the trees have come to reach the natural bottom.

To judge of the quality of the ſoil, obſerve whether there be any Heath, Thiſtles, or ſuch like weeds, growing ſpontaneouſly in it, for they are certain ſigns that the ground is poor. Likewiſe if there be large trees growing thereabouts, obſerve whether they grow crooked, ill-ſhaped, of a faded green, and full of moſs, or infeſted with vermin; if ſo, the place is to be rejected: but on the contrary, if it be covered with good Graſs fit for paſture, then you may be encouraged to try the depth of the ſoil.

To know this dig holes in ſeveral places, ſix feet wide and four feet deep; if you find three feet of good earth it will do well, but leſs than two will not be ſufficient.

The quality of good ground is neither to be ſtony, nor too hard to work; neither too dry, nor too moiſt; nor too ſandy and light, nor too ſtrong and clayey, which is the worſt of all for gardens.

3dly, The third requiſite is water. The want of this is one of the greateſt inconveniencies that can attend a garden, and will bring a certain mortality upon whatever is planted in it, eſpecially in the greater droughts that often happen in a hot and dry ſituation in ſummer; beſides the uſefulneſs of it in fine gardens, for making jets d'eau, canals, caſcades, &c. which are the greateſt ornaments of a garden.

4thly, The fourth thing required in a good ſituation is, the view and proſpect of a fine country; and though this is not ſo abſolutely neceſſary as water, yet it is one of the moſt agreeable beauties of a fine garden: beſides, if a garden be planted in a low place that is buried, as I may ſay, and has no kind of proſpect, it will be not only diſagreeable but unwholſome, by being too much ſhaded and obſcured; as the trees will rather retain inſalubrious damps, than communicate the refreſhing air, that is ſo purifying to vegetable nature.

In ſhort, a garden neceſſarily requires (beſides the care of the gardener) the ſun, a good ſoil, a full, or at leaſt an open proſpect, and water, the laſt above all; and it would be egregious folly to plant a garden where any of theſe are wanting.

Of the Deſigning or Manner of Laying out a Pleaſure Garden.

The area of a handſome garden may take up thirty or forty acres, not more.

And as for the diſpoſition and diſtribution of this garden, the following directions may be obſerved.

1ſt, There ought always to be a deſcent from the houſe to the garden not fewer than three ſteps, but if there are ſix or ſeven it will be better. This elevation of the building will make it more dry and wholſome, alſo from the head of theſe ſteps there will be a farther proſpect or view of the garden.

In a fine garden, the firſt thing that ſhould preſent itſelf to the ſight, ſhould be an open lawn of Graſs, which, in ſize, ſhould be proportionable to the garden; in a large garden it ſhould not be leſs than ſix or eight acres; but in middling or ſmall gardens, the width of it ſhould be conſiderably more than the front of the houſe; and if the depth be one half more than the width, it will have a better effect. The figure of this lawn need not be regular, and if on the ſides there are trees planted irregularly, by way of open grove, ſome of which may be planted forwarder upon the lawn than the others, whereby the regularity of the lawn will be broken, it will render it more like nature, the beauties of which ſhould always be ſtudied in the laying out and planting of gardens; for the nearer theſe gardens approach to nature, the longer they will pleaſe; for what is a garden, but a natural ſpot of ground dreſſed and properly ornamented? there are thoſe who have erred in copying of what they call nature, as much as thoſe who have drawn a whole garden into ſtrait lines, great alleys, ſtars, &c. by bringing the rougheſt and moſt deformed part of nature into their compoſitions of gardens: as for inſtance, where the ground has been naturally level, they have at great expence, made hollows and raiſed mole-hills; ſo that the turf has been rendered not only more unpleaſant to walk upon, but much worſe to keep: and after all the pains that have been taken to ape nature, the whole is as eaſily diſcovered to be the work of art, as the ſtiffeſt ſlopes and the moſt finiſhed parterres.

The great art in laying out of gardens, is to adapt the ſeveral parts to the natural poſition of the ground, ſo as to have as little earth to remove as poſſible; for this is often one of the greateſt expences in making of gardens; and it may with truth be affirmed, that wherever this has been practiſed, nine times in ten it has proved for the worſe; ſo that if inſtead of levelling hills to form large terraces, ſtiff ſlopes, and even parterres, as have been too often practiſed; or the ſinking of hollows, and raiſing of hills, as hath by others been done; if the ſurface of the ground had only been ſmoothed and well turfed, it would have had a much better effect, and been more generally approved than the greateſt number of theſe gardens, which have been made with an infinite expence both of time and money.

The next thing to be obſerved is, to contrive a dry walk, which ſhould lead quite round the whole garden; for as gardens are deſigned to promote the exerciſe of walking, the greater the extent of this dry walk, the better it will anſwer the intent; ſince in bad weather, or in dewy mornings and evenings, when the fields are unpleaſant or unſafe to walk over, theſe dry walks in gardens become uſeful and pleaſant; and ſuch walks, if laid either with gravel or ſand, may lead through the different plantations, gently winding about in an eaſy natural way, which will be more agreeable than thoſe long ſtrait walks, which are too frequently ſeen in gardens.

But as the taſte of deſigning gardens has of late altered from the former method, there are many perſons who have gone into the oppoſite extreme; and in the forming of what they term ſerpentine walks, have twiſted them about in ſo many ſhort turns, as to render it very diſagreeable to walk on them; and at the ſame time they ſtrike the ſight with as much ſtiffneſs and appearance of art, as any of the methods formerly practiſed. In ſhort, the fewer turns there are in theſe walks, and the more they are concealed, the better they will pleaſe; and yet the turns being eaſy, and at great diſtances, will take off all the appearance of ſtraitneſs. And here let me obſerve, that there can be no better, or more eaſy or natural method of laying out theſe walks, than by tracing the eaſy turns made on a road, where it bends by the track of the coach wheels.

Theſe walks ſhould be ſo contrived, as to lead into ſhade as ſoon as poſſible; as alſo into ſome plantations of ſhrubs, where perſons may walk in private, and be ſheltered from the wind; for no garden can be pleaſing where there is want of ſhade and ſhelter.

Another thing abſolutely neceſſary is, where the boundaries of the garden are fenced with walls or pales, they ſhould be hid by plantations of flowering ſhrubs, intermixed with Laurels, and ſome other Evergreens, which will have a good effect, and at the ſame time conceal the fences, which are diſagreeable, when left naked and expoſed to the ſight.

In ſituations where there is a good ſupply of water, the deſigner has room for adding one of the greateſt beauties to the garden, eſpecially if it will admit of a conſtant ſtream; for in ſuch places, if the water is properly conducted through the garden, it will afford infinite pleaſure; for although theſe ſtreams may not be ſufficient to ſupply a large ſurface, yet if theſe narrow rivulets are judiciouſly led about the garden, they will have a better effect than many of the large ſtagnating ponds or canals, ſo frequently made in large gardens; for where theſe pieces of water are large, if all the boundaries can be ſeen from one point of view, they cannot be eſteemed by perſons of judgment; and frequently theſe ſtanding waters are brought ſo near the houſe, as to render the air damp and unhealthy; and many times they are ſo ſituated, as to occaſion this inconvenience, and at the ſame time are not ſeen to any advantage from the houſe.

Where wilderneſſes are intended, theſe ſhould not be cut into ſtars, and other ridiculous figures, nor formed into mazes or labyrinths, which in a great deſign is trifling, but the walks ſhould be noble, and ſhaded by tall trees; and the ſpaces of the quarters planted with flowering ſhrubs and Evergreens, whereby they will be rendered pleaſant at all ſeaſons of the year; and if there are hardy ſorts of flowers (which will thrive with little care) ſcattered about near the ſides of the walks, they will have a very good effect, in making a variety of natural beauties almoſt through the year.

The ſituation of theſe wilderneſſes ſhould not be too near the houſe, leſt they ſhould occaſion damps; therefore it is much better to contrive ſome open groves, through which there may be a communication under ſhade, from the houſe to theſe wilderneſſes; which are much the beſt when they are planted at the fartheſt part of the garden, provided they do not obſtruct the view of fine objects.

Buildings are alſo very great ornaments to a garden, if they are well deſigned and properly placed; but the modern taſte of crowding gardens with large uſeleſs buildings, I preſume to think is cenſurable, with regard as well to propriety as expence.

Statues and vaſes are alſo very beautiful objects, but theſe ſhould by no means be placed too near each other; for when ſeveral of them appear at once, they fill and confound the eye, and loſe the beautiful effect which they would have, if now and then one properly ſituated engages the ſight.

What an expence might be ſpared, and applied to nobler purpoſes, if nature only were to be imitated, if ſimplicity were ſtudied in this delightful art, rather than oſtentation! for any thing may be ſaid to be more of nature, than what we miſcall grandeur.

Fountains are alſo very ornamental to a garden, if they are magnificently built, and where a conſtant ſupply of water can be obtained; but if they are meanly erected, or have not water to keep them conſtantly running, they ſhould never be introduced into gardens, for nothing can be more ridiculous than to ſee a dry fountain; which, perhaps, at a great expence, may have water forced up, to ſupply it for an hour or two, and no more; and this perhaps not in dry ſeaſons, when there is a general ſcarcity of water.

The ſame may alſo be obſerved of caſcades, and other falls of water, which ought never to be contrived in gardens, where there cannot be a conſtant run of water; but where the ſituation of a garden is ſo happy, as to be naturally ſupplied with water, theſe falls and jet's d'eau, may be rendered very great beauties, eſpecially if they are well deſigned, and not made in the low mean taſte, in which too many of thoſe now in being appear, and where the water is made to fall over a parcel of regular ſteps of ſtone; but the fall ſhould be in one ſheet from top to bottom, where ſhould be placed many large rough ſtones to break and diſperſe the water, and to increaſe the noiſe of the fall.

Where the ground is naturally uneven, and has gentle riſes and falls, theſe may be ſo humoured in the laying out of the ground, as to be rendered very great beauties; but theſe inequalities of the ground muſt by no means be cut into regular ſtiff ſlopes, nor amphitheatres, as has been too much the practice: but if the knolls are properly planted with clumps of trees or ſhrubs, and the ſloping ſides ſmoothed and left in their natural poſition, they will have a much better effect, than can be given them by all the regular angles, lines, and flat ſlopes, which have been till of late, introduced by all the deſigners of gardens.

The taſte in laying out of gardens has greatly altered, and has been as greatly improved in England, in the compaſs of a few years; for, with the revolution, the Dutch taſte of laying out gardens was introduced, which conſiſted of little more than flower-borders laid out in ſeveral ſcrolls of Box-work, clipped Evergreens, and ſuch low expenſive things; as alſo the walling round, and dividing the ſeveral parts of gardens by croſs walls; ſo that a garden conſiſting of eight or ten acres, was generally divided by brick walls, into three or four ſeparate gardens; and theſe were reduced to exact levels, having many gravel-walks, and the borders on each ſide crowded with clipped trees and Evergreen hedges, dividing theſe ſmall incloſures again; ſo that the firſt making and planting of theſe ſmall gardens was attended with a greater expence, as was the keeping of them afterward, than gardens of ſix times the extent, when deſigned after nature.

Whether this taſte ſo univerſally prevailed in England, in complaiſance to his late Majeſty King William, or was owing to the low grovelling taſte of thoſe perſons, who had the deſigning of moſt of the Engliſh gardens, it is difficult to determine; but it is very certain, that the gentlemen, at that time, attended very little themſelves, to the diſpoſition of their gardens, but were contented to leave the whole direction of them to perſons of the meaneſt talents that ever profeſſed the art; ſo that ſoon after, when another taſte prevailed, theſe gardens were almoſt totally demoliſhed, and it would have been well, if a good, that is to ſay, a natural taſte had ſucceeded the other; but this was not the caſe; for though a more open and extenſive way of laying out gardens was introduced, yet this was little more than copying after the French, whoſe taſte was in making long avenues, ſtrait walks, ſtiff regular ſlopes, cabinets, fret-work, tall hedges cut into various ſhapes, jets d'eau, fountains, &c. ſo that there was little of nature ſtudied; but, on the contrary, all the geometrical figures introduced in wilderneſs-work, as alſo in the parterres, and other compartments of the garden: nor is it ſo much to be wondered at, that this taſte prevailed in France, when the deſigns of all the principal gardens were there formed by architects, who were as ſtudious to have the ſymmetry of the oppoſite, or correſponding part of the garden, as exact as the apartments of a habitation; nor has length of time, nor the improvements already made in other countries, amended their taſte, or convinced them of its abſurdity.

As the gardens of Verſailles, Marli, and others, were extolled for their magnificence, ſo the plans of them were almoſt univerſally copied; the deſigners, or imitators rather, only varying the parts according to the ſituation or figure of the ground; and this was practiſed for ſeveral years, at a time, when great ſums of money were expended in gardens, which might have rendered this country the moſt beautiful of any in Europe, had a natural taſte then prevailed in the deſigning of gardens; which is the more to be lamented, as the plantations then made, have been many of them rooted out, to make way for the alterations and improvements which have been ſince introduced.

Many perſons, I am ſenſible, will have it, that, in the deſigns of gardens, the taſte ſhould alter from time to time, as much as the faſhion of apparel; but theſe cannot be perſons of judgment; for whereever there are natural beauties in a country, they will always pleaſe perſons of real knowledge; and frequently it is obſerved, that perſons of but little ſkill in the art of gardening, are ſtruck with theſe beauties without knowing the cauſe; therefore where the beautiful parts of nature are juſtly imitated in gardens, they will always be approved by judicious perſons, let the taſte of gardening alter as it will.

When trees have been long growing in a garden, nothing can be more diſagreeable than to have them deſtroyed, to alter the garden according to the faſhion of the time, becauſe it requires much time to bring up trees to ſuch a height as to afford ſhade and ſhelter; and, as time is precious, ſo, where the diſpoſition of the garden is altered, there ſhould be great attention given to the preſervation of all the good trees, wherever they can be either uſeful or ornamental.

There is another eſſential part of gardening, which cannot be too much conſidered by perſons who deſign gardens, which is that of adapting the ſeveral ſorts of trees and ſhrubs, to the ſituation and ſoil of the garden, as alſo to allow the trees a proper ſhare of room; but, however neceſſary this will appear, yet very few perſons have made this their ſtudy, inſomuch that when one views many modern gardens, and ſees the great number of trees and ſhrubs, which are crowded into them, one would be induced to believe, that private intereſt has had a greater influence than any other motive, with the deſigners. Indeed this fault may often be aſcribed to the maſter, who, perhaps, is too much in haſte for ſhade and ſhelter, ſo will have three or four times the number of trees and ſhrubs planted as ſhould have been, or that can remain long without injury, where the plantations ſucceed; and to this over-haſte are owing the miſerable plantations of large trees, ſo often ſeen in gardens and parks, where trees of all ſorts, and of any age are taken out of woods, hedge-rows, &c. and removed at a great expence to ſtand and decay annually, till they become ſo many dead ſticks, than which nothing can be a more diſagreeable ſight to the owner; who, after an expectation for ſeveral years, attended with an expence of watering, digging, and cleaning, finds himſelf under a neceſſity either of replanting, or giving up the thoughts of having any. Numbers of perſons have indeed amuſed themſelves with the hopes of ſucceſs, by ſeeing theſe new planted trees put out branches for a year or two, which they generally do; but in three or four years after, inſtead of making a progreſs, they begin to decay at the top, and continue to do ſo gradually, until they quite periſh, which, perhaps, may not happen in eight or ten years, eſpecially if no ſevere winter, or very dry ſummer, intervenes, either of which generally proves fatal to theſe plantations; ſo that perſons may be led on with hopes, for ſo many years, in the beſt part of their lives, when there is a certainty of their failing, or at leaſt of their never increaſing in ſize; but of this I ſhall treat more fully in the article of Planting, and ſhall proceed.

In the buſineſs of deſigns, a mean and pitiful manner ſhould be ſtudiouſly avoided, and the aim ſhould be always at that which is noble and great, not to bring too many little things into a garden, nor to make ſmall pieces of water, narrow walks, &c. eſpecially in large gardens; for it is much better to have a few great things, than four times the number of ſmall ones, which are trifling. In ſmall gardens there is more excuſe for this, nor indeed would it be right, to have either large lawns, broad walks, or large pieces of water in ſuch; but yet even in theſe there ought to be a medium, and perſons ſhould never attempt to crowd too many things in theſe, whereby the whole will appear only as a mean and trifling model of a large garden.

Before the deſign of a garden is entered upon, it ought to be conſidered, what it will be in twenty or thirty years time, when the trees and ſhrubs are grown up, and ſpread; for it often happens, that a deſign, which looks handſome when it is firſt planted, and in good proportion, in proceſs of time becomes ſo ſmall and ridiculous, that there is a neceſſity either of altering or totally deſtroying it.

The general diſtribution of a garden, and of its parts, ought to be accommodated to the different ſituations of the ground, for a deſign may be very proper for a garden on a perfect level, which will by no means do for one where there are great inequalities in the ground; ſo that, as I have before intimated, the great art of deſigning is, in properly adapting the deſign to the ſituation, and contriving to ſave the expence of removing earth, to humour the inequalities of the ground, to proportion the number and ſorts of trees and ſhrubs to each part of the garden, and to ſhut out, from the view of the garden, no objects that may become ornamental.

There are, beſides theſe, many other rules relating to the proportions, conformity, and diſpoſition of the different parts and ornaments of gardens, of which more may be ſeen under their ſeveral articles.

GARDENIA. See Jasminum.

GARIDELLA. Tourn. Inſt. R. H. 655. tab. 430. Lin. Gen. Plant. 507. [This plant was ſo named by Dr. Tournefort, in honour of Dr. Garidel, who was profeſſor of phyſic, at Aix, in Provence.]

The Characters are,

The flower hath a ſmall, oblong, erect empalement of five leaves; it hath no petals, but five oblong equal nectariums occupy their place; theſe are bilabiate. The outer part of the under lip is bifid and plain; the interior part of the upper lip is ſhort and ſingle. The flower hath eight or ten awl-ſhaped ſtamina, which are ſhorter than the empalement, and are terminated by obtuſe erect ſummits. In the center is ſituated three germina, which are oblong, compreſſed, and ſharp-pointed, having no ſtyles, but crowned by ſimple ſtigmas; theſe become three oblong compreſſed capſules with two valves, incloſing ſeveral ſmall ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's tenth claſs, which includes thoſe plants whoſe flowers have ten ſtamina and three germen.

We know but one Species of this genus, viz.

Garidella (*Nigellaſtrum.*) Hort. Cliff. 170. Garidella foliis tenuiſſime diviſis. Tourn. *Garidella with very narrow divided leaves*; and the Nigella Cretica folio Fœniculi. C. B. P. 146. *Fennel-flower of Crete with a Fennel leaf.*

This plant is very near akin to the Nigella, or Fennel-flower, to which genus it was placed by the writers on botany before Dr. Tournefort, and was by him ſeparated from it, as differing in the form of the flower.

It grows wild in Candia, and on mount Baldus, in Italy, as alſo in Provence, where it was diſcovered by Dr. Garidel, who ſent the ſeeds to Dr. Tournefort, for the Royal Garden at Paris.

This is an annual plant, which riſes with an upright ſtalk a foot high, dividing into ſeveral ſlender branches, garniſhed at their joints with very ſlender leaves like thoſe of Fennel. The ſtalks are terminated by one ſmall flower, of a pale herbaceous colour, which is ſucceeded by three capſules, each containing two or three ſmall ſeeds. It flowers in June and July, and the ſeeds ripen in September. It is propagated by ſeeds, which ſhould be ſown in autumn, on a bed or border of light freſh earth, where the plants are deſigned to remain (for they ſeldom thrive if they are tranſplanted;) when the plants are come up, they muſt be carefully cleared from weeds, and where they are too cloſe, they muſt be thinned, leaving them about four or five inches apart; this is all the culture the plants require, and if the ſeeds are permitted to ſcatter, the plants will come up without any farther care.

GAULTHERIA.

The Characters are,

It hath a double permanent empalement; the outer has two oval, concave, ſhort leaves; the inner has one bell-ſhaped leaf cut into five ſegments; the flower has one oval petal, cut half-way into five ſegments, which are reflexed; it has ten awl-ſhaped nectarii, which are ſhort, ſurrounding the germen and ſtamina, and ten awl-ſhaped incurved ſtamina inſerted to the receptacle, terminated by bifid horned ſummits, and a roundiſh depreſſed germen, ſupporting a cylindrical ſtyle, crowned by an obtuſe ſtigma; the germen afterward becomes an obtuſe five-cornered capſule, having five cells, faſtened to the interior empalement, which turns to a berry open at the top, filled with hard angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, the flower having ten ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Gaultheria (*Procumbens.*) Amœn. Acad. 3. p. 14. *Trailing Gaultheria.* Vitis Idæa Canadenſis, pyrolæ folio. Tourn. Inſt. 608. *Canada Wortle-berry with a winter-green leaf.*

This plant grows naturally in ſeveral parts of North America upon ſwampy ground, ſo is with difficulty preſerved in the Engliſh gardens. The branches of this trail upon the ground, and become ligneous, but never riſe upward; they are garniſhed with oval entire leaves, placed alternate; the flowers are produced on the ſide of the branches; they are of an herbaceous colour, ſo make little appearance, and very rarely are ſucceeded by fruit in England.

The only method in which I have ſucceeded to keep this plant, was by planting of it in a pot, filled with looſe undunged earth, placing it in the ſhade, and frequently watering it; with this management I have kept the plant alive three years, and have had flowers but no fruit.

GAURA.

The Characters are,

It hath an empalement of one leaf, which falls off, with a long cylindrical tube, having four oblong glands faſtened to it; the upper part is cut into four oblong ſegments, which are reflexed. The flower hath four oblong riſing petals, which are broad at the top but narrow at their baſe, ſitting upon the tube of the empalement; and eight upright ſlender ſtamina which are ſhorter than the petals, and a nectarious gland between the baſe of each, with oblong moveable ſummits. The oblong germen is ſituated under the flower, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by four oval ſpreading ſtigmas; the flower is ſucceeded by an oval four-cornered compreſſed capſule, containing one oblong angular ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's eighth claſs, intitled Octandria Monogynia, the flower having eight ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Gaura (*Biennis.*) Amœn. Acad. 3. p. 26. *Gaura.* Lyſimachia chamænerio ſimilis floridana, foliis nigris punctis capſulis carinatis in ramulorum cymis. Pluk. Amalth. 139. tab. 428. f. 1.

This is a biennial plant, which grows naturally in Virginia and Penſylvania: the ſtalk riſes four or five feet high, ſending out ſeveral branches, which are garniſhed with oblong, ſmooth, pale, green leaves, ſitting pretty cloſe. The flowers are produced in cloſe tufts at the end of the branches; they are compoſed of four oblong petals, of a pale Roſe colour, irregularly placed, having eight ſtamina ſurrounding the ſtyle. The flowers appear in September, and when the autumn proves favourable, the ſeeds will ripen toward the end of October.

If the ſeeds of this plant are ſown on open borders ſoon after they are ripe, they will more certainly ſucceed than when they are ſown in the ſpring. When the plants come up, they muſt be kept clean from weeds; and if they are too cloſe, ſome of them ſhould be drawn out, and planted in a bed to allow room for the other to grow; in the autumn they ſhould be all tranſplanted to the place where they are deſigned to ſtand for flowering and perfecting their ſeeds, and will require no other culture but to ſupport their branches to prevent the autumnal winds from breaking them down.

GENERATION is, by naturaliſts, defined to be the act of procreating and producing a thing which before was not; or, according to the ſchoolmen, it is the total change or converſion of a body into a new one, which retains no ſenſible part or mark of its former ſtate.

Thus we ſay, fire is generated, when we perceive it to be where before there was only wood, and other fuel, or when the wood is ſo changed, as to retain no ſenſible character of wood; in the like manner a chick is ſaid to be generated, when we perceive a chick, where before was only an egg, or the egg is changed into the form of a chick.

In generation there is not properly any production of new parts, but only a new modification or manner of exiſtence of the old ones, and thus generation is diſtinguiſhed from creation.

Generation alſo differs from alteration, in that in alteration the ſubject remains apparently the ſame, and is only changed in its accidents or affections, as iron, which before was ſquare, is now made round; or when the ſame body which is well to-day, is ſick to-morrow.

Again: generation is the oppoſite to corruption, which is the utter extinction of a former thing; as, when that which before was an egg, or wood, is no longer either the one or the other; whence it appears, that the generation of one thing is the corruption of another.

The Peripateticks explain generation by a change or paſſage from a privation, or want of a ſubſtantial form, to the having ſuch a form.

The moderns allow of no other change in generation, than what is local; and, according to their notion, it is only a tranſpoſition, or new arrangement of parts; and, in this ſenſe, the ſame matter is capable of undergoing an infinite number of generations.

As for example: A grain of Wheat, being committed to the ground, imbibes the humidity of the ſoil, becomes turgid, and dilates to ſuch a degree, that it becomes a plant; and, by a continual acceſſion of matter, by degrees, ripens into an ear, and at length into a ſeed; this ſeed, when ground in a mill, appears in the form of a flour, which, being mixed up with water, makes a paſte, of which bread is generated by the addition of yeaſt, and undergoing the operation of fire, i. e. by baking; and this bread being cominuted by the teeth, digeſted in the ſtomach, and conveyed through the canals of the body, becomes fleſh, or, in other words, fleſh is generated.

Now the only thing effected in all this ſeries of generation, is a local motion of the parts of the matter, and their ſettling again in a different order; ſo that wherever there is a new arrangement, or compoſition of the elements, there is, in reality, a new generation, and thus generation is reduced to motion.

Generation is more immediately underſtood of animal and vegetable bodies from ſeed, or the coition of others of different ſexes, but of the ſame genus or kind.

Monſ. Perrault, and ſome of the modern naturaliſts after him, maintained, That there is not properly any new generation, that God created all things at firſt, and that what is by us called generation, is no more than an augmentation and expanſion of the minute parts of the body of the ſeed; ſo that the whole ſpecies, which are afterwards produced, were, in reality, all formed at the firſt, and incloſed therein, to be brought forth and expoſed to view in time, and according to a certain order and œconomy.

And accordingly Dr. Garden ſays, It is moſt probable, that the ſtamina of all the plants and animals that have been formed, ab origine mundi, by the Almighty Creator, within the firſt of each reſpective kind; and he who conſiders the nature of viſion, that it does not give us the true magnitude, but only the proportion of things; and that which ſeems to our naked eye but a point, may truly be made up by as many parts as ſeem to be in the whole univerſe, will not think this an abſurd or impoſſible thing.

Dr. Blair, treating of the generation of plants, ſays, That when Almighty God created the world, he ſo ordered and diſpoſed of the materies mundi, that every thing produced from it ſhould continue ſo long as the world ſhould ſtand. Not that the ſame individual ſpecies ſhould always remain; for they were, in proceſs of time, to periſh, decay, and return to the earth, from whence they came; but that every like ſhould produce its like, every ſpecies ſhould produce its own kind, to prevent a final deſtruction of the ſpecies, or the neceſſity of a new creation, in order to continue the ſame ſpecies upon earth, or in the world.

For which end he laid down certain regulations, by which each ſpecies was to be propagated, preſerved, and ſupported, till, in order, or courſe of time, they were to be removed hence; for, without that, thoſe very beings, which were created at firſt, muſt have continued till the final diſſolution of all things, which Almighty God of his infinite wiſdom did not think fit.

But, that he might ſtill the more manifeſt his omnipotence, he ſet all the engines of his providence to work, by which one effect was to produce another by the means of certain laws, or rules laid down for the propagation, maintenance, and ſupport of all created beings; this his divine providence is called nature, and theſe regulations are called the laws, or rules of nature, by which it ever operates in its ordinary courſe, and whatever exceeds from that is ſaid to be preternatural, miraculous, or monſtrous.

Moſes, in his account of the creation, tells us, that plants have their ſeeds in themſelves, in theſe words: And God ſaid, Let the earth bring forth graſs, the herb yielding ſeed, and the fruit-tree yielding fruit, after his kind, whoſe ſeed is in itſelf upon the earth.

The antients, indeed, diſtinguiſhed the generation of animals into two kinds, i. e. into regular, called univocal; and anamolous, called alſo equivocal, or ſpontaneous.

The firſt was effected by parent animals of the ſame kind, as that of men, birds, beaſts, &c. The ſecond they ſuppoſed to be effected by corruption, the ſun, &c. as that of inſects, frogs, &c. but this latter is now generally exploded.

Many, indeed, have eſſayed to treat of the generation of animals, but few have been able to give that ſatisfactory account of it that were to be wiſhed for, and far fewer yet have been able to treat of the generation of plants as it ought to be; for that which ſtill kept them in the dark, was,

Firſt, That though there were two different ſexes in animals, by whoſe mutual aſſiſtance the ſpecies was propagated, yet there was no ſuch thing then known in plants.

Secondly, That though it can now be made appear, that every animal is produced by univocal generation, i. e. from an egg, and not by corruption, &c. as moſt of the antients imagined the inſects were; yet there are ſtill thoſe who maintain, that thoſe which they call imperfect plants, are the product of a certain rottenneſs in the earth.

The generation of plants bears a cloſe analogy to that of ſome animals, eſpecially ſuch as want local motion, as muſcles, and other immoveable ſhell-fiſh, which are hermaphrodite, and contain both the male and female organs of generation.

The flower of a plant is found to be the pudendum, or principal organ of generation; but the uſe of ſo much mechaniſm, and ſo many parts, has been but little known till of late years.

The flower of a Lily conſiſts of ſix petala, or flower-leaves, from the bottom of which, in the middle, ariſes a kind of tube, called by Tournefort, the piſtillum, and by Dr. Linnæus the ſtyle; this reſts upon the germen, which is the female organ of generation; round this are placed pretty fine threads, called the ſtamina, or filaments; theſe ſtamina ariſe likewiſe from the bottom of the flower, and terminate at the top in little ſummits, called by ſome apices, which are replete with a fine duſt, called farina; theſe are the male organs of plants.

This is the general ſtructure of the flowers of plants, although they are infinite ways diverſified, and to ſuch a degree, that ſome have no ſenſible piſtil, and others want the ſtamina; others again have the ſtamina, but want the apices, and ſome plants exceed all others in this, that they have no viſible flowers; but if it be allowed, that this before-mentioned is the moſt common ſtructure of flowers, it will follow, that theſe parts that ſeem wanting are uſually only leſs apparent, or are ſituated in different plants, or in different parts of the ſame plant.

The fruit is uſually at the baſe of the piſtillum, ſo that when the piſtillum falls with the reſt of the flower, the fruit appears in the ſtead of it; but oftentimes the piſtillum is the fruit itſelf, but ſtill they have both the ſame ſituation in the center of the flower, and the petala, or flower-leaves, which are diſpoſed around the little embryo, ſeem to be deſigned only to prepare a fine juice in the little veſſels, for the ſupport of it during the little time that they laſt, and it requires; but ſome ſuppoſe the chief uſe of them to be to defend the piſtillum, &c.

The apices of the ſtamina are ſmall capſulæ, or bags, full of a farina, or duſt, which falls out when the capſula grows ripe, and burſts.

Monſ. Tournefort ſuppoſed this duſt to be only an excrement of the food of the fruit, and the ſtamina to be nothing but excretory ducts, which filtrated this uſeleſs matter, and thus diſcharged the embryo; but Mr. Morland, Mr. Geoffroy, and others, find nobler uſes for this duſt; on their principle the ſtamina, with the apices and farina, make the male part of the plant, and the piſtil, the female.

Mr. Morland ſays, It hath been long ago obſerved, that there is in every particular ſeed a ſeminal plant conveniently lodged between the two lobes, which conſtitute the bulk of the ſeed, and are deſigned for the firſt nouriſhment of the tender plant.

But the admirable Dr. Grew, to whoſe generous induſtry, and happy ſagacity, we are indebted for the beſt improvements of this part of knowledge, is the only author I can find, who hath obſerved that the farina, or fine powder, which is, at its proper ſeaſon, ſhed out of thoſe thecæ, or apices ſeminiformes [i. e. ſeed-forming caſes] which grow at the top of the ſtamina, doth ſome way perform the office of male ſperm. But herein, I think, he falls ſhort, in that he ſuppoſes them only to drop upon the outſide the uterus, or vaſculum ſeminale, and to impregnate the included ſeed by ſome ſpirituous emanations, or energetical impreſs.

That which is now ſubjected to the diſquiſitions and cenſure of ſuch whoſe exquiſite ſkill conſtitutes them judges of ſuch performances, is, Whether it may not be more proper to ſuppoſe, that the ſeeds which are lodged in the proper involucra, are at the firſt unimpregnated ova (or eggs) as of animals; that this farina is a congeries of ſeminal plants, one of which muſt be conveyed into every ovum before it can become prolific; that the ſtylus, in Mr. Ray's language, or the upper part of the piſtillum, in Mr. Tournefort's, is a tube deſigned to convey theſe ſeminal plants into their neſts in the ova; that there is ſo vaſt a proviſion made, becauſe of the odds there are, whether one, of ſo many, ſhall ever find its way into, and through ſo narrow a conveyance.

To make this ſuppoſition the more credible, I ſhall lay down the obſervations I have made upon the ſituation of theſe ſtamina, and the ſtylus, in ſome few ſpecies of plants.

Firſt, In the Corona Imperialis, where the uterus, or vaſculum ſeminale of the plant ſtands upon the center of the flower; and from the top of this ariſeth the ſtylus, the vaſculum ſeminale and ſtylus together repreſenting a piſtillum.

Round this are placed ſix ſtamina; upon the ends of each of theſe are apices, ſo artfully fixed, that they turn every way with the leaſt wind, being in height almoſt equal to the ſtyles about which they play, and which in this plant is manifeſtly open at the top, as it is hollow all the way; to which we muſt add, that upon the top of the ſtylus there is a ſort of tuft, conſiſting of pinguid villi, which I imagined to be placed there to catch and detain the farina, as it flies out of the thecæ; from hence, I ſuppoſe, the wind ſhakes it down the tube, till it reach the vaſculum ſeminale.

In the Caprifolium, or Honeyſuckle, there riſes a ſtylus from the rudiments of a berry, into which it is inſerted to the top of the monopetalous flower; from the middle of which flower are ſent forth ſeveral ſtamina, that ſhed their farina out of the caſes upon the orifice of the ſtylus, which, in this plant, is villous or tufted, upon the ſame account as in the former.

In Allium, or common Garlic, there ariſes a tricoccous uterus, or ſeed-veſſel; in the center of which is inſerted a ſhort ſtylus, not ſo high as the apices, which thus over-topping it, have the opportunity of ſhedding their globules into an orifice more eaſily; for which reaſon, I can diſcern no tuft upon this (as in the former) to inſure their entrance, that being provided for by its ſituation juſt under them.

The reader, I hope, will excuſe me, if I preſent him now with ſome ſuch reaſonings or reflections as the foregoing account doth ſuggeſt, and will ſupport; and I cannot but hope to perſuade thoſe that are candid, that I have aſſigned to the ſeveral parts of the flowers I have mentioned, their true and real uſe.

For nothing can be more natural than to conclude, that where a fine powder is curiouſly prepared, carefully repoſited, and ſhed abroad at a peculiar ſeaſon, where there is a tube ſo placed as to be fit to receive it, and ſuch care in diſpoſing this tube, where it doth not lie directly under the caſes that ſhed the powder, it hath a particular apparatus at the end, to inſure its entrance.

Nothing can be more genuinely deduced from any premiſes, than it may from this, that this powder, or ſome of it, was deſigned to enter this tube. If theſe ſtamina had been only excretory ducts, as has been hitherto ſuppoſed, to ſeparate the groſſer parts, and leave the juice deſigned for the nouriſhment of the ſeed more reſerved, what need was there to lodge theſe excrements in ſuch curious repoſitories? They would have been conveyed any where, rather than where there was ſo much danger of their dropping into the ſeed-veſſel again, as there is here.

Again: the tube, over the mouth of which they are ſhed, and into which they enter, leads always directly into the ſeed-veſſel.

To which we muſt add, that the tube always begins to die when theſe thecæ are emptied of their contents; if they laſt any longer, it is only whilſt the globules, which enter at their orifice, may be ſuppoſed to have finiſhed their paſſage. Now, can we well expect a more convincing proof of theſe tubes being deſigned to convey theſe globules, than that they wither when there are not more globules to convey.

If I could now ſhew, that the ova, or unimpregnated ſeeds, are ever to be obſerved without this ſeminal plant, the proof would ariſe to a demonſtration; but having not been ſo happy as to obſerve this, I ſhall content myſelf at preſent with ſuggeſting, that hence one would conclude, that the petala of the flower were rather deſigned to ſever ſuperfluous juices from what was left to aſcend in the ſtamina, than the ſtamina to perform this office, either for them, or the unimpregnated ſemina, and obſerve the analogy between animal and vegetable generation, as far as was neceſſary there ſhould be an agreement between them. I ſhall recommend the enquiry to thoſe gentlemen who are maſters of the beſt microſcopes, and addreſs in uſing them; though, in the mean time, I have made ſome ſteps toward a proof of this ſort, and have met with ſome ſuch hints, as make me not deſpair of being able, in a ſhort time, to give the world even this ſatisfaction. For, not to inſiſt upon this, that the ſeminal plant always lies in that part of the ſeed which is always neareſt to the inſertion of this ſtylus, or ſome propagation of it into the ſeed-veſſels, I have diſcovered in Beans, Peas, and Kidney-beans, juſt under one end of that we call the eye, a manifeſt perforation, (diſcernible by the groſſer ſort of magnifying glaſſes) which leads directly to the ſeminal plant, and at which I ſuppoſe the ſeminal plant did enter; and, I am apt to think, the Beans or Peas that do not thrive well, may be found deſtitute of it.

But I muſt now proceed to deſcribe ſome other plants, whereby it will appear, that there is a particular care always exerciſed to convey this powder, ſo often mentioned, into a tube, which may convey it to the ova.

Now, in leguminous plants, if we carefully take off the petala of the flower, we ſhall diſcover the pod, or ſiliqua, cloſely covered with an involving membrane, which, about the top, ſeparates into nine ſtamina, each fraught with its quantity of farina; and theſe ſtamina cloſely adhere to the ſtyle, which is obſervable at the end of that tube, which here alſo leads directly to the pod; it ſtands not upright, indeed, but ſo bent, as to make near a right angle with it.

In Roſes there ſtands a column, conſiſting of many tubes cloſely clung together, though eaſily ſeparable, each leading to their particular cell, the ſtamina in a great number placed all round about.

In Tithymalus, or Spurge, there riſes a tricoccous veſſel, that, whilſt it is ſmall, and not eaſily diſcernible, lies at the bottom till it is impregnated, but afterwards grows up, and ſtands ſo high upon a tall pedicle of its own, as would tempt one to think, that there were to be no communication betwixt this and the apices.

In the Strawberries and Raſpberries, the hairs which grow upon the ripe fruit (which, I ſuppoſe, may be ſurpriſing to ſome) are ſo many tubes leading each to their particular ſeed; and therefore we may obſerve, that in the firſt opening of the flower there ſtands a ring of ſtamina, within the petala, and the whole inward area appears like a little wood of theſe hairs or pulp, which, when they have received and conveyed their globules, the ſeeds ſwell, and riſe in a carneous pulp. Thus far Mr. Morland.

We may obſerve a veſſel at the bottom of the piſtil of the Lily, which veſſel we may call the uterus, or womb, in which are three ovaries filled with little eggs, or rudiments of ſeed found in the ovaria, which always decay, and come to nothing, unleſs impregnated with the farina of the ſame plant, or ſome other of the ſame kind; the ſtamina alſo ſerve for the conveyance of the male ſeed of the plant to be perfected in the apices, which, when ripe, burſt forth in little particles like duſt; ſome of them fall into the orifice of the piſtil, and are either conveyed thence into the utricle, to fecundify the female ova, or lodged in the piſtil, where, by their magnetic virtue, they draw the nouriſhment from the other parts of the plant into the embryos of the fruit, making them ſwell, grow, &c.

In flowers that turn down, as the Cyclamen, and the Imperial Crown, the piſtil is much longer than the ſtamina, that their duſt may fall from their apices in ſufficient quantities on the piſtil, for the buſineſs of impregnation.

Mr. Geoffroy aſſures us, That in all the obſervations he had made, the cutting off the piſtil before it could be impregnated by the farina, actually rendered the plant barren for the ſeaſon, and the fruit abortive.

In many kinds of plants, as the Oak, Pine, Willow, &c. the flowers, Mr. Geoffroy obſerves, have their ſtamina and apices, whoſe farina may eaſily impregnate the rudiments of the fruit, which are not far off.

Indeed there is ſome difficulty in reconciling this ſyſtem with a certain ſpecies of plants, which bear flowers without fruit; and another ſpecies of the ſame kind and denomination, which bear fruit without flowers; ſuch are the Palm, Hemp, Hop, Poplar, &c. which are hence diſtinguiſhed into male and female; for how ſhould the farina of the male here, come to impregnate the ova of the female?

This difficulty Mr. Geoffroy ſolves, by ſuppoſing the wind to be the vehicle that conveys the male duſt to the female uterus, which is confirmed by an inſtance of Jovianus Potanus, of a ſingle female Palm-tree growing in a foreſt, which never bore fruit, till, having riſen above the other trees of the foreſt, and being then in a condition to receive the farina of the male by the wind, it began to bear fruit in abundance.

As to the manner wherein the farina fecundifies, Mr. Geoffroy advances two opinions:

Firſt, That the farina being always found of a ſulphureous compoſition, and full of ſubtil and penetrating parts (as appears from its ſprightly odour) which, falling on the piſtils of the flowers, there reſolves, and the ſubtileſt parts of it, penetrating the ſubſtance of the piſtil, excite a fermentation, which putting the latent juices of the young fruit in motion, occaſions the parts to unfold the young plant that is incloſed in the embryo of the ſeed.

In this hypotheſis, the plant in miniature is ſuppoſed to be contained in the ſeed, and to want only a proper juice to unfold its parts, and to make them grow.

The ſecond opinion is, That the farina of the male plant is the firſt germ or ſemen of the new plant, and ſtands in need of nothing to enable it to grow or unfold, but a ſuitable nidus with the juice it finds prepared in the embryo of the ſeed or ovary.

It may be obſerved, that theſe two theories of vegetable generation bear a ſtrict analogy to thoſe two of animal generation, viz. either that the young animal is in the ſemen maſculinum, and only ſtands in need of the juice of the matrix to cheriſh and bring it forth; or that the female ovum contains the animal, and requires only the male ſeed to excite a fermentation.

Mr. Geoffroy rather makes the proper ſeed to be in the farina, inaſmuch as the beſt microſcopes do not diſcover the leaſt appearance of any bud in the little embryos of the grains, when they are examined, before the apices have ſhed their duſt.

In leguminous plants, if the petala and ſtamina be removed, and the piſtil, or that part which becomes the pod, be viewed with the microſcope before the flower be open, thoſe little green tranſparent veſiculæ, which are to become grains, will appear in their natural order, yet ſtill ſhewing nothing elſe but the mere coat, or ſkin of the grain.

If you continue to obſerve the flowers as they advance for ſeveral days ſucceſſively, you will find them to ſwell, and, by degrees, to become replete with a limpid liquor; in which, when the farina comes to be ſhed, and the leaves of the flower to fall, there may be obſerved a little greeniſh ſpeck, or globule, floating about at large.

There is not at firſt any appearance of an organization in this little body; but in time, as it grows, you may begin to diſtinguiſh two little leaves like two ſmall horns; as the little body grows, the liquor diminiſhes inſenſibly, till at length the grain becomes quite opake; and upon opening it, the cavity will be found filled with a young plant in miniature, conſiſting of a little germ, or plantula, a little root, and the lobes of the Bean, or Pea.

The manner wherein this germ of the apex enters the veſicula of the grain, is not very difficult to determine: for, beſides that the cavity of the piſtil reaches from the top to the embryos of the grains, or thoſe veſiculæ, have a little aperture correſponding to the extremity of the cavity of the piſtil, ſo that the ſmall duſt, or farina, may eaſily fall, or find an eaſy paſſage in the aperture in the mouth of the veſſels, which is the embryo of the grain.

The aperture, or cicatricula, is much the ſame in both grains; and it is eaſily obſerved in Peas, Beans, &c. without a microſcope.

Dr. Patrick Blair, treating of the generation of plants, ſays, That a vegetative life is common to them, as well as animals; and that the propagation or production of the ſpecies is the effect of the vegetative, not the ſenſitive life in animals, as well as in plants; and that if there be a neceſſity of the concurrence of two different ſexes in animals, at the beginning or generating of the ſpecies, the ſame neceſſity muſt be in plants too; for as a cow, a mare, a hen, a ſhe-reptile, an inſect, &c. cannot produce an animal without the male, no more can it be ſuppoſed, that a plant can produce fertile ſeed without the concurrence of the male plant, or the male parts of the plant.

Mr. Ray ſays, That he will not deny, that both trees and herbs may produce fruit, and even come to maturity, without the male ſeed being ſprinkled upon them. For though moſt birds do not lay eggs without congreſs of the male, yet the hen often does it without copulating with the cock, but then theſe eggs are barren and wind eggs; juſt ſo, though a female plant may produce ſeed of itſelf, yet that ſeed is never fertile. For,

Firſt, As the work of generation in animals does not proceed from their animal or ſenſitive life but from their vegitative, which being the ſame as in plants, that operation muſt be performed after the ſame manner in both; therefore, as there is a neceſſity of two different ſexes in animals, it muſt be ſo too in plants.

Secondly, As paſſive ſeminal matter in female animals cannot be productive or fertile of itſelf, without being impregnated, animated, or its particles ſet in motion and dilated by the active principles of the male ſeminal matter; neither can the female ſeed in plants be rendered fertile, until it be impregnated by the farina fœcundans from the male parts of the plants.

As to the flowers of plants, if they were not aſſiſting to, or if there were not ſome extraordinary uſe from them in the perfection of the ſeed, they would not be ſo often obſerved upon plants as they are. But ſince there is no fruit or ſeed without a previous flower; and ſince where the one is obvious the other is conſpicuous, and ſince one is ſcarce to be obſerved with the naked eye, neither is the other; this implies a relation between them, that the one of them is not to be expected without the other.

It is true, there may be flowers upon a plant, where the fruit is ſeldom ſeen, eſpecially in theſe northern climates; ſuch as the Pervinca, the Nymphæa alba minima, and ſeveral others; where the plant exhauſts the nutritious juice, in puſhing forth tendrils or creeping roots, which ſo weaken the plants, as not to be able to bring the fruit to perfection; but there is no fruit or ſeed to be ſeen, unleſs a flower has been ſent as a meſſenger before it, to give notice of its approach; though it is not always upon the ſame plant, yet it is ſtill upon ſome other plant of the ſame ſpecies; for the flowers are to be ſeen upon diſtinct plants, different branches, or different parts of the branch from the fruit, in the Abies, Corylus, Nux Juglans, &c. the Mercurialis, Spinachia, &c.

But the fruit never appears, or never begins to increaſe upon theſe plants, till the flower is ſpent and gone; therefore they muſt ſerve for another uſe, than to be merely ornamental; for if that were their principal uſe, they would be always conſpicuous, which they are not for the moſt part in apetalous flowers; and they would always be to be ſeen, and never be hid; which is not ſo in the Aſarum, Hydrocotyle, &c. where, though the flower is large enough in proportion to the fruit, yet it is not to be ſeen, unleſs the leaf be turned up, and both flower and fruit be narrowly ſearched for.

The Frumenta and Gramina have their ſtamineous flowers; yet in ſome of them the flower is ſeldom to be ſeen, unleſs the ſpike be ſhaken; and then the apices will appear.

The Polypodium, and other capillary plants, have regular flowers, which precede the minute capſulæ or ſeed-veſſels, but neither of them are conſpicuous without a microſcope.

From theſe inſtances it appears, that the flowers are not conſtantly a guard to preſerve the tender embryos from the injuries of the air, for then the flowers muſt always have been upon the ſame pedicle with the fruit.

Therefore, ſince the appearance of the flower is the firſt ſtep towards the production of the ſeed, whether both be upon the ſame pedicle or not, it neceſſarily follows, that the one muſt contribute towards the bringing of the other to perfection.

The antients taking notice, that ſeveral plants did produce flowers and had no ſeeds, and that other plants of the ſame ſpecies, and ſown from the ſame ſeed, did produce the ſeed without a previous flower, they were ready to call the one male, and the other female, without any notion that the one was aſſiſting to the other; for they looked upon ſuch flowers to be only barren; and therefore they called thoſe which had flowers female, and thoſe that produced the fruits, male plants. Thus Mercurialis is called Spicata Fœmina, and Teſticulata Mas. That which produces the fruit muſt needs be the female, as the female animal brings forth the fœtus; therefore the teſticulata muſt needs be the female, and the ſpicata the male.

Wherever the plants are annual, theſe with the flowers, and ſuch as have the ſeed, are always near to each other; but where the root is perennial, and where the plant is more frequently propagated by the root than the ſeed, the caſe alters; for there being no need of the ſeed to propagate the plant, there is the leſs need of the flower to be nearer to the plant which produces the ſeed.

So the Spinachia and the Lupulus are frequently ſeen to grow, to produce the ſeed, and the other the ſquamous fruit; when the plants which produce the male flowers of the one or the other, are at ſome diſtance. And this is ſo far from being an objection againſt the neceſſity of two ſexes in plants as well as in animals, that it is an argument to confirm it; for it ſhews the wonderful contrivances in order to preſerve the ſpecies, when the ordinary means of propagating it by the ſeed cannot be ſo conveniently attained.

Theſe, and more that might be produced, being evident proofs of two ſexes in plants, as well as in animals, we ſhall in the next place, give ſome experiments to confirm this in a negative way, as have been already done in a poſitive.

When plants have been deprived of their male flowers, or male parts in the flower, they either produced no ſeed at all, or if they did, they became abortive, dried up, or dwindled away; or though the ſeeds did come to perfection, they were barren, or did not produce.

Experiment 1. Mr. Geoffroy having cut off all the ſtamineous tufts of male flowers from the top of the ſtalk in the Maiz or Turky-wheat, as ſoon as they appeared, and before the ſpike loaded with the embryos of the ſemen had put forth from the alæ of the leaves, ſeveral of theſe embryos decayed and dried up after they were pretty big; but ſome grains upon their pedicles all along the ſpike ſwelled conſiderably, and ſeemed to be full of the bud, and were conſequently fertile, while all the others miſcarried, and there was not one ſpike where the whole ſeeds did not ripen to the full.

This experiment is a ſufficient proof of the uſe of the male flowers of this plant; for whatſoever that is which flows from the racemi of theſe flowers, it ſeems it muſt be conducive not only for the impregnation of the ſeed, but alſo for the growth and impregnation of the fruit.

At preſent we ſhall ſhew, that what nouriſhment is uſually furniſhed by the pedicle to the embryos, does not appear to be capable to dilate or expand itſelf, or contribute to the continual ſupply of nutritious particles, unleſs the embryos were animated or enlivened by the ſpirit which ſhould have flowed from the male flowers; ſo that they were ſo debilitated and weakened, in aſcending from the body of the plant towards the embryos, before they could arrive at them, that they which otherwiſe might have ſerved for the augmentation and increaſe of all the embryos upon the ſpike, could not now do any thing more than contribute to the ripening of a few. And although Mr. Geoffroy might have imagined, that theſe few ſeeds which came to perfection were fertile alſo, becauſe they were full of germs, yet he could not be ſure of that, unleſs he had ſown the ſame ſeeds next ſeaſon, and tried whether they would chit or not.

Gardeners who buy Onion and Leek-ſeed brought from Straſburgh, commonly try the following experiment: they put a few of the ſeeds into a pot of water mixed with earth, and if they find they begin to ſpring, or ſend forth the ſeminal leaf or fibre of the root, after a few days, they judge of the product of it; and notwithſtanding all the ſeeds without this trial may ſeem to be productive, being equally firm, hard, and ſolid, perhaps not more than one third of them will prove fertile.

And this barrenneſs may proceed, either becauſe they had never been impregnated by the male parts of the flower, or that they had been too much expoſed to the air; being ſome time or other too much moiſtened, and not afterwards been carefully dried, or have been kept too long, by which neglect they loſe their ſpirit or life.

Now, if the fulneſs, ſolidity and firmneſs of a ſeed is not a ſure ſign of its fertility, then Mr. Geoffroy might have been miſtaken in his opinion of the fertility of theſe ſeeds in the Maiz, ſince he did not make any trial of it, by committing it to the ground.

In like manner, as to his ſecond experiment of the Mercurialis Dioſcoridis, where he raiſed ſome plants which had the fruit, and others which had the ſtamineous flowers, and removed the floriferous plants before the flowers were blown, every one of the ſeeds upon the fructiferous plants, except five or ſix, miſcarried; which ſeeds were ſo full, that he was perſuaded they were capable of producing new plants, and the like was found by Camerarius in the Cannabis. Yet inaſmuch as neither of them tried the experiment, by ſowing the ſame ſeed the ſecond year, they could not be ſure but that they might have failed in their expectation.

Mr. Bobart, overſeer of the phyſic-garden at Oxford, many years ſince, which was before the doctrine of the different ſexes of plants was well underſtood, being herbarizing, found a plant of the Lychnis ſylveſtris ſimplex, no apices; and taking notice that this was not only in one, but in all the flowers upon the ſame plant, he imagined it might be a new ſpecies; and therefore marked the plant, and took care to have it preſerved till the ſeeds were ripe; and then, they being full, hard, and firm, and to outward appearance full of germ, he ſowed them in a proper place in the garden the next ſeaſon, but not a plant ſprung up from them.

Theſe and other inſtances, ſet the opinion of the different ſexes of plants upon another footing than has been received by moſt of our modern authors; for it imports, that it is not the nouriſhment of the groſs ſubſtance of the ſeed itſelf which is hereby meant, nor the increaſe of the ſeed-veſſel, which is thereby deſigned; for (as is already obſerved) a hen can lay an egg, without having before had congreſs with a cock; and this, when newly laid, ſhall be of the ſame bigneſs, colour, taſte, and ſmell, with another egg which has been cocked (as they call it;) i. e. which has been fecundated by the maſculine ſeminal materies: but the difference will appear, when both are put under the hen, in order to be hatched; for the one ſhall pullulate or chit, and the other ſhall become fetid and rot.

The caſe is juſt the ſame with the ſeed of a plant, it may be augmented and increaſed in its bulk; it may become firm, hard, and ſolid, and have all the tokens of a perfect ripeneſs; the ſeed-veſſels may be enlarged, and the pulp or parenchyma of the fruit may be augmented; and yet the particles of the ſeed may remain crude, indigeſted, and incapable to be explicated and dilated, or ſet in a ſuitable motion, whereby to protrude the fibrilla of the root at one end, and the ſeminal leaves at the other; except it has before received ſome extraneous matter, or ſome active particles from the male parts of the flower, or from the male flower itſelf.

In order to confirm the neceſſity of two ſexes of plants, as well as in animals, this familiar conſideration may be added: that the fertility or barrenneſs of any tree, in the more or leſs fruitful ſeaſons, may be known to ignorant or leſs curious perſons, by the quantity of the flowers which appear in the ſpring time; and that not only in trees alone, where the flower and fruit are upon one and the ſame foot-ſtalk, but alſo in ſuch trees, where the flowers are upon diſtinct trees, or ſeparate places upon the ſame tree; for it is eaſy to determine by the catkins or iuli upon the Walnut, Filbert, or Hazle-trees, whether ſuch or ſuch trees will be fertile or barren for the enſuing ſeaſon, before any of the embryos begin to break, be puſhed forth, or appear.

Having already treated of the male and female parts of flowers, we ſhall next conſider their uſe.

Flowers, in this reſpect, may aptly be divided into that of male flowers, which (as has been before obſerved) were formerly reputed barren; and the plants which produce them were alſo called female plants, becauſe thoſe perſons not having any notion of different ſexes in plants, they were called female, upon account of their weakneſs; or if they had any thought of ſexes in them, it was only illuſive.

The ancients were ignorant of thoſe which are now-a-days called hermaphrodite flowers; and they, not having a true notion of ſexes of plants, could not imagine that the parts of both ſexes ſhould be in one flower, upon one and the ſame foot-ſtalk.

And although hermaphrodite animals bear the leaſt proportion in the animal kingdom, yet hermaphrodites have the greateſt ſhare in the vegetable, though they are not ſo numerous as they have been ſuppoſed to be; for upon a ſtrict examination it will be found, that a great many more plants have diſtinct male and female flowers, than was formerly believed.

The neceſſity of different ſexes in plants having been demonſtrated, and that the female ſeed, though it ſhould ripen to the full, cannot be fertile, except it be impregnated by what it receives from the male parts of flowers, we ſhall next explain the organs of generation in both ſexes.

In the animal œconomy, there are, beſides thoſe veſſels that are deſtinated for nutrition, and the ſecretion of the ſeveral juices in the body, ſpermatic veſſels, which conſiſt of præparantia, deferentia, and continentia ſemen. The præparantia in males, are the blood-veſſels and the teſtes; the one conveys the blood, and the other ſeparates the ſemen from blood, and elaborates it.

So likewiſe in plants there are veſſels that receive the nutritious particles from the earth, and convey it to the extremity of the plant; ſome of which tend directly to the leaf, and others to the flowers.

Thoſe which go to the foot-ſtalk of the flower may not improperly be called ſpermatic-veſſels, for it is from them that the ſeminal particles in male, female, and hermaphrodite flowers are ſeparated; therefore the foot-ſtalks of the hermaphrodite flowers are proportionably larger than thoſe either of the male or female; they have a double office, and contribute ſucceſſively to both.

In thoſe where the calyx becomes the fruit, the greateſt ſupply is furniſhed to it firſt, and diſtributed in its cortical parts, as is viſible in the Roſe; in which the foot-ſtalk is ſo far enlarged at firſt, as to be of an equal bigneſs with the bud.

After the calyx is thus formed, the next diſtribution is to the inner or centrical part of the flower, which Dr. Grew calls attire, and where the piſtillum becomes the fruit; the piſtillum and ſtylus are formed at the ſame time with the ſtamina and apices.

The ſtylus at the very firſt acquires both its due length and bigneſs; for the nutritious particles aſcending in the center never ſtop till the ſtylus is ſtretched out to its full length; and in ſuch as are furniſhed with a peculiar apex, that is formed firſt; the neck of the ſtylus, or that part next to it, is the biggeſt; from thence it gradually decreaſes in its groſſneſs, till it comes to the piſtillum. This is eaſily perceived by thoſe who will take the pains to open the bud of a Lily, Tulip, &c. before they are half blown.

The ſtamen is furniſhed next with an extraordinary ſupply of the nutritious particles before the flower is blown; theſe, whether fewer or more, are at firſt brought to their proportional largeneſs, being round and juicy.

The apex is the third which receives this extraordinary ſupply of the nouriſhment, for after that the ſtylus is formed, that it may lean to it after the veſſels of the ſtamen and ſummit are extended to their full length, and ſo formed, that they can convey ſuch an extraordinary quantity of particles as may fill up the capacity of the apex, it is then more enlarged than ever after; for if the flower of a Lily be opened before it be blown, the apex will be found to be full as long as the ſtamen; for as the one half of the apex covers the ſtamen, fixed to its center, ſo the other half of it is ſo far extended above the ſtamen, as the ſtamen remained uncovered below it, towards the pedicle or foot-ſtalk.

The fourth part of a flower is the petala, which receives this extraordinary ſupply of nouriſhment before the blowing; theſe upon the reverſe, are firſt enlarged towards the pedicle, and are afterwards extended and ſtretched forth in proportion to the enlargement of the attire; at firſt they are all groſſer, and more ſucculent towards the origin, and gradually become thinner and broader. The ſtamina of monopetalous flowers do, for the moſt part, ariſe partly from the petalon itſelf, and partly from the calyx; eſpecially if the ſtamina correſpond in number to the petala, as in the Hexapetalæ, or Polypetalæ Liliaceæ of Tournefort, where every ſtamen ariſes oppoſite to the middle of the petalon.

This obſervation (how and when this more than ordinary ſupply of nouriſhment is carried to the flowers) eaſily demonſtrates wherein the analogy of the organs of generation in plants and animals conſiſts.

In animals, the ſeminal matter is received by proper veſſels from the ſame blood from whence the other ſecretions, fit for the preſervation of the animal œconomy proceed; ſo that the blood in animals being the ſame with the ſap in plants, and both being conveyed after the ſame manner throughout the ſeveral bodies, it neceſſarily follows, that the one as well as the other, muſt have proper veſſels for ſecretion of the ſeminal matter.

Let it then be conſidered, that the ſap or nutritious juice aſcends in common to the pedicle of the flower, as the blood flows by the aorta deſcendens; and that at the calyx or bottom of the flower, ſome ſhare goes to one part of it, and ſome to another; as the aorta ſends one branch to the ſpermatic veſſels, and the remainder of it goes to perform the other functions; and as a part of the ſap is ſeparated by the pedicle of the flower, when the remainder is diſtributed throughout the remaining parts of the plant, ſo the arteria præparans goes directly to the teſtes in the males, and ovarium in the female: and in flowers ſome veſſels tend directly to the calyx (if it becomes the fruit) or to the perianthium (if there be any,) ſome to the petala, ſome to the ſtamina, ſome to the piſtillum or uterus, as it is called by Malpighius.

Theſe things being ſeriouſly reflected on, we muſt of neceſſity conclude,

1. That the ſame due care is taken to elaborate and prepare the more ſubtile and impenetrable particles of the nutritious juice in plants, as of the blood in animals.

2. This ſubſtance ſo prepared, as it muſt be deſigned for ſome extraordinary uſe, ſo this uſe can be no other than that of being the means of fecundating the female ſeed in plants, as the other is of the feminine oval in animals.

If any one ſhall take a flower full blown, and pull one of the ſtamina from the pedicle, he will find a rough viſcid liquor, like to the ſperma, which remains here till its moſt ſubtle parts have aſcended the ſtamen, or perhaps the more groſs particles might have remained there, after the moſt ſubtile had aſcended, before the flower was blown; this is as plain and demonſtrable as can be in the Lilies, particularly in the Orange Lily, and moſt of the Martagon Lilies, there is a contrivance more obvious.

This viſcid liquor aſcending by parallel ducts to the apex, there this ſubtile matter is retained till it is farther elaborated by the evaporations of the more humid and aqueous particles, by the heat of the ſun; and then it becomes a moſt ſubtile, fine, impalpable duſt, which is then ſaid to be ripe, and is called the farina.

Dr. Blair, after having given the ſentiments of ſeven different authors upon the ſubject, proceeds to give his own, without ſubſcribing to the ſentiment of either the one or the other; and endeavours by a ſtrict examination of the flowers themſelves, to find out which of theſe two opinions, ſo diametrically oppoſite to each other, are moſt agreeable to fact.

But before he begins, he lays down this general maxim, which he takes for granted, that nature is uniform in all her operations, and never recedes from thoſe rules laid down by the wiſe Diſpoſer of all things at the creation, by performing the ſame thing after two different and contrary methods; and thence concludes, that if the farina be a congeries of ſeminal plants in one ſpecies, it muſt be ſo in all.

If there be an open and direct paſſage, or though it be not ſo direct, yet if by any direct paſſage, by which it can be demonſtrated, that one ſingle grain of the farina can enter every individual ſeed in one plant, it muſt be ſo in all; but if neither of theſe hold good, and if it can be proved by ocular inſpection, without the aſſiſtance of a microſcope, in thoſe very plants exemplified by Mr. Morland, Mr. Geoffroy, and Mr. Bradley, that the farina in ſubſtance cannot enter the ſeminal veſſel; or if it does, that there is no direct paſſage for it to enter each particular ſeed, after it has ſo got into the capſula or ſiliqua; then he hopes, both their queries, ſuppoſitions, and aſſertions, muſt fall.

As for the Corona Imperialis, the firſt example given by Mr. Morland, the flower of which hangs downwards, though he does not deny but its ſtylus may be hollow all the way, and that it may be open at the extremity, yet by its ſituation, and ſeveral other circumſtances, it does not ſeem to him to favour this opinion.

For firſt, as there is a continual conflux of particles through the ſkin in animal bodies, it is alſo ſo in vegetables: this appears by the immediate fading of flowers, or any other part of the plant, after it has been plucked off; which proceeds from the evaporation of the particles in the little tubes, without any more ſucceeding in their place.

He thinks it as reaſonable to ſuppoſe, that theſe particles flow out by the hollow ſtylus, as by any other part, and alſo more ſenſibly there than elſewhere, becauſe of their being concentrated within ſuch narrow bounds; and that if theſe particles deſcend by the ſtylus hanging downwards, the particles, or rather grains of the farina, can never aſcend the ſame way.

2dly, That if it ſhould be granted, that theſe grains did aſcend by the ſtylus, how do they get into the ſeminal veſſel; that being cloſely ſhut up, as will appear to any one who ſhall obſerve it.

3dly, Whereas Mr. Morland ſuppoſes, that the rain either waſhes it, or the wind ſhakes it down the tube, till it reaches the ſeminal veſſel; Dr. Blair obſerves, that the extremity which is the upper part of the ſtylus in an erect flower, muſt be the lower in a dependent one; ſo that if either the rain or wind have acceſs to it, it muſt neceſſarily either waſh or drive it away from the ſeminal veſſel, which is now the ſtylus.

But here the Doctor takes notice of another contrivance, for anſwering that purpoſe, i. e. a ſort of a pelvis or ciſtern, called by Linnæus nectarium, ſituated at the origin or root of each petalon, filled with a viſcous liquor which continues there, and never exceeds its bounds ſo long as the petalon is in health: for ſince the apices are here ſo artfully fixed, that they turn every way with the leaſt wind, as Mr. Morland rightly obſerves, when they burſt, and the farina is driven to and fro, though it cannot ſo eaſily enter the tube, yet it may conveniently be blown up towards the orifice of the petala ſurrounding the ſtylus, where it is ſtopped or ſtaid by this viſcoſity, till it has performed its office.

To confirm this, he inſtances Mr. Fairchild, who, he ſays, being perſuaded that this viſcous liquor did ſome way or other contribute towards the fructifying of this plant, but not underſtanding how it did ſo, he tried the experiment, by wiping this liquor off as ſoon as it was depoſited in the pelvis, and the flower which he ſo ſerved did not bear any fruit.

And the way the doctor accounts for this is, that the humidity being removed, the farina is no ſooner blown upwards, than it immediately falls down, without producing any effect; and that which he takes to be a confirmation of this is, that both Tulips and Fritillarias have this pelvis or baſon, yet it is for the moſt part dry and empty; becauſe the flowers of the former being erect, they have no ſuch need of this liquor to retain the duſt; for that the rain, having immediate acceſs to them, may waſh the duſt towards the origin of the petala, where it can remain till it has performed its office; whereas the rain having no acceſs to the inner ſurface of the flower of the Corona Imperialis, it is naturally endowed with this humidity, depoſited there by ſeveral excretory ducts, in order to render it fit for the purpoſe: and Malpighius himſelf takes notice of this ſingularity in this flower, though he aſcribes no uſe to it.

The next example propoſed by Mr. Morland, is the Yellow Lily, which, according to his figure, is repreſented as having the apices equally high with the top of the ſtylus, and the petala over-topping each other; whereas he ſays, that by the narroweſt inſpection he ever could make, the top of the apices (they being then perpendicularly ſituated) reaches no higher than the neck of the button upon the top of the ſtylus, and that this is before the apices begin to burſt and ſhed the duſt; but as ſoon as the flower begins to open, they depart from the ſtylus, and force the petala outwards, by a certain elaſticity, and expand themſelves; this being done, they immediately change their poſture from a perpendicular to an oblique or horizontal one; nor do they ever pour out their duſt or farina, till they can conveniently drop it upon the bottom of the flower, and towards the root of the piſtillum.

But taking it for granted that it was ſo, the top of the ſtylus (which the Doctor calls the button, in oppoſition to the apices ſtaminum,) he ſays, is ſo compact, and of ſo firm a ſubſtance, that it is next to impoſſible, that the farina in ſubſtance, or in integral parts, can paſs through it.

If the integral parts, the complete grain, the minute globuli, in which the whole ſeminal plant is contained, cannot then enter, the whole compound muſt be diſſolved, and the minute ſeminal particles in this ſmall grain of duſt muſt be diſunited; and if ſo, how ſhall theſe again come to cement, ſo as to make up one continued body? or how ſhall this little body, ſo united, penetrate a ſecond time the partition-wall betwixt the ſtylus and piſtillum? and again, how ſhall it find out its way to its neſt, in the proper embryo of the ſeed?

The Doctor takes notice of the White Lily, the Orange Lily, the Martagon Lily, &c. as objections to the opinions of Mr. Morland, Bradley, &c. and alſo mentions the Iris, as a moſt pregnant inſtance, that the farina cannot ſo much as come at the piſtillum; for having ſix petals, the three ſtamina with long apices lie hid between the three petala which hang downwards, and three large expanſions of the bifid ſtylus, and the upper part of the down-hanging petalon: the farina can never reach the center of the ſtylus, though it were hollow, which it is not, but muſt deſcend along its outſide, to the top and outſide of the rudiment of the fruit, there to emit its effluvia. Theſe and other inſtances he concludes, are ſufficient proof, that the farina cannot enter the ſtylus, penetrate into the piſtillum, or inner part of the ſeminal veſſel, nor have the leaſt acceſs to the embryo of the ſeed.

As to the objection, that there is not paſſage ſufficient to admit the male ſeed into the uterus, or even into the ovaries, it is thus anſwered:

If it be conſidered how every flower, when it is prepared for the act of receiving the male ſeed, is ſo much under the influence of the ſun, that the petals open at its approach, and ſhut up again at its departure, it very well explains how the piſtillum, or female parts of generation, are relaxed at one time more than another, i. e. that the female parts are more relaxed at the opening of the flower, than when the flower is ſhut up; for the flower-leaves adhering to the bottom of the piſtillum, muſt conſequently, when they bend back, put every part of the piſtillum into a different poſture to that in which it was when the petals were ſhut.

And it is certain, that it is the preſence of the ſun that ripens the male duſt in the apices, and opens the little caſes in which it is contained, giving them a ſpringineſs that flings forth that duſt as ſoon as it is ripe, ſo as to ſcatter it to a conſiderable diſtance. The female parts are at this time dilated by the opening of the flower-leaves, and the apices and chives, concurring at the ſame time in flinging forth their male duſt, anſwer the ſame end in the generation of plants, that the act of copulation does among animals.

Having thus given ſeveral reaſonings and arguments uſed by various authors, who have made it their ſtudy to inveſtigate the mode of generation of vegetables, whether the impregnation of them proceeds from the farina fœcundans, or male duſt, entering the uterus of plants in ſubſtances, or by effluvia, I ſhall not take upon me to determine the diſpute; eſpecially ſince Mr. Boyle has proved, that all effluvia are ſubtile particles of matter; ſo that it matters not how ſmall or minute theſe particles are, ſince a body in its firſt ſtate may be ſo minute as to be ſcarcely perceptible.

I ſhall therefore conclude with mentioning a few experiments of my own, which I communicated to Dr. Patrick Blair, which he improved as a proof of his opinion of effluvia; and Mr. Bradley alſo, as a proof of the farina entering the uterus in ſubſtance, and leave the curious enquirer to determine on that ſide of the queſtion, to which reaſoning and experiment ſhall influence him.

I ſeparated the male plants of a bed of Spinach from the female; and the conſequence was, that the ſeed did ſwell to the uſual bigneſs, but when ſown it did not grow afterwards; and ſearching into the ſeed, I found it wanted the punctum vitæ, or what Geoffroy calls the germen.

I ſet twelve Tulips by themſelves, about ſix or ſeven yards from any other, and as ſoon as they blew, I took out the ſtamina with their ſummits ſo very carefully, that I ſcattered none of the male duſt; and about two days afterwards I ſaw bees working on a bed of Tulips, where I did not take out the ſtamina; and when they came out, they were loaded with the farina or male duſt on their bodies and legs; and I ſaw them fly into the Tulips, where I had taken out the ſtamina, and when they came out, I found they had left behind them ſufficient to impregnate theſe flowers, for they bore good ripe ſeeds which afterward grew.

In a parcel of Savoys, which were planted for ſeed near white and red Cabbages, the ſeeds, when ſown, produced half red, and ſome white Cabbages, and ſome Savoys with red ribs, and ſome neither one ſort nor the other, but a mixture of all ſorts together in one plant, which I ſuppoſe might happen by the effluvia of the different ſorts impregnating the uterus of each other.

In a letter communicated by Paul Dudley, Eſq; to the Royal Society, written from New England, he mentions the interchanging of the colours of the Indian Wheat, if the various colours are planted in rows near each other; but if they are planted ſeparately, they conſtantly keep to their own colour; and this interchanging of colours has been obſerved, when the diſtance between the rows of Corn has been ſeveral yards, though he ſays, if there happens to be a high board fence between the different coloured Corns, the alteration of colours is entirely prevented.

It is from different flowers impregnating each other, that the ſeveral varieties have been produced; and this gives new light to the floriſts, for raiſing a much greater variety of flowers; for by planting the different coloured flowers near each other, ſo that the flowers when fully blown may be intermixed, their farina will impregnate each other, ſo that the ſeeds will produce variegated flowers partaking of both colours. But it muſt be obſerved, that flowers of different genera will not impregnate each other, therefore the plants muſt be of the ſame genus which are placed together.

Cucumbers and Melons always produce male and female flowers upon different parts of the ſame plant; the male flower (which appears upon a ſlender footſtalk, and has a large ſtyle in the middle, covered with an Orange-coloured farina) is by the gardeners commonly called falſe bloſſoms, and are ſometimes by unſkilful perſons pulled off ſoon after they appear, ſuppoſing that they weaken the plants, if ſuffered to remain, which is a very great miſtake; for, in order to try this experiment, I planted four holes of Melons in a place pretty far diſtant from any other; and when the flowers began to appear, I conſtantly pulled off all the male flowers from time to time before they opened; the conſequence was, that all the young fruit dropt off ſoon after they appeared, and not one ſingle fruit remained to grow to any ſize, though the vines were equally ſtrong with thoſe which I had planted in another place, where I ſuffered all the flowers to remain upon them, from which I had a great quantity of fruit. But this doctrine is now ſo well eſtabliſhed among the gardeners, being confirmed by experience, that they now carry the male flowers of the Cucumbers and Melons to the female, if there are none ſituated very near them, and gently ſtrike the farina o the male, into the boſom of the female flowers, and thereby ſet the young fruit, which would otherwiſe drop off.

There are ſome perſons, who ſtill object to this theory of the generation of plants, from having obſerved ſome plants, which were termed female, growing ſingly, and at a very great diſtance from any male plants of the ſame kind, which had for ſome years produced ſeeds which were perfect, and grew when ſown; and indeed I was myſelf a little ſtaggered in my opinion, on having obſerved a female plant of the white Briony, which grew ſingly in a garden, where there were no other plants of the ſame kind; which for ſeveral years produced berries, which grew and flouriſhed perfectly well. This put me upon examining the plant more carefully than I had before done, when I found there were great numbers of male flowers intermixed with the female, on the ſame plant; and ſince then I have frequently found the ſame in many other plants, which are ſometimes male and female in different plants, yet have ſometimes both ſexes on the ſame plant; ſo that the objections which have been made to this doctrine, may not have proper evidence for their ſupport.

It is certain, that the female plants may produce fruit, without the impregnation of the male; but it is not certain, that this fruit or ſeed will, if ſown, produce another plant. What has been ſo often related by travellers and hiſtorians, of the neceſſity of the male Palm-tree being near the female, in order to render it fruitful, hath been fully confirmed by Father Labat, in his account of Africa, where he has treated of the ſeveral ſorts of Palms: he ſays, that he obſerved in Martinico a large Palm-tree, which grew by the ſide of a convent, which produced plenty of fruit, though there was no other Palm-tree growing within two leagues of this; but he alſo obſerved, that none of theſe fruit would grow, though they had made many trials of them; ſo that they were obliged to procure ſome fruit from Barbary, in order to propagate theſe trees. He likewiſe adds, that the fruit which grew on this female tree, never ripened ſo perfectly, nor was ſo well taſted, as thoſe which came from trees which had ſtood near ſome of the male: therefore we may conclude, that the fruit or ſeed may be produced by the female plants of moſt kinds, without the aſſiſtance of the male ſperm, which may appear to ſight perfect, and fit to produce others; but if we examine the ſeeds, we ſhall find that moſt of them have not the germ or little plant incloſed, nor will grow if they are ſown.

From theſe and many other experiments, it is very plain, that there is a neceſſity that the embryo of the female flower ſhould be impregnated by the farina or male duſt, in order to render the fruit perfect; but how, or in what manner it is performed, is what we can only gueſs at, ſince in the generation of animals, our greateſt naturaliſts differ very much in their opinions; nor can any of them aſcertain any particular method how it is performed. I ſhall therefore conclude with quoting the words of the Rev. Dr. Hales, which are a moſt ingenious ſummary of the whole doctrine of the generation of plants.

"If I (ſays he) may be allowed to indulge conjecture " in a caſe in which the moſt diligent enquirers are, " as yet, after all their laudable reſearches, advanced " but little farther than mere conjecture, I would " propoſe it to their conſideration, whether from the " manifeſt proof we have, that ſulphur ſtrongly attracts air, a hint may not be taken, to conſider " whether this may not be the primary uſe of the farina fœcundans, to attract or unite with elaſtic or " other refined active particles. That this farina " abounds with ſulphur, and that a very refined ſort, " is probable from the ſubtile oil which chymiſts obtain from the chives of Saffron; and if this be the " uſe of it, was it poſſible that it could be more aptly " placed for the purpoſe on very moveable apices " fixed on the ſlender points of the ſtamina, whereby " it might eaſily, with the leaſt breath of wind, be " diſperſed in the air, thereby ſurrounding the plant, " as it were, with an atmoſphere of ſublimed ſulphureous pounce? for many trees and plants abound " with it, which uniting with the air particles, may, " perhaps, be inſpired at ſeveral parts of the plant, " and eſpecially at the piſtillum, and be thence conveyed to the capſula ſeminalis, eſpecially towards " evening, and in the night, when the beautiful petala of the flowers are cloſed up, and they, with all " the other parts of the vegetable, are in a ſtrongly " imbibing ſtate. And if to theſe united, ſulphureous " and aereal particles, we ſuppoſe ſome particles of " light to be joined (for Sir Iſaac Newton has found, " that ſulphur attracts light ſtrongly;) then the reſult of theſe three by far the moſt active principles " in nature, will be a punctum ſaliens to invigorate " the ſeminal plant; and thus we are at laſt conducted, by the regular analyſis of vegetable nature, " to the firſt enlivening principle of their minuteſt " origin."

GENISTA. Lin. Gen. Plant. 766. Tourn. Inſt. R. H. 643. tab. 412. Broom; in French, *Genêt*.

The CHARACTERS are,

The empalement of the flower is of one leaf, tubulous, and divided into two lips; the upper lip is deeply cut into two, and the under into three equal parts. The flower is of the butterfly kind; the ſtandard is oval, acute, and remote from the keel, being wholly reflexed; the wings are a little ſhorter than the ſtandard, and are looſe: the keel is erect, and longer than the ſtandard, and is indented at the top. It hath ten ſtamina joined in two bodies, which are ſituated in the keel, terminated by ſingle ſummits. In the center is an oblong germen, ſupporting an aſcending ſtyle, crowned by an acute twiſted ſtigma. The germen afterward becomes a roundiſh turgid pod with one cell, opening with two valves, incloſing kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, which includes the plants with flowers having ten ſtamina, joined in two bodies; and to this he adds ſome of Tournefort's ſpecies of Spartium, and the Geniſtella of Tournefort.

The SPECIES are,

1. GENISTA (*Sagittalis*) ramis ancipitibus articulatis, foliis ovato-lanceolatis. Hort. Cliff. 355. *Jointed Broom, with two-edged branches, and jointed, oval, ſpear-ſhaped leaves.* Chamæ Geniſta ſagittalis. C. B. P. 395. *Dwarf arrow-ſhaped Broom.*
2. GENISTA (*Florida*) foliis lanceolatis, ramis ſtriatis teretibus racemis ſecundis. Hort. Cliff. 355. *Broom with ſpear-ſhaped leaves, and erect taper branches abounding with flowers.* Geniſta tinctoria Hiſpanica. C. B. P. 395. *Spaniſh Dyers Broom.*
3. GENISTA (*Tinctoria*) foliis lanceolatis glabris ramis ſtriatis teretibus erectis. Hort. Cliff. 355. *Broom with ſpear-ſhaped leaves which are acute, and taper channelled branches proceeding from the ſide of the ſtalk.* Geniſta tinctoria Germanica. C. B. P. 395. *Common Dyers Broom, or Wood-waxen.*
4. GENISTA (*Purgans*) ſpinis terminalibus, ramis teretibus ſtriatis, foliis lanceolatis ſimplicibus pubeſcentibus. Lin. Sp. 999. *Broom with taper-ſtreaked branches terminated by ſpines, and ſimple, ſpear-ſhaped, hairy leaves.* Geniſta ſive ſpartium purgans. J. B. 1. p. 404.
5. GENISTA (*Candicans*) foliis ternatis ſubtus villoſis, pedunculis lateralibus ſubquinquefloris foliatis, leguminibus hirſutis. Amœn. Acad. 4. p. 284. *Trifoliate Broom with hairy leaves, foot-ſtalks from the ſide of the branches having five flowers, and hairy pods.* Cytiſus Monſpeſſulanus, medicæ folio, ſiliquis denſe congeſtis & villoſis. Tourn Inſt. 648.
6. GENISTA (*Tridentata*) ramis triquetris ſubarticulatis, foliis tricuſpidatis. Lin. Sp. Plant. 710. *Broom with three-cornered jointed branches, and leaves ending in three points.* Geniſtella fruticoſa Luſitanica. Tourn. Inſt. 646. *Shrubby Portugal Dyers Broom.*
7. GENISTA (*Piloſa*) foliis lanceolatis obtuſis, caule tuberculato decumbente. Hort. Cliff. 355. *Broom with*

obtuſe ſpear-ſhaped leaves, and a declining ſtalk having tubercles. This is the Geniſta ramoſa, foliis Hyperici. C. B. P. 395. *Branching Broom with leaves like St. Johnſwort.*

8. Genista (*Anglica*) ſpinis ſimplicibus, ramis floriferis inermibus, foliis lanceolatis. Hort. Cliff. 355. *Broom with ſingle ſpines, flower-branches without ſpines, and ſpear-ſhaped leaves.* Geniſta ſpartium minus Anglicum. Tourn. Inſt. R. H. 645. *Small Engliſh Broom, called Petty Whin.*

9. Genista (*Hiſpanica*) ſpinis decompoſitis, ramis floriferis, inermibus, foliis lanceolatis. Lin. Sp. Plant. 711. *Broom with decompounded ſpines, flower-branches without ſpines, and narrow hairy leaves.* Geniſta ſpinoſa minor Hiſpanica villoſiſſima. C. B. P. 395. *Moſt hairy, ſmall, Spaniſh, prickly Broom.*

The firſt ſort grows naturally in France, Italy, and Germany. This plant ſends out ſeveral ſtalks from the root, which ſpread flat on the ground, and divide into many flat branches which are jointed, and their two ſides are edged like a broad ſword; theſe are green and herbaceous, but are perennial. At each of the joints is placed one ſmall ſpear-ſhaped leaf, without any foot-ſtalk. The flowers are produced in cloſe ſpikes at the end of the branches; they are yellow, and of the Pea-bloom kind, and are ſucceeded by ſhort hairy pods, which contain three or four kidney-ſhaped ſeeds. The plants flower in June, and the ſeeds ripen in September.

This ſort is propagated by ſeeds, which, if ſown in the autumn, the plants will come up the following ſpring; but when they are ſown in the ſpring, the plants rarely come up the ſame year: when the plants come up, they will require no other culture but to keep them clean from weeds, and thin them where they are too cloſe; at Michaelmas they may be tranſplanted where they are deſigned to remain, and after that they will only require to be kept clean, for they are very hardy, and will live ſeveral years.

The ſecond ſort riſes with ligneous ſtalks about two or three feet high, ſending out many taper channelled branches which grow erect, garniſhed with ſmall ſpear-ſhaped leaves placed alternate, and are terminated by ſeveral ſpikes of yellow flowers, which are of the Pea-bloom kind; theſe are ſucceeded by ſhort pods, which turn black when ripe, and contain four or five kidney-ſhaped ſeeds. It flowers in June and July, and the ſeeds ripen in autumn.

The third ſort grows naturally in England. This hath ſhrubby ſtalks, which riſe about three feet high, garniſhed with ſpear-ſhaped leaves, which are broader, and end in ſharper points than thoſe of the former; the branches come out from the ſide of the ſtalks, almoſt their whole length, and do not grow ſo upright as thoſe of the ſecond; theſe are terminated by looſe ſpikes of yellow flowers, which are ſucceeded by pods like thoſe of the ſecond ſort. It flowers, and the ſeeds are ripe about the ſame time as the former. The branches of the plant are uſed by the dyers, to give a yellow colour, from whence it is called Dyers Broom, Green-wood, Wood-waxen, or Dyers-weed.

The fourth ſort grows naturally about Montpelier. This riſes with ſhrubby, ſtriated, taper ſtalks four feet high, ſending out ſeveral branches which are terminated by ſpines; the leaves are ſpear-ſhaped, ſingle, and hairy; the flowers are produced in ſpikes at the end of the branches, they are larger than thoſe of the other ſorts, and are of a paler yellow colour. They appear in June and July, and are ſucceeded by pods like the former ſorts.

This ſort is tender, and in ſevere froſts is often killed in England, where the plants are not protected.

The fifth ſort grows naturally about Montpelier. This riſes with a woody ſtalk to the height of ſeven or eight feet, ſending out many ſlender branches, garniſhed with trifoliate leaves, hairy on their under ſide; the upper part of theſe branches, for more than a foot in length, ſend out ſmall flowering branches on their ſide, ſupporting five yellow flowers. Theſe appear in June and July, and the ſeeds ripen in autumn.

The ſixth ſort hath a low ſhrubby ſtalk, which ſeldom is more than a foot high, ſending out ſeveral weak branches which are jointed, garniſhed with ſmall leaves ending in three acute parts. The flowers are produced in looſe ſpikes at the top of the branches, they are of a pale yellow colour, and appear the latter end of June and in July, and the ſeeds ripen in September. This plant grows naturally in Portugal.

The ſeventh ſort hath a ſhrubby ſtalk which declines toward the ground, and is ſet over with tubercles; it divides into a few ſmall branches, which are garniſhed with ſmall obtuſe leaves. The flowers are diſpoſed in ſmall looſe ſpikes at the end of the branches; they are ſmall, of a pale yellow colour, and are ſucceeded by ſhort pods filled with kidney-ſhaped ſeeds. It flowers in June, and the ſeeds ripen in autumn. This grows naturally in Germany and France.

The eighth ſort grows naturally upon open heaths in many parts of England. It hath a ſhrubby ſtalk which riſes about two feet high, ſending out many ſlender branches, which are armed with long ſingle ſpines, and garniſhed with very ſmall ſpear-ſhaped leaves, placed alternate on every ſide the branches: the flower-branches have no ſpines; theſe are ſhort, and have five or ſix yellow flowers growing in a cluſter at the end. They come out in April and May, and are ſucceeded by ſhort turgid pods, which contain four or five ſmall kidney-ſhaped ſeeds. Theſe ripen in July.

The ninth ſort grows naturally in Spain. This hath a low ſhrubby ſtalk, which ſends out many ligneous branches, armed with branching thorns, compoſed of ſeveral ſharp thorns, which come out from each other, but the ſhort branches which produce the flowers have no ſpines; theſe are garniſhed with ſmall hairy leaves of different forms, ſome of them being as narrow as hairs, and others are of the ſpear-ſhape; the branches are terminated by cluſters of yellow flowers, which are ſucceeded by ſhort, compreſſed, hairy pods, filled with kidney-ſhaped ſeeds. The whole plant has much the appearance of the common Furz or Gorſe, but is very hairy, and the flower-branches being without thorns, are the moſt obvious diſtinctions.

All theſe ſorts of Brooms are propagated by ſeeds, which, if ſown in the autumn, will ſucceed much better than if ſown in the ſpring, and a year will be thereby ſaved; as theſe plants ſend out long, ſtringy, tough roots, which run deep into the ground, they do not bear tranſplanting well, eſpecially if they are not removed young; therefore the beſt way is to ſow a few ſeeds in thoſe places where the plants are deſigned to remain, and to pull up all except the moſt promiſing plants as ſoon as they are paſt danger; after this the plants will require no other culture, but to keep them clean from weeds: but where this cannot be practiſed, the ſeeds may be ſown thin upon a bed of light earth, and when the plants come up, they muſt be kept clean from weeds till the following autumn, when the plants ſhould be carefully taken up and tranſplanted where they are deſigned to remain.

They are all very hardy plants except the fourth, fifth, and ninth ſorts, which muſt have a warm ſheltered ſituation and dry ſoil, otherwiſe they will not live through the winter, but the others will grow in almoſt any ſoil or ſituation.

GENISTA SPINOSA, the Furz, Whins, or Gorſe. See Ulex.

GENTIANA. Lin. Gen. Plant. 285. Tourn. Inſt. R. H. 80. tab. 40. [takes its name from Gentius, a king of Illyrium, who firſt diſcovered the virtues of this plant.] Gentian, or Fellwort; in French, *Gentiane.*

The Characters are,

It hath a permanent empalement, which is cut into five acute ſegments. The flower hath one petal, which is tubulous, cut into five parts at the top, which are flat. It hath

hath five awl-ſhaped ſtamina, which are ſhorter than the petal, terminated by ſingle ſummits. In the center is ſituated an oblong cylindrical germen, having no ſtyle, but is crowned by two oval ſtigmas. The germen afterward becomes an oblong taper-pointed capſule, with one cell, containing many ſmall ſeeds faſtened to the valves of the capſule.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, which includes the plants whoſe flowers have five ſtamina and two ſtigmas.

The Species are,

1. Gentiana (*Lutea*) corollis quinquefidis rotatis verticillatis, calycibus ſpathaceis. Hall. Helv. 479. *Gentian with quinquefid wheel-ſhaped petals growing in whorls, and hood-like empalements.* Gentiana major lutea. C. B. P. 187. *Greater yellow Gentian.*
2. Gentiana (*Pneumonathe*) corollis quinquefidis campanulatis oppoſitis pedunculatis, foliis linearibus. Lin. Sp. Plant. 228. *Gentian with bell-ſhaped quinquefid petals placed oppoſite upon foot-ſtalks, and very narrow leaves.* Gentiana anguſtifolia autumnalis major. C. B. P. 188. *Greater narrow-leaved autumnal Gentian.*
3. Gentiana (*Aſclepiades*) corollis quinquefidis campanulatis oppoſitis ſeſſilibus, foliis amplexicaulibus. Lin. Sp. Plant. 227. *Gentian with bell-ſhaped quinquefid petals ſitting cloſe to the ſtalk oppoſite, and leaves embracing the ſtalk.* Gentian Aſclepiades folio. C. B. P. 187. *Gentian with a Swallow-wort leaf.*
4. Gentiana (*Acaulis*) corollâ quinquefidâ campanulatâ, caulem excedente. Lin. Sp. Plant. 228. *Gentian with a bell-ſhaped quinquefid petal exceeding the ſtalk.* Gentiana Alpina latifolia, magno flore. C. B. P. 187. *Broad-leaved Alpine Gentian with a large flower, commonly called Gentianella.*
5. Gentiana (*Nivalis*) corollis quinquefidis infundibuliformibus, ramis unifloris alternis. Lin. Sp. Plant. 229. *Gentian with funnel-ſhaped quinquefid petals, and alternate branches having one flower.* Gentiana annua, foliis Centaurii minoris. Tourn. Inſt. 81. *Annual Gentian with leſſer Centaury leaves.*
6. Gentiana (*Cruciata*) corollis quadrifidis imberbibus verticillatis ſeſſilibus. Lin. Sp. Plant. 231. *Gentian with quadrifid petals without beards, growing in whorls cloſe to the ſtalks.* Gentiana cruciata. C. B. P. 188. *Croſſwort Gentian.*
7. Gentiana (*Cilliata*) corollis quadrifidis margine ciliatis. Lin. Sp. Plant. 231. *Gentian with a four-pointed petal, whoſe border is hairy.* Gentianella cærulea oris piloſis. C. B. P. 188. *Blue Gentian with hairy brims.*
8. Gentiana (*Utriculoſa*) corollis quinquefidis hypocrateriformibus, calycibus plicatis alatis. Lin. Sp. Plant. 229. *Gentian with ſalver-ſhaped quinquefid petals, and winged plaited empalements.* Gentiana utriculis ventricoſis. C. B. P. 188. *Gentian with a ventricoſe tube.*
9. Gentiana (*Centaureum*) corollis quinquefidis infundibuliformibus caule dichotomo. Lin. Sp. Plant. 229. *Gentian with a funnel-ſhaped, five-pointed petal, and a forked ſtalk.* Centaurium minus. C. B. P. 278. *Leſſer Centaury.*
10. Gentiana (*Perfoliatum*) corollis octifidis, foliis perfoliatis. Lin, Sp. Plant. 232. *Gentian with an eight-pointed petal, and Thorough-wax leaves.* Centaurium luteum perfoliatum. C. B. P. 278. *Yellow perfoliate Centaury.*
11. Gentiana (*Spicata*) corollis quinquefidis floribus alternis ſeſſilibus. Lin. Sp. Plant. 230. *Gentian with funnel-ſhaped five-pointed petals, flowers growing alternate, and ſitting cloſe to the ſtalks.* Centaurium minus ſpicatum album. C. B. P. 278. *Leſſer Centaury with a white ſpiked flower.*
12. Gentiana (*Exaltata*) corollis quinquefidis coronatis crenatis, pedunculo terminali longiſſimo dichotomo. Lin. Sp. 331. *Gentian with a five-pointed petal, a very long foot-ſtalk, and forked branches.* Centaurium minus maritimum amplo flore cæruleo. Plum. Cat. 3. *Leſſer maritime Centaury with a large blue flower.*

The firſt ſort is the common Gentian of the ſhops, whoſe root is one of the principal ingredients in bitters.

This plant has a large thick root of a yellowiſh brown colour, and a very bitter taſte; the lower leaves are of an oblong oval ſhape, a little pointed at the end, ſtiff, of a yellowiſh green, and have five large veins on the back of each, and are plaited. The ſtalk riſes to the height of three or four feet, which is garniſhed with leaves, growing by pairs at each joint, almoſt embracing the ſtalk at their baſe; theſe are of the ſame form with the lower, but diminiſh gradually in their ſize to the top. The flowers come out in whorls at the joints, toward the upper part of the ſtalks, ſtanding on ſhort foot-ſtalks, whoſe origin is from the wings of the leaves; theſe are of a pale yellow, and have one petal, which is divided almoſt to the bottom, having an oblong cylindrical germen, which afterward ſwells to an oblong taper capſule, which is bifid at the point, and opens in two cells, filled with ſmall ſeeds.

It grows naturally in the paſtures in Switzerland, and in the mountainous parts of Germany, from whence the roots are brought to England for medicinal uſe; there is a compound water, and an extract made of them. The root of the Gentian is alſo one of the principal ingredients in bitters, and is frequently uſed in many diſorders.

But a few years ago, there was a mixture of Henbane roots brought over with Gentian, which was unhappily uſed, and occaſioned great diſorders in the perſons to whom it was adminiſtered; upon which great enquiry was then made to find out what that root could be, ſome ſuſpecting it to be the root of Deadly Nightſhade, and others believing it to be ſome of the poiſonous umbelliferous roots, but on comparing it with ſome dried roots of the Henbane, I found they were the ſame. We have likewiſe an account of the noxious quality of theſe roots, printed in the Synopſis Stirpium Hibernicarum, which was communicated to the author by Dr. Thomas Molyneux, phyſician to the ſtate; it was as follows:

The Dean of Clonfert was making ſome alterations in his garden, and, looking over his workmen, he obſerved them to dig up many roots, which he took for Skirrets, and therefore ordered ſome of them to be carried in and dreſſed for dinner, which was accordingly done; but all thoſe who eat of them were in a ſhort time ſeized with dizzineſs in their head, ſickneſs at the ſtomach, attended with an unuſual heat and drineſs in their throats; and two, who had eaten a larger ſhare than the reſt, loſt the uſe of their reaſon, and became delirious, which continued for ſome days; and as it appeared evident theſe diſorders were occaſioned by the roots, the Dean cauſed ſome of them to be planted, that he might be aſſured what the plant was whoſe roots had this bad quality; and in the ſpring, when they put out their leaves, they proved to be the Henbane, which has been noticed by old writers to be poſſeſſed of theſe qualities. And as the diſorders which were occaſioned by theſe ſuppoſed Gentian roots, were nearly the ſame, as is above related, I thought it might be of uſe to inſert it here, to caution others againſt eating of roots which they are unacquainted with.

This plant delights in a light loamy ſoil and a ſhady ſituation, where it will thrive much better than in a light dry ſoil, or in an open expoſure. It is propagated by ſeeds, which ſhould be ſown in pots ſoon after it is ripe, for if it is kept till the ſpring, it will not ſucceed; theſe pots ſhould be placed in a ſhady ſituation, and kept clean from weeds. In the ſpring the plants will appear, when they muſt be duly watered in dry weather, and kept clean from weeds till the following autumn; then they ſhould be carefully ſhaken out of the pots, ſo as not to break or injure their roots; and a ſhady border of loamy earth ſhould be well dug and prepared to receive them, into which the plants ſhould be planted at about ſix inches diſtance each way, obſerving to let the top of the roots be a little below the ſurface of the ground, then preſs the earth cloſe to the roots; after this they will require no farther care, but to keep them conſtantly clean from weeds; and if the following ſpring ſhould prove dry, they ſhould be duly watered, which will greatly forward their growth. In this border the plants may ſtand two years, by which time they will be fit to tranſplant where they are deſigned to remain; therefore in autumn, ſo ſoon as their leaves decay, they may be removed; but as the roots of theſe plants run deep into the ground, like Carrots, there muſt be great care taken in digging them up, not to cut or break their roots, for that will greatly weaken, if it does not kill them. After the plants are well fixed in their places, they require no other culture, but to dig the ground about them early in the ſpring before they begin to ſhoot, and in the ſummer to keep them clean from weeds. The roots of theſe plants will continue many years, but the ſtalks decay every autumn; the ſame roots do not flower two years together, nor ſeldom oftener than every third year; but when they flower ſtrong, they make a fine appearance; and as theſe delight in ſhady moiſt ground, where but few ornamental plants will thrive, ſo they ſhould not be wanting in good gardens.

The ſecond ſort grows naturally in moiſt paſtures in many parts of England, but particularly in the north; this riſes with an upright ſtalk about a foot high, garniſhed with ſmooth leaves an inch and a half long, and leſs than a quarter of an inch broad; they are placed oppoſite, and have no foot-ſtalks. The flowers are produced on the top of the ſtalk, three or four in number, ſtanding upon foot-ſtalks alternately above each other; they are large, bell-ſhaped, and divided into five points at their brim, and are of a deep blue colour, ſo make a fine appearance; theſe come out the latter end of July in the warm parts of England, but in the north they are full a month later.

It may be propagated by ſeeds in the ſame manner as the firſt ſort, and the plants may be treated in the ſame way; but as this ſort does not ſhoot its roots deep into the ground, it may be tranſplanted with leſs hazard; however, if theſe are removed with a ball of earth to their roots, they will not feel their removal ſo much as when the earth is all taken from them. This ſort ſhould be planted in a ſtrong, moiſt, loamy ſoil, in which the plants will thrive and flower annually, but in a warm dry ſoil they will not thrive or flower.

The third ſort grows naturally upon the Helvetian mountains; this riſes with an upright ſtalk near a foot high, garniſhed with ſmooth leaves about two inches long, and three quarters of an inch broad at their baſe, where they embrace the ſtalk, but they end in acute points; they are placed oppoſite, and are of a fine green, and diminiſh in their ſize as they are nearer the top; they have five longitudinal veins, which join at both ends, but diverge from each other in the middle. The flowers come out by pairs oppoſite, from the bottoms of the leaves, ſtanding on ſhort foot-ſtalks; they are pretty large, bell-ſhaped, and of a fine blue colour, ſo make a fine appearance when they are open. This ſort flowers in June and July.

It may be propagated by ſeeds in the ſame manner as the firſt ſort, and the plants may be treated in the ſame way, but they muſt have a moiſt loamy ſoil, otherwiſe they will not thrive. It may alſo be propagated by offsets, which may be divided from the roots; theſe ſhould be taken off in autumn, which is the beſt ſeaſon for removing all theſe ſorts of plants; but theſe ſhould not be removed, or parted oftener than every third year, where they are expected to produce ſtrong flowers.

The fourth ſort grows naturally on the Alps and Helvetian mountains, but has been long cultivated in moſt of the curious gardens in Europe; this is commonly known by the title of Gentianella. It is a low plant, the ſtalks ſeldom growing more than three or four inches high; they are garniſhed with ſmooth leaves placed oppoſite, which are two inches long, and half an inch broad, ſitting cloſe to the ſtalk. The flowers grow erect on the top of the ſtalk, ſo ſtand quite above them; theſe are often ſingle, but ſometimes, when the plants are ſtrong, there will be four or five at the end of each ſtalk; they are large, bell-ſhaped, and of a deep azure blue, ſo is the fineſt of that colour of any flower yet known. It uſually flowers in May, but ſometimes the plants flower again in autumn.

This is commonly propagated by parting of the roots, in the ſame manner as is before directed for the third ſort, but theſe muſt not be often tranſplanted, or parted, if they are wanted to flower ſtrong; this ſort ſhould have a ſoft loamy ſoil and a ſhady ſituation, where the plants will thrive and flower well every year.

It may alſo be propagated by ſeeds, which, in a good ſoil, the plants will produce in plenty; theſe ſhould be ſown in autumn, in the ſame manner as is before directed for the firſt ſort; and if the plants are planted in a good ſoil, they will be ſtrong enough to flower the ſecond year after they come up, and theſe ſeedling plants will flower much ſtronger than thoſe which are propagated by offsets.

The fifth and eighth ſorts are low annual plants, which grow naturally upon the Alps and other mountainous places in Europe, and are very rarely cultivated in gardens. The fifth ſeldom riſes more than two inches high, branching out from the root into ſeveral ſlender ſtalks, garniſhed with very ſmall leaves placed by pairs, and each ſtalk is terminated by one ſmaller blue flower ſtanding erect. The eighth ſort grows about four inches high, with a ſingle upright ſtalk of a purple colour. The leaves at the root are oval, but thoſe upon the ſtalk are narrow, and ſtand oppoſite. The ſtalk is terminated by one blue flower, with a large bellied empalement, which is plaited, and the petal of the flower riſes but a little above the empalement, ſo does not make much appearance. After the top flower decays, there are frequently two ſmaller flowers which come out from the ſide of the ſtalk, at the two upper joints; theſe flower after each other, the upper one coming firſt, ſo that there is a ſucceſſion of flowers till autumn.

As theſe plants uſually grow upon moiſt ſpongy ground, it is very difficult to cultivate them in gardens; for unleſs they have a ſoil approaching near to that in which they naturally grow, they will not thrive; the only method to obtain them is, either to ſow their ſeeds in pots, or upon a moiſt boggy ground in autumn, but it muſt be in the ſhade; and when the plants come up, they may be thinned, and the ſurface of the ground about them covered with moſs, which ſhould be conſtantly kept moiſt; with this management I have ſeen the plants thrive and flower very well.

The ſixth ſort is a perennial plant, which grows naturally upon the Appenines and the Helvetian mountains; this riſes with an upright ſtalk about ſix inches high, garniſhed with ſmooth ſpear-ſhaped leaves about two inches long, and one broad in the middle, ſitting cloſe to the ſtalk; they are placed oppoſite, and each pair of leaves croſs one another, from whence it is called Croſſwort Gentian. The flowers are produced in whorls round the ſtalks at the upper joints, ſitting very cloſe to the ſtalks, and at the top there is a large cluſter growing in the ſame form; theſe are of a light blue colour, and appear in May. This may be propagated by ſeeds, or offsets, in the ſame manner as the third and fourth ſorts, and the plants muſt be treated in the ſame way.

The ſeventh ſort grows naturally upon the Alps, and other mountainous parts of Europe; this is a low perennial plant, whoſe ſtalks are very ſlender, and rarely riſe more than three or four inches high, garniſhed with ſmall, narrow, acute-pointed leaves, placed in pairs; each ſtalk is terminated by one large blue flower, which is hairy on the inſide at the brim. This flowers in July and Auguſt, and may be propagated and treated in the ſame manner as the third and fourth ſorts.

The ninth ſort is the Leſſer Centaury of the ſhops; this grows naturally upon dry paſtures in moſt parts of England, where it riſes in height proportionable to the goodneſs of the ſoil; for in good land it is frequently a foot high, but in poor ſoils not more than three or four inches. It is an annual plant, with upright branching ſtalks, garniſhed with ſmall leaves placed by pairs. The flowers grow in form of an umbel at the top, and are of a bright purple colour; they come out in July, and the ſeeds ripen in autumn. This plant cannot be cultivated in the gardens.

The tenth ſort grows naturally upon chalky grounds in many parts of England. It is an annual plant, riſing with an upright ſtalk a foot high, garniſhed with oval-pointed leaves, whoſe baſe ſurrounds the ſtalk; they grow by pairs, and are of a gray colour; the ſtalks and leaves are very ſmooth. The flowers grow in form of an umbel on the top of the ſtalk; they are of a bright yellow colour, and are cut into eight parts at the top. Theſe appear in July, and the ſeeds ripen in autumn.

The eleventh ſort is an annual plant, which grows naturally in the ſouth of France and in Italy; this riſes with an upright ſtalk about a foot high, ſending out ſeveral branches toward the top, which are garniſhed by ſmall leaves placed oppoſite. The flowers are produced from the ſide and at the top of the ſtalk, in form of looſe irregular umbels; they are white, and about the ſize of thoſe of the common Centaury.

The twelfth ſort grows naturally in the Weſt-Indies, where it was diſcovered by Father Plumier, and the late Dr. Houſtoun found it growing in plenty at La Vera Cruz, in low moiſt places where the water ſtagnates, but at a remoter diſtance from the ſea. The ſeeds of this plant he ſent to England, which ſucceeded in the Chelſea garden; this riſes with an upright branching ſtalk near two feet high, garniſhed with oblong, ſmooth, acute-pointed leaves, placed oppoſite; the upper part of the ſtalk divides into ſeveral forks, between which are ſix or ſeven long naked foot-ſtalks, each ſuſtaining one large blue flower, divided into five ſegments at the brim. The flowers are ſucceeded by oblong capſules with one cell, filled with ſmall ſeeds.

This is propagated by ſeeds, which muſt be ſown on a hot-bed ſoon after they are ripe, and the plants afterward treated in the ſame manner as other tender annual plants from warm countries, being too tender to thrive in the open air in England. If the ſeeds of this plant are ſown in autumn, in pots placed in the tan-bed of the ſtove, they will ſucceed better than when they are ſown in the ſpring, and the plants will flower early, ſo good ſeeds may be obtained.

GENTIANELLA. See GENTIANA.

GERANIUM. Lin. Gen. Plant. 346. Tourn. Inſt. R. H. 266. tab. 142. [takes its name from Γέρανος, *Gr.* a crane, or ſtork, becauſe its fruit reſembles the bill of a Crane.] *Crane's-bill*; in French, *Bec de Gruë*.

The CHARACTERS are,

The flower hath a permanent empalement, compoſed of five ſmall oval leaves. The flower hath five petals, which are oval, or heart-ſhaped, ſpreading open; theſe are in ſome ſpecies equal, and in others, the upper two are much larger than the three lower. It hath ten ſtamina, which are alternately longer, but are ſhorter than the petals, and are terminated by oblong ſummits. In the bottom of the flower is ſituated a five-cornered germen, ſupporting an awl-ſhaped ſtyle longer than the ſtamina, which is permanent, crowned by five reflexed ſtigmas. The flower is ſucceeded by five ſeeds, each being wrapped up in the huſk of the beak, which is extended the length of the ſtyle, where they are twiſted together at the point, ſo as to form the reſemblance of a ſtork's beak.

This genus of plants is ranged in the ſecond ſection of Linnæus's ſixteenth claſs, which includes thoſe plants whoſe flowers have ten ſtamina, and the male and female organs are joined in one body. Tournefort places it in the ſixth ſection of his ſixth claſs, in which he ranges the herbs with a Roſe flower, whoſe pointal becomes a fruit with ſeveral capſules.

The SPECIES are,

1. GERANIUM (*Pratenſe*) pedunculis bifloris, foliis ſubpeltatis multipartitis pinnato laciniatis rugoſis acutis, petalis integris. Hort. Cliff. 344. *Crane's-bill with two flowers on each foot-ſtalk, target-ſhaped leaves cut into many acute ſegments, and entire petals.* Geranium batrachiodes, Gratia Dei Germanorum. C. B. P. *Crane's-bill with a Crow-foot leaf, and large blue flowers.*
2. GERANIUM (*Macrorrhizum*) pedunculis bifloris, calycibus inflatis, piſtillo longiſſimo. Hort. Cliff. 343. *Crane's-bill with two flowers on each foot-ſtalk, inflated empalements, and a very long pointal to the flower.* Geranium batrachioides, longius radicatum, odoratum. J. B. *Long-rooted ſweet-ſmelling Crane's-bill, with a Crow-foot leaf.*
3. GERANIUM (*Sanguineum*) pedunculis unifloris, foliis quinquepartitis trifidis orbiculatis. Lin. Sp. Plant. 685. *Crane's-bill with one flower on each foot-ſtalk, and orbicular leaves, which are trifid and divided into five parts.* Geranium ſanguineum, maximo flore. H. Ox. *Bloody Crane's-bill with a larger flower.*
4. GERANIUM (*Lancaſtrenſe*) pedunculis unifloris, foliis quinquepartitis laciniis obtuſis brevibus, caulibus decumbentibus. *Crane's-bill with one flower upon each foot-ſtalk, leaves divided into five parts, whoſe ſegments are ſhort, blunt, and declining ſtalks.* Geranium hæmatodes Lancaſtrenſe, flore eleganter ſtriato. Raii Hiſt. *Bloody Crane's-bill with a variegated flower.*
5. GERANIUM (*Nodoſum*) pedunculis bifloris, foliis caulinis trilobis integris ſerratis, ſummis ſubſeſſilibus. Hort. Cliff. 343. *Crane's-bill with two flowers on each foot-ſtalk, the leaves upon the ſtalks having three entire ſawed lobes, the upper leaves ſitting cloſe to the ſtalk.* Geranium 5. nodoſum. Plateau. Cluſ. Hiſt. *Knotty Crane's-bill.*
6. GERANIUM (*Phæum*) pedunculis bifloris, foliiſque alternis, calycibus ſubariſtatis, caule erecto, petalis undulatis. Lin. Sp. Plant. 681. *Crane's-bill with two flowers on each foot-ſtalk, alternate leaves, bearded empalements, an erect ſtalk, and waved petals to the flower.* Geranium phæum ſive fuſcum, petalis reflexis, folio non maculoſo. H. L. *Brown Crane's-bill with reflexed petals, and leaves not ſpotted.*
7. GERANIUM (*Fuſcum*) pedunculis bifloris, foliis quinquelobatis inciſis, petalis reflexis. *Crane's-bill with two flowers upon each foot-ſtalk, leaves divided into five lobes, which are cut, and the petals of the flowers reflexed.* Geranium phæum ſive fuſcum, petalis rectis ſeu planis, folio maculato. H. L. *Brown Crane's-bill with plain petals, and ſpotted leaves.*
8. GERANIUM (*Striatum*) pedunculis bifloris, altero breviore, foliis quinquelobis medio dilatatis, petalis bilobis venoſo reticulatis. Burm. Ger. *Crane's-bill with two flowers upon each foot-ſtalk, one bigger than the other, leaves having five lobes, and flowers with two lobes.* Geranium Romanum, verſicolor ſive ſtriatum. Park. Par. *Roman Crane's-bill with ſtriped flowers.*
9. GERANIUM (*Sylvaticum*) pedunculis bifloris, foliis ſubpeltatis quinquelobis inciſo-ſerratis, caule erecto, petalis emarginatis. Flor. Lapp. 266. *Crane's-bill with two flowers on each foot-ſtalk, target-ſhaped leaves with five lobes deeply ſawed, an erect ſtalk, and indented petals to the flower.* Geranium batrachioides montanum noſtras. Ger. *Mountain Crane's-bill with a Crow-foot leaf.*
10. GERANIUM (*Orientale*) pedunculis bifloris, foliiſque oppoſitis, petalis integris, calycibus brevioribus. *Eaſtern Dove's-foot Crane's-bill, with oppoſite leaves, two flowers on each foot-ſtalk, and a ſhort empalement.* Geranium Orientale columbinum, flore maximo, aſphodeli radice. T. Cor. *Oriental Dove's-foot Crane's-bill, with an Aſphodel root and large flowers.*
11. GERANIUM (*Perenne*) pedunculis bifloris, foliis inferioribus quinque-partito-multifidis rotundis, ſuperioribus trilobis, caule erecto. Hudſ. Flor. Ang. 265. *Crane's-bill with two flowers on each foot-ſtalk, the lower leaves having five many-pointed lobes, the upper three,*

three, and an erect ſtalk. Geranium Columbinum perenne Pyrenaicum maximum. Tourn. Inſt. R. H. 268. *Greateſt perennial Dove's-foot Crane's-bill of the Pyrennes.*

12. Geranium (*Alpinum*) pedunculis longiſſimis multifloris, calycibus ariſtatis, foliis bipinnatis. *Crane's-bill with very long foot-ſtalks ſuſtaining many flowers, bearded empalements, and double wing-pointed leaves.* Geranium Alpinum Coriandri folio, longius radicatum, flore majore purpureo. Michel. *Alpine Crane's-bill with a Coriander leaf, a long root, and a larger purple flower.*

13. Geranium (*Argenteum*) pedunculis bifloris, foliis ſubpeltatis ſeptempartitis trifidis tomentoſo-ſericeis, petalis emarginatis. Amœn. Acad. 4. p. 324. *Crane's-bill with two flowers on each foot-ſtalk, target-ſhaped leaves divided into ſeven parts, which are ſilvery, and the petals of the flower indented.* Geranium argenteum Alpinum. C. B. P. 318. *Silvery Alpine Crane's-bill.*

14. Geranium (*Maculatum*) pedunculis bifloris, caule dichotomo erecto, foliis quinquepartitis inciſis ſummis ſeſſilibus. Flor. Virg. 78. *Crane's-bill with two flowers on each foot-ſtalk, upright ſtalks divided by pairs, and cut leaves divided into five parts, the upper ſitting cloſe to the ſtalk.* Geranium batrachioides Americanum maculatum, floribus obſoletè cæruleis. Hort. Elth. 158. *American ſpotted Crane's-bill with obſolete blue flowers.*

15. Geranium (*Bohemicum*) pedunculis bifloris petalis emarginatis arillis hirtis cotyledonibus trifidis medio truncatis. Burm. Ger. 4. *Crane's-bill with two flowers on each foot-ſtalk, indented petals to the flower, hairy beards, and a trifid leaf.* Geranium annuum minus batrachiodes Bohemicum, purpuro-violaceum. Mor. Hiſt. 2. 511. *Leſſer annual Crane's-bill of Bohemia, with a purple Violet flower.*

16. Geranium (*Sibiricum*) pedunculis ſubunifloris, foliis quinquepartitis acutis foliolis pinnatifidis. Lin. Sp. Plant. 683. *Crane's-bill with one flower on a foot-ſtalk, leaves divided into five acute parts, and the ſmaller leaves wing-pointed.*

17. Geranium (*Moſchatum*) pedunculis multifloris, floribus pentandris foliis pinnatis inciſis cotyledonibus pinnatifidis. Burm. Ger. 22. *Crane's-bill with many flowers on each foot-ſtalk, having five ſtamina to the flowers, and cut winged leaves.* Geranium cicutæ folio, moſchatum. C. B. P. *Muſked Crane's-bill, frequently called Muſcovy.*

18. Geranium (*Gruinum*) pedunculis ſub multifloris, floribus pentandris, foliis ternatis lobatis. Burm. Ger. 32. *Crane's-bill with many flowers on a foot-ſtalk, five ſtamina to the flower, and ternate lobed leaves.* Geranium latifolium annuum, cæruleo flore, acu longiſſimâ. H. Ox. *Broad-leaved annual Crane's-bill with a blue flower, and a very long beak.*

19. Geranium (*Ciconium*) pedunculis multifloris, calycibus pentaphyllis, floribus pentandris, foliis pinnatis acutis ſinuatis. Lin. Sp. Plant. 680. *Crane's-bill with many flowers on each foot-ſtalk, having five-leaved empalements, five ſtamina to the flowers, and acute, ſinuated, winged leaves.* Geranium Cicutæ folio, acu longiſſimâ. C. B. P. 319. *Crane's-bill with a Hemlock leaf, and very long beaks to the ſeed.*

20. Geranium (*Viſcoſum*) pedunculis multifloris, calycibus pentaphyllis, floribus pentandris, foliis bipinnatis multifidis caule erecto. *Crane's-bill with many flowers on each foot-ſtalk, having five-leaved empalements, flowers with five ſtamina, and many-pointed winged leaves.* Geranium cicutæ folio viſcoſum erectum, acu longiſſimâ. Juſſieu. *Erect viſcous Crane's-bill with a Hemlock leaf, and very long beaks to the ſeed.*

21, Geranium (*Cucullatum*) calycibus monophyllis, foliis cuculatis dentatis. Hort. Cliff. 345. *Crane's-bill with an empalement of one leaf, and indented hooded leaves.* Geranium Africanum arboreſcens, ibiſci folio rotundo, carlinæ odore. H. L. *African-tree Crane's-bill with a round Marſhmallow leaf, and ſmell of the Carline Thiſtle.*

22. Geranium (*Anguloſum*) calycibus monophyllis, foliis cuculatis anguloſis, acutè dentatis. *Crane's-bill with a one-leaved empalement, and angular hooded leaves ſharply indented.* Geranium Africanum arboreſcens, ibiſci folio anguloſo, floribus amplis purpureis. Phil. Tranſ. 388. *African-tree Crane's-bill with an angular Marſhmallow leaf, and large purple flowers.*

23. Geranium (*Zonale*) calycibus monophyllis, foliis cordato-orbiculatis inciſis zona notatis. Hort. Upſal. 196. *Crane's-bill with a one-leaved empalement, and round heart-ſhaped leaves, which are cut, and marked with a circle.* Geranium Africanum arboreſcens, alchimillæ hirſuto folio, floribus rubicundis. Com. Præl. *African-tree Crane's-bill with an hairy Ladies Mantle leaf, and red flowers.*

24. Geranium (*Inquinans*) calycibus monophyllis, foliis orbiculato-reniformibus tomentoſis crenatis integriuſculis, caule fruticoſo. Hort. Upſal. 195. *Crane's-bill with a one-leaved empalement, and round kidney-ſhaped leaves which are woolly, crenated, entire, and a ſhrubby ſtalk.* Geranium Africanum arboreſcens, malvæ folio plano lucido, flore elegantiſſimè kermeſino. Di van Leur. Boerh. Ind. *African-tree Crane's-bill, with a plain, ſhining, Mallow leaf, and an elegant ſcarlet flower.*

25. Geranium (*Capitatum*) calycibus monophyllis, foliis lobatis undatis villoſis, caule fruticoſo. Hort. Upſal. 196. *Crane's bill with empalements of one leaf, leaves divided into lobes, which are waved and hairy, and a ſhrubby ſtalk.* Geranium Africanum friteſcens, malvæ folio odorato laciniato. H. L. *African ſhrubby Crane's-bill with a jagged, ſweet-ſmelling, Mallow leaf.*

26. Geranium (*Vitifolium*) calycibus monophyllis, foliis adſcendentibus lobatis pubeſcentibus, caule fruticoſo. Hort. Upſal. 196. *Crane's-bill with one-leaved empalements, aſcending leaves which have lobes, are covered with ſoft hairs, and a ſhrubby ſtalk.* Geranium Africanum fruteſcens, malvæ folio laciniato, odorato inſtar meliſſæ, flore purpuraſcente. Boerh. Ind. *African ſhrubby Crane's-bill, with a jagged Mallow leaf ſmelling like Balm, and a purpliſh coloured flower.*

27. Geranium (*Papileonaceum*) calycibus monophyllus, corollis papilionaceis, alis carinaque minutis, foliis angulatis, caule fruticoſo. Hort. Cliff. 345. *Crane's-bill with an empalement of one leaf, a butterfly flower, whoſe wings and keel are very ſmall, and a ſhrubby ſtalk.* Geranium Africanum arboreſcens, malvæ folio mucronato, petalis florum inferioribus vix conſpicuis. Phil. Tranſ. *African-tree Crane's-bill with a pointed Mallow leaf, and the under petals of the flower ſcarce diſcernible.*

28. Geranium (*Acetoſum*) calycibus monophyllis, foliis glabris obovatis carnoſis crenatis, caule fruticoſo. Hort. Cliff. 345. *Crane's-bill with empalements of one leaf, ſmooth, oval, fleſhy leaves, which are crenated, and a ſhrubby ſtalk.* Geranium Africanum fruteſcens, folio craſſo & glauco, acetoſæ ſapore. Com. Præl. *African ſhrubby Crane's-bill with a thick glacuous leaf, and an acid taſte like Sorrel.*

29. Geranium (*Carnoſum*) calycibus monophyllis, caule fruticoſo, articulis carnoſo gibboſis, foliis pinnatifidis laciniatis, petalis linearibus. Lin. Sp. Plant. 67. *Crane's-bill with an empalement of one leaf, a ſhrubby ſtalk with fleſhy knees, wing-pointed leaves, and very narrow petals to the flower.* Geranium Africanum fruteſcens, chelidonii folio, petalis florum anguſtis albidis, carnoſo caudice. Phil. Tranſ. Geranium Africanum, folio alceæ, flore albo. Boerh. Ind. alt. *African ſhrubby Crane's-bill with a leaf like the Alcea, the petals of the flower white and narrow, and a fleſhy ſtalk.*

30. Geranium (*Gibboſum*) calycibus monophyllis, caule fruticoſo, geniculis carnoſis gibboſis, foliis ſubpinnatis appoſitis. Lin. Sp. Plant. 677. *Crane's-bill with a one-leaved empalement, ſhrubby ſtalk with fleſhy knees, and winged leaves placed oppoſite.* Geranium Africanum noctu olens, tuberoſum & nodoſum, aquilegiæ foliis. H. L. *African Crane's-bill ſmelling ſweet in the night, with knotty tuberous ſtalks, and leaves like Columbine.*

31. Geranium (*Fulgidum*) calycibus monophyllis, foliis tripartitis inciſis, intermedia majore umbellis, geminis, caule fruticoſo carnoſa. Lin. Vir. 67. *Crane's-bill*

bill with one-leaved empalements, leaves cut into three ſegments, the middle one being the largeſt, double foot-ſtalks with flowers growing in umbels, and a ſhrubby fleſhy ſtalk. Geranium Africanum, folio alceæ, flore coccineo fulgidiſſimo. Boerh. Ind. alt. 1. p. 264. *African Crane's-bill with a Vervain Mallow leaf, and a deep ſcarlet flower.*

32. Geranium (*Peltatum*) calycibus monophyllis, folis, quinquelobis integerrimis glabris peltatis, caule fruticoſo. Hort. Cliff. 345. *Crane's-bill with empalements of one leaf, and ſmooth target-ſhaped leaves, having five lobes, which are entire.* Geranium Africanum foliis inferioribus aſari, ſuperioribus ſtaphidiſagriæ, maculatis, ſplendentibus, & acetoſæ ſapore. Com. Præl. *African Crane's-bill with the under leaves like Aſarabacca, and the upper leaves like Staveſacre, ſhining, ſpotted, and taſting like Sorrel.*

33. Geranium (*Alchimilloides*) calycibus monophyllis, foliis orbiculatis palmatis inciſis piloſis, caule herbaceo. Lin. Vir. 67. *Crane's-bill with empalements of one leaf, roundiſh hand-ſhaped leaves, which are divided, hairy, and an herbaceous ſtalk.* Geranium Africanum, alchimillæ hirſuto folio, floribus albidis. H. L. *African Crane's-bill with a hairy Ladies Mantle leaf, and whitiſh flowers.*

34. Geranium (*Odoratiſſimum*) calycibus monophyllis, caule carnoſo breviſſimo, ramis herbaceis longis foliis cordatis. Hort. Cliff. 345. *Crane's-bill with empalements of one leaf, a very ſhort fleſhy ſtalk, long herbaceous branches, and heart-ſhaped leaves.* Geranium Africanum, folio malvæ craſſo molli odoratiſſimo, floſculo pentapetalo albo. Boerh. Ind. alt. *African Crane's-bill with a thick, ſoft, ſweet-ſmelling Mallow leaf, and a ſmall white flower compoſed of five leaves.*

35. Geranium (*Triſte*) calycibus monophyllis, ſeſſilibus ſcapis bifidis monophyllis. Lin. Sp. 950. *Crane's-bill with ſeſſile empalements of one leaf, a bifid ſtalk, and a roundiſh root.* Geranium Americanum, noctu olens, radice tuberoſâ, triſte. Corn. H. Ox. *American tuberous-rooted Crane's-bill, ſmelling ſweet in the night.*

36. Geranium (*Myrrhifolium*) calycibus monophyllis, foliis bipinnatis, inferioribus cordatis lobatis, caule herbaceo, calycibus ſtrigoſis. Burm. Ger. 59. *Crane's-bill with empalements of one leaf, doubly wing-pointed leaves, the lower heart-ſhaped with lobes, and an herbaceous ſtalk.* Geranium Africanum tuberoſum, anemones folio, incarnato flore. Par. Bat. *Tuberous-rooted African Crane's-bill with an Anemony leaf, and a pale, fleſh-coloured flower.*

37. Geranium (*Paſtinacæfolium*) calycibus monophyllis, foliis decompoſitis pinnatifidis, acutis pedunculis longiſſimis. *Crane's-bill with empalements of one leaf, decompounded leaves ending in acute winged points, and very long foot-ſtalks to the flower.* Geranium Africanum noctu olens, radice tuberoſâ, foliis paſtinacæ incanis lanuginoſis latioribus, flore pallide flaveſcente. H. L. B. *Night-ſmelling Crane's-bill with a tuberous root, broad, woolly, hoary, Parſnep leaves, and a pale yellowiſh flower.*

38. Geranium (*Villoſum*) calycibus monophyllis, foliis pinnatifidis villoſis, laciniis linearibus. *Crane's-bill with empalements of one leaf, hairy wing-pointed leaves, having very narrow ſegments.* Geranium Æthiopicum, noctu olens, radice tuberoſâ, foliis myrrhidus anguſtioribus. Breyn. Cent. *Night ſweet-ſmelling Ethiopian Crane's-bill with a tuberous root, and narrow Cicely leaves.*

39. Geranium (*Lobatum*) calycibus monophyllis, caule truncato, ſcapis ſubradicalibus, umbella compoſita. Lin. Sp. 950. *Crane's-bill with empalements of one leaf, a truncated ſtalk, foot-ſtalks ariſing from the root, and a compound umbel of flowers.* Geranium Africanum noctu olens, folio vitis hirſuto, tuberoſum. H. L. *Night ſweet-ſmelling African Crane's-bill with a hairy Vine leaf, and a tuberous root.*

40. Geranium (*Coriandrifolium*) calycibus monophyllis, foliis bipinnatis linearibus ſquarroſis, caule herbaceo læviuſculo. Lin. Sp. 949. *Crane's-bill with a one-leaved empalement, doubly winged rough leaves, and a very ſmooth ſtalk.* Geranium Africanum, folio coriandri, floribus incarnatis, minus. H. L. *Leſſer African Crane's-bill with a Coriander leaf, and a fleſh-coloured flower.*

41. Geranium (*Romanum*) pedunculis multifloris, floribus pentandris, foliis pinnatis inciſis, ſcapis radicalibus. Burm. Ger. 30. *Crane's-bill with many flowers on each foot-ſtalk, cut winged leaves, and foot-ſtalks riſing from the root.* Geranium myrrhinum tenuifolium, amplo flore purpureo. Barrel. rar. 563.

42. Geranium (*Groſſularoides*) calycibus monophyllis, foliis cordatis ſubrotundis lobatis crenatis, caule herbaceo lævi. Burm. Ger. 53. *Crane's-bill with empalements of one leaf, roundiſh heart-ſhaped leaves which are crenated, and herbaceous ſmooth ſtalks.* Geranium Africanum, uvæ criſpæ folio, floribus exiguis rubellis. H. L. *African Crane's-bill with a Gooſeberry leaf, and ſmall reddiſh flowers.*

43. Geranium (*Betulinum*) calycibus monophyllis, foliis ovatis inæqualiter ſerratis planis, caule fruticoſo. Lin. Sp. Plant. 679. *Crane's-bill with one-leaved empalements, and oval plain leaves unequally ſawed, and a ſhrubby ſtalk.* Geranium fruteſcens, folio lato dentato, flore magno rubente. Burm. Afr. 92. tab. 33. *Shrubby Crane's-bill with a broad indented leaf, and large reddiſh flower.*

44. Geranium (*Chium*) pedunculis multifloris, floribus pentandris, foliis cordatis inciſis, ſuperioribus lyratopinnatifidis. Burm. Ger. 35. *Crane's-bill with many flowers on each foot-ſtalk, heart-ſhaped cut leaves at bottom, the upper lyre-ſhaped and winged.* Geranium chium vernum Caryphyllatæ folio. Tourn. Cor. 20.

45. Geranium (*Malacoides*) pedunculis multifloris, floribus pentandris foliis cordatis ſublobatis. Hort. Cliff. 344. *Crane's-bill with many flowers on each ſtalk, and heart-ſhaped lobed leaves.* Geranium folio Althææ. C. B. P. 318.

46. Geranium (*Glaucophyllum*) pedunculis multifloris, floribus pentandris, foliis ovatis ſerratis incanis linearis. Lin. Sp. 952. *Crane's-bill with many flowers on each ſtalk, and oval ſawed leaves.* Geranium Ægyptiacum glaucophyllon, roſtris longiſſimis plumoſis.

47. Geraniun (*Carolinianum*) pedunculis bifloris, calycibus ariſtatis, foliis multifidis, arillis hirſutis. Prod. Leyd. 351. *Crane's-bill with two flowers on each ſtalk, bearded empalements, many pointed leaves, and hairy beaks.* Geranium columbinum Carolinum, capſulis nigris hirſutis. Hort. Elth. 162.

48. Geranium (*Althæoides*) calycibus monophyllis, foliis cordato-ovatis plicatis ſinuatis crenatis, caule herbaceo proſtrato. Hort. Cliff. 354. *Crane's-bill with a one-leaved empalement, oval heart-ſhaped plaited leaves, which are indented, and a proſtrate herbaceous ſtalk.* Geranium folio Althææ. Africanum odore meliſſæ. Boerh. Ind. 1. p. 263.

The firſt ſort grows naturally in moiſt meadows in many parts of England, but is frequently planted in gardens for the beauty of its large blue flowers; of this there is a variety with white flowers, and another with variegated flowers; but theſe are apt to degenerate to the common ſort, if they are raiſed from ſeeds, but by parting of their roots they may be continued. It hath a perennial root, which ſends up many ſtalks, which riſe near three feet high, garniſhed with target-ſhaped leaves, divided into ſix or ſeven lobes; theſe are cut into ſeveral acute ſegments, after the manner of winged leaves, ending in many points. The flowers are produced at the top of the ſtalks, each foot-ſtalk ſuſtaining two flowers, whoſe petals are large and equal; they are of a fine blue colour, and appear in May and June.

The varieties of this may be preſerved by parting of their roots in autumn; they may be planted in almoſt any ſoil or ſituation, and require no other culture but to keep them clean from weeds. They may alſo be propagated by ſeeds, but by this method they are very apt to vary in the colour of their flowers. If the ſeeds of theſe plants are permitted to ſcatter, the plants will come up without any farther care.

The ſecond ſort grows naturally in Germany and Switzerland; this hath a thick, fleſhy, perennial root, from which ariſe ſeveral branching ſtalks, which grow about one foot high, garniſhed with leaves at each joint, which are divided into five lobes; and are divided at the top into many ſhort ſegments, which are crenated on their edges; they are of a light green, and ſmooth. The flowers are produced at the end of the branches, many growing together in a bunch, but each ſhort foot-ſtalk ſuſtains two flowers. The flowers have ſwollen empalements, reſembling inflated bladders. The petals are pretty large, equal, and of a fine bright purple colour, and the ſtamina and ſtyle are much longer than the petals; the whole plant, when rubbed, emits an agreeable odour. This flowers about the ſame time with the firſt ſort, and may be propagated and treated in the ſame manner, the plant being equally hardy.

The third ſort grows naturally in many parts of England, but is often admitted into gardens; this hath pretty thick, fleſhy, fibrous roots, which grow to a large head, from which ariſe many ſtalks, garniſhed with leaves, divided into five lobes, which are again divided almoſt to the midrib. The flowers ſtand upon long hairy foot-ſtalks, which come out from the ſide of the ſtalk, each ſuſtaining one flower, compoſed of five broad regular petals, which are of a deep purple colour. This ſort flowers in June and July; there are two varieties mentioned of this ſort as diſtinct ſpecies, one whoſe ſtalks grow more erect, and the other hath leaves more deeply divided; but the plants which I have raiſed from ſeeds of theſe do not come up the ſame as the parent plants, ſo they are only ſeminal varieties.

This hath a perennial root, which may be parted in autumn, and thereby propagated; or it may be propagated by ſeeds, and the plants treated in the ſame manner as the firſt.

The fourth ſort hath been ſuppoſed by ſome to be only a variety of the third, but it is undoubtedly a diſtinct ſpecies; for I have frequently raiſed the plants from ſeeds, which have always proved to be the ſame. The ſtalks of this plant are ſhorter than thoſe of the third, and ſpread flat on the ground; the leaves are much leſs, and not ſo deeply divided, and the flowers much ſmaller and of a pale colour, marked with purple; it grows naturally in Lancaſhire and Weſtmoreland, where I ſaw it in plenty. This may be propagated and treated in the ſame manner as the others.

The fifth ſort is a perennial plant, of ſmaller growth than either of the former. It riſes with branching ſtalks about ſix inches high, garniſhed with leaves, having three pretty broad lobes, which are undivided, and crenated on their edges: thoſe on the lower part of the ſtalks are placed oppoſite, upon pretty long foot-ſtalks, but the upper leaves ſit cloſe to the ſtalks and are ſingle. The flowers are produced at the end of the ſtalks, ſtanding together upon two ſhort foot-ſtalks; they are of a dirty purple colour, and appear in June. It grows naturally in France. This ſort may be propagated and treated in the ſame manner as the firſt.

The ſixth ſort grows naturally on the Alps and Helvetian mountains, and is found in ſome places in the North of England: this hath a perennial root, from which ariſe ſeveral ſtalks near a foot high, with leaves which are divided into five or ſix lobes, which are laciniated on their edges; thoſe which grow near the root have long foot-ſtalks, but thoſe on the upper part of the ſtalk ſit cloſe; the ſtalk branches out at the top into three or four diviſions, each being terminated by two or three foot-ſtalks, ſuſtaining two flowers of a dark purple colour, with erect petals. This flowers in June, and may be propagated by ſeeds or parting of the roots, in the ſame manner as the firſt ſort.

The ſeventh ſort is very like the ſixth, but the leaves are larger, the lobes ſhorter, broader, and not ſo much cut; they are ſtriped with black; the ſtalks riſe higher, the flowers are larger, and the petals are reflexed. Theſe differences are permanent, ſo are ſufficient to conſtitute a ſpecific difference between them. This may be propagated and treated in the ſame manner as the firſt ſort. It grows naturally on the Alps.

The eighth ſort hath a perennial root, which ſends up many branching ſtalks a foot and a half high, garniſhed with light green leaves; thoſe on the lower part of the ſtalk hath five lobes, and ſtand upon long foot-ſtalks; but thoſe on the upper part have but three lobes, ſit cloſer to the ſtalks, and are ſharply indented on the edges; the flowers ſtand upon long ſlender foot-ſtalks, each ſuſtaining two flowers, compoſed of five obtuſe petals, which are deeply indented at the top; they are of a dull white, with many purple ſtripes running longitudnally thro' them. Theſe appear in June, and in cool ſeaſons there will be a ſucceſſion of flowers a great part of July. This ſort is very hardy, ſo may be propagated by dividing of the roots, or from ſeeds, in the ſame manner as the firſt ſort.

The ninth ſort grows plentifully in the meadows in Lancaſhire and Weſtmoreland; this hath a perennial root, which ſends out three or four upright ſtalks about nine inches high, garniſhed with leaves, having five lobes, which are ſawed on their edges; they are placed oppoſite on the ſtalks; thoſe on the lower part have pretty long foot-ſtalks, but thoſe on the upper part ſit cloſer. The flowers are ſituated on the top of the ſtalks, ſtanding upon ſhort foot-ſtalks, each ſuſtaining two pretty large blue flowers, with entire petals. This flowers in May and June, and may be propagated and treated in the ſame way as the firſt ſort.

The tenth ſort was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the Royal Garden at Paris; this hath a perennial root, from which ariſe a few weak ſtalks about nine inches long, garniſhed with leaves which are round, and divided into five lobes, which are indented at the top, and placed oppoſite on the ſtalks. The flowers ſtand upon pretty long foot-ſtalks, which come ſingle from the joints of the ſtalks, each ſuſtaining two purpliſh flowers with entire petals, having very ſhort empalements. It flowers in June, and may be propagated either from ſeeds, or by parting of the roots in the ſame manner as the firſt ſort, but the plants require a drier ſoil and a warmer ſituation; for although in common winters it will live in the open air, yet in ſevere froſt theſe plants are ſometimes killed, eſpecially when they are planted in moiſt cold land.

The eleventh ſort grows naturally on the Pyrenean mountains; this hath a perennial root, from which ariſe many branching ſtalks a foot and a half high, garniſhed with round leaves, divided into many obtuſe ſegments at the top, placed oppoſite. The flowers are produced upon ſhort foot-ſtalks, which come out at the diviſions on the ſides, and at the top of the ſtalks; they are in ſome of a pale purple colour, and in others white. The petals of the flowers are bifid, like thoſe of the common Dove's-foot Crane's-bill, to which the whole plant bears ſome reſemblance; but the ſtalks are erect, the leaves and flowers much larger, and the root is perennial; this will propagate itſelf faſt enough by its ſcattered ſeeds where it has once got poſſeſſion, and will thrive in any ſoil or ſituation.

The twelfth ſort grows naturally upon the Alps. The ſeeds of this were ſent me by Sig. Micheli, of Florence; this hath a perennial root, which runs very deep into the ground. The lower leaves of the plant have very long foot-ſtalks, they are doubly winged and ſmooth. The ſtalks riſe a foot and a half high, which are garniſhed with leaves of the ſame form as the lower, but ſmaller, and ſtand oppoſite. The flowers grow many together upon very long foot-ſtalks; they are purple. This flowers in June, but has never ripened any ſeeds in England. The plant is hardy, and lives in the open air, but as the root puts out no offſets, nor perfects ſeeds here, we have not been able to propagate it.

The thirteenth ſort grows naturally on the Alps; this hath a very thick perennial root, from which come out roundiſh leaves, divided into many parts, ſtanding upon pretty long foot-ſtalks; they are very ſilvery, and ſhining like ſilk. The flower-ſtalks riſe about four or five inches high, garniſhed with one or two ſmall leaves like thoſe below, which ſit cloſe to the ſtalk. The ſtalks are terminated by two pretty large pale flowers, whoſe petals are entire, and ſpread open flat. It flowers in June, but rarely ripens ſeeds here; it may be propagated by parting of the roots in the ſame manner as the firſt, and muſt have a ſhady ſituation.

The fourteenth ſort grows naturally in North America, from whence the ſeeds were ſent to England; this hath a perennial root, from which ariſe ſeveral ſtalks about one foot high, which divide by pairs, and from the middle of the diviſions come out the foot-ſtalks of the flowers, which are pretty long and naked, each ſuſtaining two pale purple flowers with entire petals. The leaves are divided into five parts, which are cut on their edges, and are placed oppoſite, the lower having pretty long foot-ſtalks, but the upper ſit cloſe to the ſtalks. It flowers in June, and frequently ripens ſeeds, from which the plant may be propagated; it thrives very well in the open air, and requires no other culture but to keep it clean from weeds.

The fifteenth ſort grows naturally in Bohemia; this is an annual plant, which ſends out many ſtalks, dividing into ſeveral ſmaller, which are garniſhed with leaves divided into five lobes, crenated on their edges; they ſtand upon long foot-ſtalks, and are for the moſt part oppoſite. The flowers ſtand by pairs upon pretty long ſlender foot-ſtalks, which come out from the ſide of the ſtalk; they are of a fine blue colour, and are ſucceeded by ſeeds, whoſe capſules and beaks are black. It flowers moſt part of ſummer, and the ſeeds ripen ſoon after, which, if permitted to ſcatter, there will be a ſupply of plants, which want no other care but to keep them clean from weeds.

The ſixteenth ſort grows naturally in Siberia. The ſeeds of this plant were ſent me by Sir Charles Linnæus, profeſſor of botany at Upſal; this ſort hath a perennial root. The leaves are divided into five acute lobes, which are cut into many ſharp wing-like ſegments on their edges; they are placed oppoſite, and have long ſlender foot-ſtalks. The foot-ſtalks of the flower come out from the wings of the ſtalk; they are pretty long, ſlender, and each ſuſtain one pale purpliſh flower. This ſort flowers in June, and perfects its ſeeds very well, ſo may be eaſily propagated; it will grow on any ſoil, or in any ſituation.

The ſeventeenth ſort is an annual plant, which is ſometimes found growing naturally in England, but is frequently preſerved in gardens for the muſky odour of the leaves, which in dry weather is very ſtrong. The leaves of this are irregularly winged, the lobes grow alternate, and are cut into many obtuſe ſegments on their edges. The ſtalks branch into many diviſions, and frequently decline to the ground. The flowers are produced in umbels upon long foot-ſtalks, which ariſe from the wings of the ſtalks; they are ſmall, blue, and have but five ſtamina in each, their empalements are compoſed of five leaves. It flowers in May, June, and July, and the ſeeds ripen ſoon after; which, if permitted to ſcatter, there will be a ſupply of plants without care, which will require no other culture but to keep them clean from weeds, and thin them where they are too cloſe; it will thrive on any ſoil, or in any ſituation.

The eighteenth ſort grows naturally in Crete; this is an annual plant with very broad leaves, which are cut on their ſides regularly, in form of winged leaves, and are crenated on their borders. The flowers are produced on pretty long foot-ſtalks, which come out from the wings of the ſtalk; they have five-leaved empalements, and are compoſed of five entire blue petals; theſe are ſucceeded by the largeſt and longeſt beaks of any ſpecies of this genus yet known. It flowers in June and July; this ripens ſeeds very well, and if they are permitted to ſcatter, the plants will come up without care; or they may be ſown in the ſpring where they are deſigned to remain, and will require no other culture but to thin them where they are too cloſe, and keep them clean from weeds.

The nineteenth ſort grows naturally in Germany and Italy; this is an annual plant, which hath ſeveral proſtrate ſtalks near a foot long, garniſhed with winged leaves, cut into ſeveral acute parts, placed oppoſite. The flowers come out from the wings of the ſtalk, upon foot-ſtalks about three inches long; ſome of theſe ſuſtain many flowers, but others have no more than two; they are of a pale blue colour, and are ſucceeded by very long beaks, but not ſo long or large as thoſe of the former ſort; but the ſeeds of this are frequently uſed for hygrometers, to ſhew the moiſture of the air: if the ſeeds of this are permitted to ſcatter, the plants will come up and thrive without any other care than to keep them clear from weeds, and the plants which come up in autumn will flower early in May, but thoſe which are ſown in the ſpring ſeldom flower till July. Dr. Linnæus ſuppoſes this and the former ſort to be the ſame, but whoever has ſeen the two plants, cannot doubt of their being diſtinct ſpecies.

The ſeeds of the twentieth ſort were ſent to the Chelſea garden by Dr. Juſſieu, profeſſor of botany at Paris; this is an annual plant, which hath upright ſtalks near two feet high, which are garniſhed with double winged leaves, ending in many points; theſe are very viſcous, and ſtand oppoſite. The flowers are produced on long naked foot-ſtalks, ſtanding many together upon each; they are of a pale blue colour, and have but five ſtamina; their empalements are compoſed of five leaves, which end with awns. It flowers in May, June, and July, according to the times when the ſeeds are ſown, and the ſeeds ripen a month after; this requires no other culture than the two former ſorts.

There are ſeveral other ſorts of annual Geraniums, ſome of which grow naturally in England, and are troubleſome weeds in a garden, others grow naturally in France, Spain, Italy, and Germany, and are preſerved in botanic gardens for the ſake of variety; but as they are plants of little beauty, they are rarely admitted into other gardens, therefore I ſhall not trouble the reader with an enumeration of the ſpecies, which would ſwell this article too much; ſo I ſhall next treat of the African Crane's-bills, which are preſerved in moſt of the curious gardens, where there is conveniency to ſcreen them from the froſt in winter.

The twenty-firſt ſort grows naturally near the Cape of Good Hope; this riſes with a ſhrubby ſtalk eight or ten feet high, ſending out ſeveral irregular branches, garniſhed with roundiſh leaves, whoſe ſides are erect, ſo form a ſort of hood by the hollow cavity made in the leaf. The baſe of the leaves are cut in form of a heart-ſhaped leaf, and from the foot-ſtalk run many nerves ariſing from a point, but diverge toward the ſides; the borders of the leaves are ſharply indented, thoſe on the lower part of the branches have long foot-ſtalks, and are placed without order on every ſide, but thoſe on the upper part have ſhorter foot-ſtalks, and ſtand oppoſite. The flowers are produced in large panicles on the top of the branches; their empalements are of one leaf, deeply cut into five ſegments, and cloſely covered with ſoft hairs. The petals are large, entire, and of a purple blue colour. It flowers in June, July, Auguſt, and September, and the flowers are ſucceeded by ſeeds, having ſhort hairy beaks.

The twenty-ſecond ſort has ſome appearance of the twenty-firſt, but the leaves are of a thicker ſubſtance, divided into many acute angles, having purple edges, which are acutely indented. The ſtalks and leaves are very hairy. The branches are not ſo irregular as thoſe of the former, nor are the bunches of flowers near ſo large; theſe differences are permanent in the plants which are raiſed from ſeeds, ſo it is undoubtedly a diſtinct ſpecies, though Dr. Linnæus ſuppoſes them to be the ſame.

The twenty-third ſort comes from the Cape of Good Hope, but is one of the oldeſt, and the moſt common ſort in the Engliſh gardens; this riſes with a ſhrubby ſtalk four or five feet high, and divides into a great number of irregular branches, ſo as to form a large head, which is often eight or ten feet high. The branches are garniſhed with roundiſh heart-ſhaped leaves, indented on their edges in ſeveral obtuſe ſegments, which are cut into ſhort teeth at their brims; theſe have a purpliſh circle, or mark, like a horſe-ſhoe, through the leaf, going from one ſide of the baſe to the other, correſponding with the border of the leaf; theſe leaves when gently rubbed, have a ſcent like ſcalded Apples. The flowers are produced in pretty cloſe bunches, ſtanding upon foot-ſtalks about five or ſix inches in length, which come out from the wings of the ſtalk, toward the end of the branches; they are of a reddiſh purple colour, and continue in ſucceſſion great part of ſummer; there is a variety of this with fine variegated leaves, which is preſerved in moſt of the Engliſh gardens for the beauty of its leaves; but as this accidentally came from the other, it is not a diſtinct ſpecies, therefore I have not enumerated it.

The twenty-fourth ſort grows naturally at the Cape of Good Hope; this riſes with a ſoft ſhrubby ſtem to the height of eight or ten feet, ſending out ſeveral branches, which are generally erect; theſe are garniſhed with roundiſh kidney-ſhaped leaves, which are of a thick ſubſtance, and of a lucid green, ſtanding on pretty long foot-ſtalks; they are covered with ſoft hairs on their under ſide, and are placed without any order. The flowers grow in looſe bunches upon long ſtiff foot-ſtalks, which come out from the wings of the ſtalk; they are of a bright ſcarlet colour, ſo make a fine appearance, and there is a ſucceſſion of theſe flowers during all the ſummer months.

The twenty-fifth ſort grows naturally at the Cape of Good Hope, but has been many years an inhabitant of the Engliſh gardens; this riſes with a ſhrubby ſtalk four or five feet high, dividing into ſeveral weak irregular branches, garniſhed with leaves divided into three unequal lobes, which are hairy and waved on their edges; they are placed alternate on the branches, and ſtand upon hairy foot-ſtalks. The flowers grow in cloſe roundiſh heads on the top of the foot-ſtalks, forming a ſort of corymbus; they are of a purpliſh blue colour, and continue in ſucceſſion great part of the ſummer. The leaves of this ſort, when rubbed, have an odour like dried Roſes, from whence many have given it the title of Roſe Geranium.

The twenty-ſixth ſort is a native of the Cape of Good Hope; this riſes with an upright ſhrubby ſtalk to the height of ſeven or eight feet, ſending out many pretty ſtrong branches, garniſhed with leaves ſhaped ſomewhat like thoſe of the Vine; thoſe on the lower part ſtand upon long foot-ſtalks, but the upper have ſhort ones; when the leaves of this are rubbed, they have a ſcent of Balm. The flowers grow in compact cluſters on the top of long naked foot-ſtalks, which come out from the wings of the ſtalk, but riſe much higher than the branches; they are ſmall, and of a pale blue colour, ſo make no great figure, but there is a ſucceſſion of them moſt part of the ſummer.

The twenty-ſeventh ſort riſes with an upright ſhrubby ſtalk ſeven or eight feet high, ſending out ſeveral ſide branches, garniſhed with large, angular, rough leaves, ſtanding upon long foot-ſtalks. The flowers are produced in large panicles at the end of the branches; theſe are ſhaped ſomewhat like a Butterfly-flower, the two upper petals, which are pretty large, turn upward like a ſtandard in the leguminous flowers; theſe are finely variegated, but the three under petals are ſo ſmall, as not to appear at a ſmall diſtance; theſe are reflexed downward, ſo are ſcreened from ſight, unleſs the flowers are viewed near. This ſort flowers in May, at which time the plants make a fine appearance, but they are not ſucceeded by any more afterward, as moſt of the other ſorts are; this grows naturally at the Cape of Good Hope.

The twenty-eighth ſort is from the ſame country; this riſes with a ſhrubby ſtalk ſix or ſeven feet high, ſending out ſeveral ſide branches, garniſhed with oblong, oval, fleſhy, ſmooth leaves, of a gray colour, which are crenated on their edges, and have an acid taſte like Sorrel. The flowers ſtand upon pretty long foot-ſtalks, which ariſe from the wings of the ſtalks, each ſuſtaining three or four flowers, whoſe petals are narrow and unequal in ſize; they are of a pale bluſh colour, with ſome ſtripes of a light red; theſe continue in ſucceſſion moſt part of the ſummer. There is a variety of this with ſcarlet flowers, which is ſaid to have been raiſed from the ſeeds of this ſort. The leaves of it are larger, and ſeem to be an intermediate ſpecies between this and the twenty-fourth ſort, for the flowers are larger than thoſe of the twenty-eighth ſort, and are of a pale ſcarlet colour.

The twenty-ninth ſort hath a thick, fleſhy, knotted ſtalk, which riſes about two feet high, ſending out a few ſlender fleſhy branches, garniſhed thinly with double winged leaves, which, on the lower part of the ſtalk, ſtand upon foot-ſtalks, but thoſe above ſit cloſe to the branches. The flowers are produced in ſmall cluſters at the end of the branches; theſe have five narrow white petals, which make no appearance, and continue in ſucceſſion moſt part of the ſummer. It grows naturally at the Cape of Good Hope.

The thirtieth ſort hath a round fleſhy ſtalk with ſwelling knots at the joints, which riſe about three feet high, and ſend out ſeveral irregular branches, which are ſmooth; they are thinly garniſhed with ſmooth, fleſhy, winged leaves, ending in obtuſe points; they are of a gray colour, and ſtand upon ſhort foot-ſtalks. The flowers ſtand four or five upon each foot-ſtalk, which ariſes from the wings of the ſtalk, and are of a dark purple colour. The petals are broader than thoſe of the former ſort, and have a very agreeable ſcent in the evening, after the ſun has left them ſome time; this and the former ſort are ſuppoſed to be one ſpecies by Dr. Linnæus, but they are very different in many particulars, which are permanent in the plants which come up from ſeeds.

The thirty-firſt ſort hath a fleſhy ſtalk which ſeldom riſes a foot high, and puts out very few branches; theſe are garniſhed with ſmooth, light, green leaves, divided into three lobes, the middle ſegment being much larger than the others. The flowers ſtand upon ſhort foot-ſtalks, each ſuſtaining two or three flowers on the top, which are of a very deep ſcarlet colour, and have unequal petals; this ſort is not regular in its ſeaſon of flowering, ſometimes it is in ſpring, at other times in ſummer, and frequently in autumn. The leaves of this ſort fall off, ſo that the ſtalks are frequently deſtitute of them for three or four months in ſummer, and appear as if they were dead, but in autumn they put out freſh leaves again.

The thirty-ſecond ſort hath many weak ſhrubby ſtalks, which require ſupport to prevent their falling on the ground; theſe extend to the length of two or three feet, and are garniſhed with fleſhy leaves, divided into five obtuſe lobes, which are entire; theſe have ſlender foot-ſtalks, which are faſtened to the middle of the leaf like the handle of a target. The leaves are ſmooth, of a lucid green, and have a circular purple mark in their middle; they have an acid flavour, and are placed alternate on their branches. The flowers are produced upon pretty long foot-ſtalks, which come out from the wings of the ſtalk, each foot-ſtalk ſuſtaining four or five purple flowers, compoſed of five unequal petals. This ſort continues a ſucceſſion of flowers moſt of the ſummer months, and frequently ripen ſeeds here.

The thirty-third ſort ſends out ſeveral herbaceous ſtalks about a foot and a half in length; which trail upon the ground if they are not ſupported; theſe are garniſhed with roundiſh hand-ſhaped leaves, which are cut into many parts, and are very hairy. The flowers are of a pale bluſh colour, and ſtand ſeveral together upon very long foot-ſtalks; there is a ſucceſſion of theſe during all the ſummer months, and the ſeeds ripen accordingly about a month after the flowers are fallen: there is a variety of this ſort which has a dark circle in the middle of the leaves, which is mentioned as a diſtinct ſpecies, but I find it is apt to vary from ſeeds.

The thirty-fourth ſort hath a very ſhort fleſhy ſtalk, which divides near the ground into ſeveral heads, each having many leaves, which ariſe on ſeparate foot-ſtalks from the heads; theſe are heart-ſhaped, ſoft, and downy, and have a ſtrong ſcent like Aniſeed; from theſe heads come out ſeveral ſlender ſtalks near a foot in length, which lie proſtrate on the ground, and are garniſhed with rounder leaves than thoſe near the root, but are of the ſame texture, and have the like odour. The flowers are produced from the ſide of theſe ſtalks, three, four, or five ſtanding together upon ſlender foot-ſtalks; they are very ſmall and white, ſo make little appearance, but the plant is preſerved in gardens for the ſcent of its leaves.

The thirty-fifth ſort hath a thick, roundiſh, tuberous root, from which ariſe ſeveral hairy leaves, which are finely divided, almoſt like thoſe of the Garden Carrot; theſe ſpread near the ground, and between theſe come out the ſtalks, which riſe about a foot high, which are garniſhed with two or three leaves of the ſame ſort with thoſe below, but are ſmaller, and ſit cloſer to the ſtalks; from theſe ariſe two or three naked foot-ſtalks, which are terminated by a bunch of yellowiſh flowers, marked with dark purple ſpots, which ſmell very ſweet after the ſun hath left them; theſe are frequently ſucceeded by ſeeds, which ripen in autumn. This is the ſort which has been long cultivated in the gardens, and is known by the title of Geranium noctu olens, *or Night-ſcented Crane's-bill.*

The thirty-ſixth ſort hath a knobbed tuberous root like the laſt, from which come out ſeveral pretty large leaves, compoſed of many lobes, ſet along the mid-rib in the form of a winged leaf; theſe are narrow at their baſe, but are very much enlarged at their ends, which are rounded, and cut all along their ſide and top into many acute points; the ſtalks which ſuſtain the flowers ariſe immediately from the root, and ſometimes have one or two ſmall leaves toward the bottom, where they often divide into two naked foot-ſtalks, each being terminated by a bunch of pale reddiſh flowers, which ſmell ſweet at night.

The thirty-ſeventh ſort hath oblong tuberous roots, from which come out ſeveral decompounded winged leaves, ending in many acute points; the ſegments of theſe leaves are broader than thoſe of the thirty-fifth ſort, and the leaves are very hairy. The ſtalks riſe a foot and a half high, which are garniſhed with a ſingle leaf at the two lower joints; theſe are ſingly winged, and the lobes are narrow, ſtanding at a wider diſtance, and the ſegments are more acute than thoſe of the lower leaves; at the two lower knots or joints, ariſe two long naked foot-ſtalks, each being terminated by a bunch of yellowiſh flowers, which have long tubes, and ſmell ſweet in the evening when the ſun has left them. This grows naturally at the Cape of Good Hope.

The thirty-eighth ſort hath a tuberous root like the former, from which ſpring out many hairy leaves, which are finely divided like thoſe of the Pulſatilla, which have a hoary appearance, and riſe immediately from the root, ſpreading on every ſide near the ground. The foot-ſtalk of the flower is naked, and riſes from the root; this grows about nine inches high, and is terminated by a looſe bunch of flowers, which are of a very dark purple colour, and ſmell ſweet in the evening.

The thirty-ninth ſort hath fleſhy tuberous roots like thoſe of the former ſorts, from which come out three or four broad leaves, divided on their borders into ſeveral lobes, in form of a Vine leaf; theſe ſpread flat on the ground; they are hairy, and crenated on their edges, ſtanding upon ſhort foot-ſtalks. The foot-ſtalks of the flowers ariſe immediately from the root, and grow about a foot high; they are naked, and are terminated by a bunch of dark purple flowers, with long tubes, ſitting cloſe to the foot-ſtalks, which have a very agreeable odour in the evening.

The four firſt ſorts of tuberous-rooted Crane's-bill, are by Linnæus ſuppoſed to be but one ſpecies; but I have propagated them from ſeeds ſeveral times, and have never found either of them vary from their parent plants, ſo I make no doubt of their being diſtinct ſpecies, for their difference of leaves is as great as in any of the other ſpecies.

The fortieth ſort is an annual plant, which grows naturally at the Cape of Good Hope; this riſes with herbaceous branching ſtalks near a foot high, which are garniſhed with doubly-winged leaves at each joint; the lower leaves ſtand upon long foot-ſtalks, but thoſe on the upper part ſit cloſe to the ſtalks. The flowers ſtand upon naked foot-ſtalks, which proceed from the ſide of the ſtalks, on the oppoſite ſide to the leaves; they grow three or four together upon ſhort ſeparate foot-ſtalks; theſe are ſhaped ſomewhat like a papilionaceous flower; the two upper petals, which are large, form a kind of ſtandard, the other three petals are narrow, and reflexed downward; they are of a pale fleſh colour, appearing in July, and the ſeeds ripen in September, ſoon after which the plants decay.

The forty-firſt ſort hath a pretty thick tuberous root, from which is ſent out ſeveral irregular ſtalks, which divide into branches, and grow diffuſed; theſe have ſwelling joints, and are ſomewhat ligneous; they are garniſhed with one double winged leaf at each of the joints, and oppoſite to the leaves come out the foot-ſtalks of the flowers; thoſe which are ſituated on the lower part of the ſtalk, are very long and naked, but thoſe which terminate the branches are ſhorter, and have one or two ſmall leaves ſet at their baſe; theſe foot-ſtalks are terminated by a ſmall bunch of flowers, ſhaped like thoſe of the former ſort, but larger, and of a paler colour; theſe continue in ſucceſſion moſt part of the ſummer: this and the former ſort are ſuppoſed to be the ſame by Dr. Linnæus, but the former is an annual plant in every country, periſhing ſoon after the ſeeds are perfected, and the latter is an abiding plant with ligneous ſtalks.

The forty-ſecond ſort is a biennial plant, which grows naturally at the Cape of Good Hope; this ſends out a great number of very ſlender trailing ſtalks, which are proſtrate on the ground, and extend a foot and a half in length, garniſhed with ſmall, roundiſh, hand-ſhaped leaves, which are crenated on their edges. The flowers ſit upon ſhort ſlender foot-ſtalks, which come out at every joint from the ſide of the ſtalks; they are very ſmall, and of a reddiſh colour; ſometimes they are ſingle, and at other times there are two or three flowers upon a foot-ſtalk. They continue in ſucceſſion all the ſummer, and the ſeeds ripen in about five weeks after the flowers decay.

The forty-third ſort hath a ſhrubby ſtalk, which riſes to the height of four or five feet, ſending out ſeveral branches, which are garniſhed with oblong leaves, indented, and unequally ſawed on their edges; the flowers ſtand upon long foot-ſtalks, which come out from the ſide of their branches; they are large, of a red colour, and the two upper petals are larger than the other; this ſort flowers in June and July.

The forty-fourth ſort grows naturally in the iſle of Chio in the Levant. This is an annual plant, which ſends out ſeveral branches a foot long; the lower leaves are almoſt heart-ſhaped, but thoſe on the branches are formed in the ſhape of an ancient lyre. Theſe are placed alternate on the branches; the foot-ſtalks of flowers are produced on the ſide of the branches, theſe are ſix inches long, ſuſtaining many bright purple flowers at the top, which are ſucceeded each by five ſeeds, having long ſlender beaks; theſe ripen in five or ſix weeks after the flowers fall away, and if they are permitted to ſcatter, the young plants will come up in the autumn; and if the winter is favourable, they will live in the open air, ſo will flower early the following ſpring: but if theſe ſhould be killed in the winter, ſome ſeeds ſhould be ſown in the ſpring, on a border of light ground, and when the plants come up they ſhould be thinned, and kept clear from weeds; theſe will flower in July, and their ſeeds will ripen in Auguſt.

The forty-fifth ſort grows naturally in Portugal and Spain; this is an annual plant, whoſe lower leaves are heart-ſhaped, and divided into three lobes; the foot-ſtalks of the flowers are placed on the ſide of the branches, which extend a foot and a half each way; theſe incline to the ground. The foot-ſtalks ſuſtain many bright red flowers, which are ſucceeded each by five ſeeds, having pretty long beaks. This flowers and ſeeds about the ſame time as the former ſort, and requires the ſame culture.

The forty-ſixth ſort grows naturally in Egypt. This is an annual plant, having oval ſawed leaves of a gray colour; the branches extend a foot in length, adorned with ſmall leaves placed alternate, and toward the end have three or four foot-ſtalks produced from their ſides, ſuſtaining ſeveral pale blue flowers, which are each ſucceeded by five ſeeds, having long feathery beaks.

This ſort is much tenderer than the two former, therefore if the ſeeds are ſown on a moderate hot-bed in the ſpring, and when the weather becomes warm, the plants are carefully tranſplanted on a ſheltered border, there will be greater certainty of their perfecting ſeeds.

The forty-ſeventh ſort grows naturally in Carolina, and is an annual plant, greatly reſembling our common Dove's-foot Crane's-bill, but is ſmaller, and the branches are ſhorter; the flowers are very ſmall, of a pale blue colour; theſe are ſucceeded by five ſeeds, having ſhort erect beaks, which are black. If the ſeeds of this ſort are permitted to ſcatter, the plants will ariſe without farther care; and if thinned and kept clean from weeds, will produce flowers and ſeeds.

The forty-eighth ſort has ſome reſemblance of the forty-fifth, but the leaves are more of an oval heart-ſhape; the flowers are alſo of a bright red colour. This grows naturally at the Cape of Good Hope; the plant is tender, therefore will require the ſame treatment as the forty-ſeventh ſort, with which they will produce flowers and ſeeds, after which the plants decay.

All the ſorts of African Crane's-bill may be propagated by ſeeds; theſe may be ſown upon a bed of light earth toward the end of March, where the plants will appear in a month or five weeks after, and by the beginning of June the plants will be fit to remove; when they ſhould be carefully taken up, and each planted into a ſeparate pot, filled with light kitchen-garden earth, and placed in a ſhady ſituation till the plants have taken new root; then they may be removed into a ſheltered ſituation, and placed among other of the hardier green-houſe plants, where they may remain till autumn, when they muſt be removed into the green-houſe, and treated in the ſame manner as other hardy kinds of green-houſe plants.

But thoſe who are deſirous to have their plants large, and flower ſoon, ſow the ſeeds upon a moderate hot-bed in the ſpring, on which the plants will come up much ſooner, and will be fit to remove long before thoſe which are ſown in the open air; but when theſe plants come up, there muſt be great care taken not to draw them up weak; and when theſe are tranſplanted, the pots ſhould be plunged into another moderate hot-bed, obſerving to ſhade them from the ſun till they have taken new root; then they muſt be gradually inured to bear the open air, into which they ſhould be removed the beginning of June, and placed in a ſheltered ſituation with other exotic plants. If theſe plants are brought forward in the ſpring, moſt of the ſorts will flower the ſame ſummer, and the plants will be very ſtrong before the winter, ſo will make a better appearance in the green-houſe.

The ſhrubby African Geraniums, from the twenty-firſt to the thirty-ſecond incluſive, and alſo the forty-firſt and forty-third ſorts, are commonly propagated by cuttings, which, if planted in a ſhady border in June or July, will take good root in five or ſix weeks, and may then be taken up and planted into ſeparate pots, placing them in the ſhade till they have taken new root; after which they may be removed into a ſheltered ſituation, and treated in the ſame manner as the ſeedling plants. The twenty-ninth, thirtieth, thirty-firſt, and thirty-ſecond ſorts, have more ſucculent ſtalks than either of the other, ſo the cuttings of theſe ſorts ſhould be planted into pots filled with light kitchen-garden earth, and plunged into a very moderate hot-bed, where they ſhould be ſhaded from the ſun in the heat of the day, and ſhould have but little water; for theſe are very apt to rot with much moiſture, ſo they muſt only be gently refreſhed now and then with water. When theſe are well rooted, they may be ſeparated and planted in pots filled with the ſame ſort of earth, and placed in the ſhade till they have taken new root; then they may be removed into a ſheltered ſituation, where they may remain till autumn. Theſe four ſorts ſhould be ſparingly watered at all times, but eſpecially in the winter, for they are apt to take a mouldineſs with moiſture, or in a damp air: they will thrive much better in an airy glaſs-caſe than in a green-houſe, becauſe in the former they will have more ſun and air than in the latter, ſo will not be ſo liable to have a mouldineſs or rot. But all the other ſhrubby ſorts are proper furniture for the green-houſe, where they will only require protection from froſt, but ſhould have a large ſhare of free air when the weather is mild; they will require water every week, in mild weather once or twice, but it ſhould not be given them in too great plenty, eſpecially in froſty weather. Theſe plants ſhould be hardened in the ſpring gradually, and toward the middle or latter end of May, they may be taken out of the green-houſe, and at firſt placed under the ſhelter of trees, where they may remain a fortnight or three weeks to harden; then ſhould be removed into a ſituation where they may be defended from ſtrong winds, and enjoy the morning ſun till eleven o'clock, where they will thrive better than in a warmer ſituation.

As theſe ſhrubby ſorts grow pretty faſt, ſo they ſoon fill the pots with their roots; and if they ſtand long unremoved in ſummer, they frequently put out their roots through the holes at the bottom of the pots into the ground, and then the plants will grow vigorouſly; but when they are ſuffered to grow long in this manner, it will be difficult to remove them, for if their roots are torn off, all the younger branches will decay, and many times the plants are killed. Therefore the pots ſhould be moved once in a fortnight or three weeks, in the ſummer months, and the roots which may be then puſhing through the holes in the pots cut off, to prevent their ſtriking into the ground. Theſe plants will alſo require to be new potted at leaſt twice in the ſummer; the firſt time ſhould be after they have been three weeks or a month out of the green-houſe; the ſecond ſhould be towards the end of Auguſt, or the beginning of September, that the plants may have time to eſtabliſh their new roots before they are removed into the green-houſe.

When theſe are new potted, all the roots on the outſide of the balls of earth ſhould be carefully pared off, and as much of the old earth drawn away from the roots, as can be done with ſafety to the plants; then if they require it, they ſhould be put into pots a ſize larger than thoſe out of which they were taken, putting a quantity of freſh earth into the bottom of the pot; then place the plants upon that, being careful the ball about the roots of the plant is not ſo high as the rim of the pot, that ſome room may be left to contain the water which may be given to the plants. Then the cavity all round the ball ſhould be filled up with freſh earth, which ſhould be gently preſſed down, and the bottom of the pot beaten upon the ground, to ſettle down the earth; then the plant ſhould be well watered, and the ſtem faſtened to a rail, to prevent the wind from diſplacing of the root before they are fixed in the new earth.

The compoſt in which I have always found theſe plants thrive beſt (where there has not been a conveniency of getting ſome good kitchen-garden earth) was freſh hazel loam from a paſture, mixed with a fourth or fifth part of rotten dung; if the earth is inclinable to bind, then a mixture of rotten tan is preferable to dung; but if it is light and warm, then a mixture of neat's-dung is beſt: this compoſt ſhould be mixed three or four months before it is uſed, and ſhould be turned over three or four times, that the parts may be well mixed and incorporated; but where a quantity of good kitchen-garden earth can be had, which has been well worked, and is clean from the roots of bad weeds, there will need no compoſition, for in that they will thrive full as well as in any mixture which can be made for them, eſpecially if the earth has lain in a heap for ſome time, and has been two or three times turned over to break the clods, and make it fine: theſe plants ſhould not be planted in very rich earth, for that will cauſe them to grow very luxuriant, but they will not flower ſo well as in a poorer ſoil.

The thirty-third ſort hath herbaceous ſtalks, ſo is beſt propagated by ſeeds, which the plants produce in great plenty; but the cuttings of this will take root as freely as either of the other, but the ſeedling plants are preferable to thoſe propagated by cuttings; and where the ſeeds of this and many other of the African ſorts are permitted to ſcatter, there will be a ſupply of young plants come up the ſpring following, provided the ſeeds are not buried too deep in the ground.

The thirty-fourth ſort may be propagated by ſeeds, or from heads ſlipped off from the ſhort fleſhy ſtalk; theſe heads ſhould have their lower leaves ſtripped off, that the ſtalk which is to be planted may be clear of leaves; then they may be planted ſingle into a ſmall pot, or if the heads are ſmall, there may be two or three put into one ſmall pot; then they may be plunged into a very moderate hot-bed, which will forward their putting out roots, and if they are ſhaded from the ſun and gently refreſhed with water, they will take root in a month or five weeks, when they muſt be hardened gradually, and removed into the open air, where they may remain till autumn, when they muſt be removed into ſhelter for the winter ſeaſon.

The thirty-fifth, thirty-ſixth, thirty-ſeventh, thirty-eighth and thirty-ninth ſorts are generally propagated by parting of their roots; the beſt time for doing this is in Auguſt, that the young roots may be eſtabliſhed before the cold comes on. Every tuber of theſe roots will grow, provided they have a bud or eye to them; they may be planted in the ſame ſort of earth as was before directed, and if the pots are plunged into an old tan-bed, under a good frame in winter, the plants will thrive better than in a green-houſe; the glaſſes of the frame may be drawn off every day in mild weather, whereby the plants will enjoy the free air; and if in hard froſt the glaſſes are well covered to prevent the cold penetrating to the plants, it is all the ſhelter they will require; but in this ſituation they ſhould have but little wet in winter, therefore the glaſſes ſhould be kept over them in heavy rains to keep them dry; but in mild weather the glaſſes may be raiſed on the upper ſide to admit the freſh air to the plants, which will give them greater ſlope to carry off the wet. With this management the roots will thrive and flower very ſtrong every year. Theſe ſorts may alſo be propagated by ſeeds.

The fortieth ſort is an annual plant, and is only propagated by ſeeds, which ſhould be ſown upon a gentle hot-bed in the ſpring, to bring the plants forward; otherwiſe if the ſeaſon ſhould not prove very warm, the plants will not perfect their ſeeds in this country. When the plants are come up, and grown ſtrong enough to remove, they ſhould be each planted into a ſeparate ſmall pot, and plunged into a moderate hot-bed again, obſerving to ſhade them till they have taken new root; then they muſt be gradually hardened to bear the open air, into which they ſhould be removed in June; and when the plants have filled the ſmall pots with their roots, they ſhould be ſhaken out, and the ball of earth preſerved to their roots, and put into pots a ſize larger, in which they will flower and ripen ſeeds, and ſoon after the plants will decay.

The forty-ſecond ſort is alſo propagated by ſeeds, which may be either ſown upon a moderate hot-bed in the ſpring, or upon a bed of light earth in the open air, where the plants will come up very well, though they will not be ſo forward as thoſe on the hot-bed. Thoſe which are ſown in the open air will require no other care but to keep them clean from weeds, and thin the plants where they are too cloſe. Theſe plants will flower in July and Auguſt, and if the autumn proves favourable, the ſeeds will ripen in September; but if theſe ſhould fail, thoſe which were raiſed on the hot-bed will come earlier to flower, ſo there will be no danger of their perfecting ſeeds; and theſe plants, if they are in pots, may be preſerved through the winter, if they are plunged into an old tan-bed under a frame, and treated in the ſame manner as the tuberous-rooted ſorts before mentioned.

The ſhrubby ſorts muſt be looked over frequently during the winter, while they are in the green-houſe, to pick off all decayed leaves from them, which, if left on, will not only render the plants unſightly, but by their falling off, they will occaſion litter among the other plants; and if they are ſuffered to rot in the houſe, they will occaſion a foul, naſty, damp air, which will be very prejudicial to all the plants; therefore to avoid this, they ſhould be conſtantly picked off every week; and during the ſummer ſeaſon, they will require to be picked every fortnight or three weeks to keep them clean from dead leaves; for as the branches advance, and new leaves are produced on their top, the under ones as conſtantly decay; and if left on till they drop off, will render the plants very unſightly.

GERMANDER. See TEUCRIUM.

GEROPOGON. Goat's-beard.

The CHARACTERS are,

The empalement is ſingle, compoſed of many keel-ſhaped leaves which are longer than the corolla; the flower is compoſed of ſeveral hermaphrodite florets, which are imbricated and ſhorter than the empalement, and are of one petal, divided into five ſegments at the top. Theſe have each five ſhort ſtamina, terminated by cylindrical ſummits, and an oblong germen with a ſlender ſtyle, ſupporting two thread-like ſtigma which are recurved; the ſeeds are included in the empalement, and are crowned by five bearded ſpreading rays.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Æqualis, the florets having five connected ſtamina, and are fruitful.

The SPECIES are,

1. GEROPOGON (*Glabrum*) foliis glabris. Lin. Sp. 1109. *Goat's-beard with ſmooth leaves.* Tragopogon gramineo folio glabrum, flore dilute incarnato. Raii Sup. 149.
2. GEROPOGON (*Hirſutum*) foliis piloſis. Lin. Sp. 1109. *Goat's-beard with hairy leaves.* Tragopogon gramineo folio, ſuave rubente flore. Col. Ecphr. 1. p. 232.

The firſt ſort grows naturally in Italy; this hath an erect ſtalk more than a foot high, garniſhed with ſmooth, Graſs-like, long leaves; the ſtalk branches upward into two or three diviſions, each being terminated by one fleſh-coloured flower, compoſed of ſeveral florets.

The ſecond ſort grows naturally in Italy and Sicily. This riſes with an erect ſtalk a foot high, garniſhed with hairy narrow leaves, and ſeldom divides into branches, but is terminated by one flower compoſed of four or five hermaphrodite florets, which are ſucceeded by ſo many bearded ſeeds.

Theſe plants require the ſame treatment as the TRAGOPOGON, to which article the reader is deſired to turn for their culture.

GESNERA. Plumier Nov. Gen. 27. tab. 9. Lin. Gen. Plant. 667. This plant was ſo named by father Plumier, who diſcovered it in America, in honour of Conrad Geſner, a very learned botaniſt, and natural hiſtorian.

The CHARACTERS are,

The empalement of the flower is of one leaf, cut into five acute parts at the top, and is permanent, in which is ſituated the germen; the flower hath one petal which is tubulous, and firſt bent inward, and afterward out again like a bugle-horn; the brim is divided into five obtuſe ſegments which are equal; it hath four ſtamina which are ſhorter than the petal, terminated by ſingle ſummits; the germen which ſits under the petal ſupports a ſingle crooked ſtyle, crowned by a headed ſtigma. The germen afterward becomes a roundiſh capſule with two cells, filled with ſmall ſeeds, which are fixed on each ſide the partition.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, which includes thoſe plants whoſe flowers have two long and two ſhorter ſtamina, and the ſeeds are included in a capſule.

The SPECIES are,

1. GESNERA (*Tomentoſa*) foliis ovato-lanceolatis crenatis hirſutis, pedunculis lateralibus longiſſimis corymbiferis. Hort. Cliff. 318. *Geſnera with oval, hairy, crenated leaves, and long foot-ſtalks proceeding from the ſides of the ſtalks, ſupporting flowers in a corymbus.* Geſnera amplo digitalis folio tomentoſo. Plum Gen. 27.

2. GESNERA (*Humilis*) foliis lanceolatis ſerratis ſeſſilibus, pedunculis ramoſis multifloris. Lin. Sp. Plant. 612. *Geſnera with ſpear-ſhaped ſawed leaves ſitting cloſe to the ſtalks, and branching foot-ſtalks having many flowers.* Geſnera humilis flore flaveſcente. Plum. Nov. Gen. 27. *Low Geſnera with a yellowiſh flower.*

The firſt ſort grows naturally in the Weſt-Indies; the ſeeds of this were ſent me from Jamaica, which ſucceeded in the Chelſea garden; this riſes with a ſhrubby ſtalk to the height of ſix or ſeven feet, which divides into two or three irregular branches, covered with a ruſſet wool, and garniſhed with hairy leaves which are ſeven or eight inches long, and two and a half broad in the middle, having a ruſſet woolly midrib, and the edges are crenated; theſe are placed on every ſide the branches without order, and have ſhort foot-ſtalks; towards the end of the branches come out the foot-ſtalks of the flowers at every joint, ariſing from the wings of the ſtalk; they are naked, and nine inches in length, branching at the top into many ſmaller foot-ſtalks, each ſuſtaining a ſingle flower, having a ſhort crooked tube, indented at the top in five obtuſe parts, and of an obſolete purple colour. Theſe are ſucceeded by roundiſh capſules ſitting cloſe in the empalement, the diviſions of which ariſe above the capſule; which Dr. Linnæus, from Plumier's figure, has taken for the empalement ſitting upon the capſule, whereas the capſule is dictinct from the empalement and is incloſed by it. The capſule is divided into two cells which are filled with ſmall ſeeds. It flowers here in July and Auguſt, but hath not ripened ſeeds.

The ſecond ſort is a plant of humbler growth; this ſeldom riſes more than three feet high; the leaves are much ſmaller, are ſawed on their edges, and ſit cloſe to the ſtalk; the flowers ſtand upon branching foot-ſtalks, each ſuſtaining many yellowiſh flowers, which are deeper cut at their brims than thoſe of the firſt ſort. This was found growing naturally by the late Dr. Houſtoun at Carthagena in New Spain.

There is a third ſpecies of this genus mentioned by Plumier, which grows to to a tree, and hath ſpotted and fringed flowers; but this I have not ſeen in any of the Engliſh gardens. Theſe plants are propagated by ſeeds, which muſt be procured from the countries where they grow naturally; theſe ſhould be brought over in their capſules, which is the beſt way to preſerve the ſeeds good; for as they are very ſmall and light, ſo when they are ſeparated from the partition to which they adhere, they ſoon loſe their vegetative quality; for I have received the ſeeds ſeveral times from America, which were taken out of the veſſels, but not one of them grew, till I procured ſome to be ſent in their veſſels, which ſucceeded very well.

The ſeeds ſhould be ſown in pots filled with light earth, and plunged into a hot-bed of tanners bark as ſoon as they arrive, for they ſometimes lie long in the ground; thoſe which I have ſown in autumn, came up the following ſpring; therefore when they happen to arrive here at that ſeaſon, the pots in which the ſeeds are ſown ſhould be plunged into the tan-bed in the ſtove, and during the winter the earth ſhould be now and then gently watered to prevent its drying too much, but it muſt not be too moiſt. In the ſpring the pots ſhould be removed out of the ſtove, and plunged into a freſh hot-bed, which will bring up the plants ſoon after. When theſe are fit to remove, they ſhould be each planted into a ſeparate pot, and plunged into a good hot-bed of tan, obſerving to ſhade them till they have taken new root; then they muſt be treated in the ſame way as other tender plants from the ſame countries.

In autumn they muſt be plunged into the tan-bed in the ſtove, where, during the winter, they ſhould have but little water given to them; for if they receive much wet, it will deſtroy them. In this ſtove the plants muſt conſtantly remain, for they will not thrive if they are kept out of the tan. In the ſummer, they ſhould have free air admitted to them at all times when the weather is warm; and they muſt be frequently refreſhed with water during that ſeaſon, but it muſt not be given to them in too great plenty. As the plants advance in growth they will require larger pots, but there muſt be care taken not to over-pot them, for they will not thrive in large pots. With this management the plants will flower the ſecond year, and may be continued three or four years, but they are not of long duration in their native country.

GEUM. Lin. Gen. Plant. 561. Caryophyllata. Tourn. Inſt. R. H. 294. tab. 151. Avens, or Herb Bennet; in French, *Benoite.*

The CHARACTERS are,

The flower hath a one-leaved empalement, cut at the top into ten ſegments, which are alternately ſmaller than the other. The flower has five roundiſh petals, which are narrow at their baſe, where they are inſerted in the empalement; it hath a great number of awl-ſhaped ſtamina, which are the length of the empalement, into which they are inſerted, and are terminated by broad obtuſe ſummits. In the center of the flower is ſituated a great number of germen collected into a head; theſe have ſtyles inſerted in their ſides, which are long, hairy, and crowned by ſingle ſtigmas. The germen afterward become ſo many flat rough ſeeds, which are hairy, and have the ſtyle which is bent like a knee adhering to them; theſe ſit in the common empalement.

This genus of plants is ranged in the fifth ſection of Linnæus's twelfth claſs, intitled Icoſandria Polygynia, in which he places thoſe plants whoſe flowers have more than twenty ſtamina, and have many ſtyles inſerted into the empalement.

The SPECIES are,

1. GEUM (*Urbanum*) floribus erectis, fructu globoſo, ariſtis uncinatis nudis, foliis lyratis. Hort. Cliff. 195. *Geum with erect flowers, a globular fruit, naked hooked beards, and harp-ſhaped leaves.* Caryophyllata vulgaris. C. B. P. 321. *Common Avens, or Herb Bennet.*

2. GEUM (*Rivale*) floribus nutantibus, fructu oblongo, ariſtis plumoſis. Hort. Cliff. 195. *Geum with nodding flowers, and an oblong fruit with feathery beards.* Caryophyllata aquatica, nutante flore. C. B. P. 321. *Aquatic Herb Bennet with a nodding flower.*

3. GEUM (*Pyrenaicum*) floribus nutantibus, fructu globoſo, ariſtis nudis, foliis lyratis, foliolis rotundioribus. *Geum with nodding flowers, a globular fruit with naked beards, and harp-ſhaped leaves with rounder lobes.* Caryophyllata Pyrenaica, ampliſſimo & rotundiori folio, nutante flore. Tourn. Inſt. R. H. 295. *Pyrenean*

Avens with a very large and rounder leaf, and a nodding flower.

4. Geum (*Montanum*) flore erecto ſolitario fructu oblongo, ariſtis plumoſis. Lin. Sp. Plant. 501. *Geum with a ſingle upright flower, and an oblong fruit with feathery beards.* Caryophyllata montana flore luteo magno. J. B. 2. p. 398. *Mountain Avens with a large yellow flower.*

5. Geum (*Alpinum*) flore ſolitario erecto, fructu globoſo, ariſtis tenuioribus nudis. *Geum with a ſingle erect flower, and a globular fruit with narrower naked beards.* Caryophyllata alpina minor. C. B. P. 322. *Smaller Alpine Avens.*

6. Geum (*Virginianum*) floribus erectis, fructu globoſo, ariſtis uncinatis nudis, foliis ternatis. Hort. Cliff. 195. *Geum with upright flowers, a globular fruit with naked beards and trifoliate leaves.* Caryophyllata Virginiana, albo flore minore, radice inodorâ, H. L. 111. *Virginia Avens with a ſmaller white flower, and a root without ſcent.*

The firſt ſort grows plentifully by the ſide of hedges, and in woods, in moſt parts of England, ſo is rarely admitted into gardens. This ſtands in the liſt of medicinal plants; the root is the only part uſed, which is eſteemed cephalic and alexipharmic, and is manifeſtly of a binding nature, ſo is uſeful in all fluxes, &c.

The ſecond ſort grows naturally in moiſt meadows in the northern parts of England. This is of an humbler growth than the firſt, the lower leaves have two pair of ſmall lobes at bottom, and three large ones at the top, that which terminates being the largeſt. The leaves upon the ſtalks are compoſed of three acute lobes which ſit cloſe to the ſtalk; the flowers are of a purpliſh colour, and nod on one ſide; they appear in May, and the ſeeds ripen in July.

The third ſort grows upon the Alps, and alſo on the mountains in the north; this hath ſome reſemblance to the ſecond, but the leaves are much larger and rounder, and are indented on their edges; the flowers are larger and of a gold colour. This flowers about the ſame time as the ſecond.

The fourth ſort grows naturally upon the Alps; this hath leaves much larger than either of the other ſpecies; the lower leaves are compoſed of three or four pair of ſmall irregular pinnæ ſet along the midrib, which is terminated by one very broad roundiſh lobe, which is crenated on the edge. The flowers are large, of a bright yellow colour, ſtanding ſingle on the top of the ſtalk, which ſeldom riſes more than five or ſix inches high. It flowers in May and June.

The fifth ſort grows naturally on the Alps; it is a very low plant, the flower-ſtalks are about three inches long, and bend on one ſide; they are each terminated by one bright yellow flower, about the ſize of thoſe of the common ſort. This flowers about the ſame time as the former.

The ſixth ſort grows naturally in North America; the ſtalks of this ſort riſe a foot and a half or two feet high, and branch out at the top into ſmall footſtalks, each being terminated by a ſmall white flower; the leaves of this ſort are trifoliate, and the root has no ſcent. Theſe are all very hardy plants which require a ſhady ſituation, but will thrive in any ſoil; they may be eaſily propagated by ſeeds, which ſhould be ſown in autumn; for when they are ſown in the ſpring, they do not grow the ſame year.

GILLIFLOWER, or JULY-FLOWER. See Dianthus.

GILLIFLOWER, or STOCK-GILLIFLOWER. See Cheiranthus.

GILLIFLOWER, the Queen's or Dame's Violet. See Hesperis.

GINGER. See Amomum.

GINGIDIUM. See Artedia.

GLADE is an open and light paſſage made through a wood, by lopping off the branches of trees along that way.

GLADIOLUS. Lin. Gen. Plant. 55. Tourn. Inſt. R. H. 365. tab. 190. [takes its name of Gladius, *Lat.* ſword; q. d. little ſword; becauſe the leaves of this plant reſemble a ſword.] Cornflag; in French, *Glaieul.*

The Characters are,

The flowers are included in ſheaths, which ſtand at a diſtance from each other; the petal of the flower is cut into ſix parts, three of the upper are near together, the three under ſpread open, but they all form a ſhort incurved tube with their baſe; they have three awl-ſhaped ſtamina, which are inſerted into every other petal, and all of them aſcend to the upper petals, and are terminated by oblong ſummits. The germen is ſituated below the flower, ſupporting a ſingle ſtyle the length of the ſtamina, crowned by a concave trifid ſtigma. The germen afterward becomes an oblong, ſwelling, three-cornered capſule, with three cells, opening with three valves, filled with roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, which includes thoſe plants whoſe flowers have three ſtamina and one ſtyle.

The Species are,

1. Gladiolus (*Communis*) foliis enſiformibus, floribus diſtantibus, Lin. Sp. Plant. 36. *Cornflag with Swordſhaped leaves and flowers ſtanding at a diſtance.* Gladiolus floribus uno verſu diſpoſitis. C. B. P. 41. *Cornflag with flowers diſpoſed on one ſide the ſtalk.*

2. Gladiolus (*Italicus*) foliis enſiformibus, floribus ancipitibus. *Cornflag with ſword-ſhaped leaves, and flowers ſtanding on both ſides the ſtalk.* Gladiolus utrinque floribus. C. B. P. 41. *Cornflag with flowers on each ſide the ſtalk.*

3. Gladiolus (*Byzantinus*) foliis enſiformibus, ſpathis longioribus. *Cornflag with ſword-ſhaped leaves and longer ſheaths to the flowers.* Gladiolus major Byzantinus. C. B. P. 41. *Greater Cornflag of Byzantium.*

4. Gladiolus (*Indicus*) foliis enſiformibus, floribus maximis incarnatis. *Cornflag with ſword-ſhaped leaves, and very large incarnate flowers.* Gladiolus maximus Indicus. C. B. P. 41. *Greateſt Indian Cornflag.*

5. Gladiolus (*Anguſtis*) foliis linearibus floribus diſtantibus, corollarum tubo limbis longiore. Lin. Sp. Plant. 37. *Cornflag with very narrow leaves, flowers ſtanding at a diſtance from each other, and the tube longer than the margins of the petal.* Gladiolus Africanus, folio gramineo, floribus carneis, maculam rhomboideam inſcriptis uno verſu poſitis. Boerh. Ind. alt. 2. 127. *African Cornflag, with a graſſy leaf, and fleſh-coloured flowers, marked with a purple rhomboid ſpot ranged all on one ſide the ſtalk.*

6. Gladiolus (*Triſtis*) foliis lineari cancellatis corollis campanulatis. *Cornflag with very narrow channelled leaves, and a ſtalk bearing bell-ſhaped flowers.* Lilio-Gladiolus bifolius & biflorus, foliis quadrangulis. Trew. tab. 39. *Lily Cornflag with two leaves and flowers, and four-cornered leaves.*

The firſt ſort grows naturally in arable land in moſt of the warm countries in Europe, and was formerly cultivated in the Engliſh gardens, where the roots have multiplied ſo greatly as to become a moſt troubleſome weed, and are very difficult to eradicate; this hath a round, compreſſed, tuberous root, which is of a yellowiſh colour, covered with a brown furrowed ſkin, like thoſe of the large yellow vernal Crocus; from the root ariſe two flat ſword-ſhaped leaves, which embrace each other at their baſe, and between theſe ariſe the flower-ſtalk, which grows near two feet high, having one or two narrow leaves embracing it like a ſheath; the ſtalks are terminated by five or ſix purple flowers, ſtanding above each other at ſome diſtance, and ranged on one ſide of the ſtalk; each of theſe has a ſpatha (or ſheath) which covers the flower-bud before it expands, but ſplits open lengthways when the flowers blow, and ſhrivel up to a dry ſkin, remaining about the ſeed-veſſel till the ſeeds are ripe. The flower hath one petal, which is cut almoſt to the bottom in ſix parts, ſo as to appear like a flower of ſix petals; the three upper ſegments ſtand near together, and riſe like a labiated flower; the under one turns downward, and the two ſide ſegments form the chaps of the flower, and ſpread open at the top, but

but are curved downward at the bottom. They are ranged along one ſide of the ſtalk, and are of a purpliſh red colour. This flowers the latter end of May, and in June, and the ſeeds ripen the beginning of Auguſt; it requires no care, for when it is once planted in a garden, it will multiply too faſt, ſo as to become a troubleſome weed.

There is a variety of this with white flowers, and another with fleſh-coloured flowers, which have accidentally riſen from ſeeds, ſo are not different ſpecies.

The ſecond ſort differs from the firſt, in having the flowers ranged on both ſides the ſtalk, but in other reſpects it is very like to that; and of this there is a variety with white flowers, but theſe are not ſo common in the Engliſh gardens as the former.

The third ſort hath larger roots than either of the former, but are of the ſame form; the leaves are alſo much broader and longer, the veins or channels of the leaves are deeper, the flower-ſtalks riſe higher; the flowers are much larger, and of a deeper red colour than thoſe of the former ſorts, and the ſheaths are longer. This plant makes a fine appearance in flower, ſo is worthy of a place in every good garden; and the rather, becauſe the roots do not increaſe ſo faſt as to become troubleſome in the borders. This is propagated by offsets, which are ſent off from the roots in the ſame manner as Tulips. The roots may be taken out of the ground the end of July, when their ſtalks decay, and may be kept out of the ground till the latter end of September, or the beginning of October; at which time they ſhould be planted in the borders of the flower-garden, where they will thrive in any ſituation, and being intermixed with other flowers of the ſame growth, they will add to the variety.

The fourth ſort grows naturally at the Cape of Good Hope, from whence I have ſeveral times received the ſeeds. This has been many years cultivated in the Engliſh gardens, but very rarely flowers here; for in near thirty years that I have cultivated this ſort, I have never ſeen it but once in flower, though I have kept it in all ſituations, and planted it in various ſoils. The roots increaſe very faſt, but will not live in the open air through the winter in this country. The roots of this ſort are broader and flatter than thoſe of any of the other ſorts, and are covered with a netted ſkin; the leaves come out in the ſame manner, embracing each other like the former ſorts; they are longer, ſmoother, and of a brighter green, than any of the others; theſe begin to appear in September, and continue growing in ſize till after Chriſtmas; they begin to decay in March, and the latter end of June are quite withered, when the roots may be taken up, and kept out of the ground till Auguſt; the time of its flowering is in January. The flowers of this ſort are placed on each ſide the ſtalk, and ſit cloſe to it, like the grains of the flat Barley; the ſheaths between the flowers are not ſo long as thoſe of the other ſorts, and form a kind of ſcaly covering to them. The flowers are of a pale red colour without, but the three lower ſegments are yellow within toward their baſe, with a few red ſtripes. The flowers do not all open at the ſame time, but the lower ones decay before thoſe on the upper part of the ſpike are in beauty; however, they make a good appearance at a ſeaſon when all flowers are valuable.

This ſort propagates by offsets very faſt; theſe ſhould be planted in a warm border of kitchen-garden earth, and in winter they ſhould be covered with glaſſes or mats to guard them from froſt; for I have with a ſlight ſhelter preſerved thoſe which were in pots under a common frame, and ſome which were planted in the full ground, when the froſt has not been ſevere; and I have always found that thoſe plants which were hardily treated, grew much ſtronger than thoſe which were placed in a moderate degree of warmth; ſo that where there is a conveniency of covering a warm border with glaſſes in the winter, if theſe roots are planted in the full ground, where they may be protected from the froſt, there will be a greater probability of their flowering, than in any other method of culture.

The fifth ſort grows naturally at the Cape of Good Hope, from whence I received the ſeeds, which ſucceeded in the Chelſea garden, where the plants annually produce their beautiful flowers.

This hath a round, ſmooth, bulbous root, which is covered with a thin dark-coloured ſkin, from which come out in autumn two or three very narrow graſſy leaves, folded over each other at their baſe, but open flat above, and riſe near two feet high. In the ſpring of the year ariſes a ſingle ſtalk from between the leaves about two feet long, which always bend on one ſide; toward the upper part of this come out two or three flowers, ranged on one ſide of the ſtalk, ſtanding upright, each having a narrow ſpatha, or hood, and long ſlender tubes, which ſwell large upward, and are divided into ſix parts, which are nearly equal. The flower is of a duſky fleſh colour, and each ſegment of the petal has a rhomboidal mark of a dark red, or purple colour; afterward the tube of the flower opens, and the deep diviſion of the petals is ſeen, and the three ſtamina with their ſummits appear, attended by the ſtyle with its trifid ſtigma, ariſing from the germen. This plant flowers in May and the beginning of June; as this plant is a native of a warm country, it requires protection from the froſt in winter; therefore the bulbs ſhould be planted in pots filled with light earth, and placed in the green-houſe in winter; or, where there is not ſuch conveniency, they may be put under a hot-bed frame during that ſeaſon, where they may have air in mild weather, and be ſcreened from the froſt; in ſuch ſituations I have had them thrive and flower very well.

This is propagated by offsets from the root in the ſame manner as the laſt, and alſo by ſeeds, which are frequently perfected in England; theſe ſhould be ſown the latter end of Auguſt, in pots filled with light earth, and placed in a ſhady ſituation till the middle of September; then the pots ſhould be removed where they may have the ſun great part of the day, and in October they muſt be placed under a hot-bed frame, where they may be protected from froſt and great rains, but enjoy the free air in mild weather. In the ſpring the young plants will appear, when they will require a little water once in eight or ten days; but it ſhould be given them ſparingly, for too much wet will rot theſe tender bulbs. In May, when the danger of froſt is over, the pots ſhould be removed to a ſheltered ſituation, where they may have the morning ſun till noon; and, if the ſeaſon proves dry, they muſt be now and then refreſhed with water. Toward the latter end of June, the leaves of theſe plants will decay; then the roots ſhould be taken up, and may be mixed with ſand, and kept in a dry room till the end of Auguſt, when they ſhould be planted again; and as the roots are ſmall, four or five may be planted in each halfpenny pot, filled with light earth; theſe ſhould be placed where they may have only the forenoon ſun, till the middle of September, when they ſhould have a warmer ſituation; and in October they muſt be placed under a hot bed frame as before, and treated in the ſame way during the winter ſeaſon; and in the ſpring they muſt be placed in the open air till their leaves decay, when they may be again taken out of the ground, and treated in the ſame manner as before; but as the roots will have grown to a larger ſize, ſo when they are planted again, they ſhould each have a ſeparate half-penny pot, becauſe now they will be large enough to flower, ſo may be treated as the old roots.

The ſixth ſort is alſo a native of the Cape of Good Hope, from whence I have ſeveral times received the ſeeds; the root of this ſort is oval, not compreſſed as thoſe of the common ſorts. The leaves are very long and narrow, having two deep furrows running the whole length, the midrib riſing very prominent, ſo as to have the appearance of a four-cornered leaf. The leaves are ſingle, and wrapped cloſe about the flower-ſtalk at their baſe to a conſiderable length; there are ſeldom more than two of theſe leaves from one root; the ſtalk is ſlender and round, and riſes about two feet high; and the top is garniſhed with two flowers, which are placed two inches and a half aſunder on the ſame ſide of the ſtalk, each having a ſhort ſpatha, or ſheath, embracing the germen and the baſe of the tube, which is long, narrow, and recurved, but enlarges greatly before it is divided. The upper part of the flower is cut into ſix equal ſegments, which end in acute points of a purpliſh colour, which form a ſtripe through the middle of each ſegment. The petal is of a cream colour, and fades to a ſulphur colour before it decays. This flowers in June, and ſometimes the ſeeds ripen well in England. This may be propagated by offſets from the root, or by ſeeds in the ſame manner as the fifth ſort, and the plants require the ſame treatment.

GLANDIFEROUS trees, are ſuch trees as bear maſt, as Acorns, &c.

GLANDULOUS roots, are ſuch roots as grow kernel-wiſe.

GLANS is that ſort of fruit which is contained within a ſmooth, but hard bark, having but one ſeed; its hinder parts covered with a kind of cup, the fore-part being bare, as Acorns; but it is properly the fruit without the cup.

GLASTENBURY THORN. See Mespilus.

GLAUCIUM. See Chelidonium.

GLAUX, Sea Chickweed, or Milkwort, and black Saltwort, is a low trailing perennial plant, with leaves ſomewhat like Chickweed, but of a thicker conſiſtence, which ſit cloſe to the ſtalks. The flowers come out from the boſom of the leaves; they are white, and like thoſe of Chickweed. This is ſeldom cultivated in gardens, ſo I ſhall not trouble the reader with a further account of it. This grows upon the ſea-ſhores in moſt parts of England.

GLECHOMA. Ground Ivy, Gill go by the Ground, Ale-hoof, or Turn-hoof.

This plant grows naturally under hedges, and upon the ſides of banks in moſt parts of England, ſo is rarely cultivated in gardens, for which reaſon I ſhall paſs over it, with barely mentioning it here.

GLEDITSIA. Lin. Gen. Plant. 1025. Acacia. Raii Meth. 161. Honey Locuſt, or three-thorned Acacia.

The Characters are,

It hath male and hermaphrodite flowers in the ſame katkin, and female flowers in different plants. The male katkins are long, compact, and cylindrical, and have each a three-leaved ſmall empalement; they have three roundiſh petals, which ſpread open in form of a cup; theſe have a turbinated nectarium, whoſe mouth afterward grows to the parts of fructification; they have ſix ſlender ſtamina, which are longer than the petals, terminated by oblong compreſſed ſummits. The hermaphrodite flowers in the ſame katkin, are ſituated at the end; theſe have empalements, petals, and ſtamina like the male, and have a germen, ſtyle, and ſeeds like the female, which are ſituated on different trees, and are diſpoſed in a looſe katkin; theſe have a five-leaved empalement, and have five oblong petals, with two ſhort thread-like nectariums, and a broad germen longer than the petals, ſupporting a ſhort reflexed ſtyle, crowned by a thick ſtigma. The germen afterward becomes a large flat pod, with ſeveral tranſverſe partitions, having a pulp in each diviſion, ſurrounding one hard roundiſh ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's twenty-third claſs, intitled Polygamia Diœceia, which includes thoſe plants which have male and hermaphrodite flowers in the ſame plant, and female flowers in different plants.

The Species are,

1. Gleditsia (*Triacanthus*) ſpinis triplicibus axillaribus. Lin. Sp. 1509. *Gleditſia with three thorns on the ſide of the branches.* Acacia Americana Abruæ folio triacanthos, ſive ad axillas foliorum, ſpinâ triplici donatâ. Pluk. Mant. 1. *Three-thorned American Acacia.*
2. Gleditsia (*Inermis*) ſpinis paucioribus, foliis bipinnatis, ſiliquis ovalibus. *Gleditſia with fewer ſpines, winged leaves, and oval pods.* Acacia Abruæ folio triacanthos, capſulâ ovali unicum ſemen claudente. Cateſb. Car. 1. p. 43. *Three-thorned Acacia with an Abrus leaf, and an oval pod containing one ſeed.*

Theſe trees grow naturally in America; the firſt ſort is very common in moſt parts of North America, where it is known by the title of Honey Locuſt; this has been many years cultivated in the Engliſh gardens, and is known among the gardeners by the title of three-thorned Acacia. It riſes with an erect trunk to the height of thirty or forty feet, and is armed with long ſpines, which have two or three ſmaller coming out from the ſide, and are frequently produced in cluſters at the knots on the ſtems of the trees; they are ſometimes three or four inches long. The branches of this tree are alſo armed with the ſame ſort of ſpines, and are garniſhed with winged leaves, compoſed of ten pair of ſmall leaves which ſit cloſe to the midrib, and are of a lucid green. The flowers come out from the ſide of the young branches in katkins; they are of an herbaceous colour, ſo make no figure. The hermaphrodite flowers are ſucceeded by pods near a foot and a half long, and two inches broad, divided into many cells by tranſverſe partitions, each containing one ſmooth, hard, oblong ſeed, ſurrounded by a ſweet pulp.

The leaves of this tree ſeldom come out till June in this country, and the flowers appear the latter end of July, but they do not flower till they are of a large ſize: there was one tree in the Chelſea garden which produced flowers ſeveral years, and there is one now growing in the Biſhop of London's garden at Fulham, which produced pods in the year 1728, and came to their full ſize, but the ſeeds did not ripen.

The ſecond ſort hath much the appearance of the firſt, but it hath fewer ſpines. The leaves are ſmaller, and the pods are oval, containing but one ſeed; this was diſcovered by the late Mr. Cateſby, in Carolina, from whence he ſent the ſeeds to England, by the title of Water Acacia, by which it is known in the gardens.

Theſe trees are propagated by ſeeds, which muſt be procured from America, where the trees grow naturally; thoſe of the firſt ſort are annually ſent to England in plenty, by the title of Locuſt, or Honey Locuſt, to diſtinguiſh it from the falſe Acacia, which is frequently called Locuſt-tree in America; theſe ſeeds may be ſown upon a bed of light earth in the ſpring, burying them half an inch deep; and if the ſpring ſhould prove dry, they muſt be frequently watered, otherwiſe the plants will not come up the firſt year, for I have ſometimes had the ſeeds remain two years in the ground before they have come up; therefore thoſe who are deſirous to ſave time, ſhould ſow the ſeeds as ſoon as they arrive, and plunge the pots into a moderate hot-bed, obſerving to water them frequently; by this method moſt of the plants will come up the ſame ſeaſon, but theſe ſhould be gradually inured to bear the open air, for if they are continued in the hot-bed, they will draw up weak; during the ſummer ſeaſon, thoſe plants in pots will require frequent waterings, but thoſe in the full ground will not dry ſo faſt, therefore need no water, unleſs the ſeaſon ſhould prove very dry. In autumn, thoſe in the pots ſhould be placed under a hot-bed frame to protect them from froſt, for theſe young plants generally keep growing late in the ſummer, ſo the upper part of their ſhoots is tender, and the early froſts of the autumn often kill the ends of them, if they are not protected, and this frequently occaſions great part of the ſhoots decaying in winter; for which reaſon thoſe plants in the full ground ſhould be covered with mats in autumn, on the firſt appearance of froſt; for a ſmall froſt in autumn will do more miſchief to theſe young ſhoots which are full of ſap, than ſevere froſt when the ſhoots are hardened.

The following ſpring the plants may be tranſplanted into nurſery-beds, at a foot diſtance row from row, and ſix inches aſunder in the rows; but this ſhould not be performed till April, after the danger of hard froſt is over; for as the plants do not put out their leaves till very late, ſo there will be no hazard in removing them any time before May. If the ſeaſon ſhould prove dry, they muſt be watered; and if the ſurface of the beds is covered with moſs, or mulch, to prevent the earth from drying, it will be of great ſervice to the plants. In theſe beds the plants may remain two years, during which time they muſt be conſtantly kept clean from weeds; and in the winter there ſhould be ſome rotten tan, or other mulch, ſpread over the ſurface of the ground to keep out the froſt. If the plants thrive well, they will be fit to tranſplant to the places where they are to remain after two years growth, for they do not bear removing when large; the beſt ſeaſon for tranſplanting of theſe trees, is late in the ſpring; they thrive beſt in a light deep ſoil, for in ſtrong ſhallow ground they become moſſy, and never grow large; they ſhould alſo have a ſheltered ſituation, for when they are much expoſed to winds, their branches are frequently broken in the ſummer ſeaſon, when they are fully clothed with leaves.

GLOBULARIA. Lin. Gen. Plant. 106. Tourn. Inſt. R. H. 466. tab. 265. *Blue Daiſy.*

The Characters are,

It hath a flower compoſed of many florets, which are included in one common ſcaly empalement; each floret has an empalement of one leaf, which is tubulous, and cut into five ſegments at the top. The florets have one petal, whoſe baſe is tubulous, but the brim is cut into four parts; the upper ſegment, which is the leaſt, is reflexed; they have four ſtamina the length of the petal, terminated by diſtinct ſummits; in the bottom of the tube is ſituated an oval germen ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes an oval ſeed, ſitting in the common empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetandria Monogynia, which includes thoſe plants whoſe flowers have four ſtamina and one ſtyle.

The Species are,

1. Globularia (*Vulgaris*) caule herbaceo, foliis radicalibus tridentatis, caulinis lanceolatis. Flor. Suec. 109. *Globularia with an herbaceous ſtalk, the lower leaves divided into three points, and thoſe on the ſtalks ſpear-ſhaped.* Globularia vulgaris. Tourn. 467. *Common Globularia.*
2. Globularia (*Nudicaulis*) caule nudo, foliis integerrimis lanceolatis. Lin. Sp. Plant. 97. *Globularia with a naked ſtalk, and ſpear-ſhaped entire leaves.* Globularia Pyrenaica, folio oblongo, caule nudo. Tourn. 467. *Pyrenean Globularia, with an oblong leaf and naked ſtalk.*
3. Globularia (*Alypum*) caule fruticoſo, foliis lancelatis tridentatis integriſque. Prod. Leyd. 190. *Globularia with a ſhrubby ſtalk, ſpear-ſhaped leaves, ſome ending in three points, and others are entire.* Globularia fruticoſa, myrti folio tridentato. Tourn. 467. *Shrubby Globularia with a trifid Myrtle leaf.*
4. Globularia (*Spinoſa*) foliis radicalibus crenato-aculeatis, caulinis integerrimis mucronatis. Lin. Sp. Plant. 96. *Globularia with lower leaves crenated and prickly, thoſe on the ſtalks entire, ending in a point.* Globularia ſpinoſa. Tourn. 467. *Prickly Globularia.*
5. Globularia (*Cordifolia*) caule ſubnudo, folis cuneiformibus tricuſpidatis, intermedio minimo. Lin. Sp. Plant. 96. *Globularia with a naked ſtalk, and wedge-ſhaped leaves ending in three points, whoſe middle ſegment is the leaſt.* Globularia Alpina minima, origani folio. Tourn. 467. *Smalleſt Alpine Globularia with a wild Marjoram leaf.*
6. Globularia (*Orientalis*) caule ſubnudo, capitulis alternis ſeſſilibus, foliis lanceolato-ovatis integris. Lin. Sp. Plant. 97. *Globularia with a naked ſtalk, alternate heads ſitting cloſe to the ſtalks, and oval, ſpear-ſhaped, entire leaves.* Globularia Orientalis, floribus per caulem ſparſis. Tourn. Cor. 35. *Eaſtern Globularia with flowers ſcattered along the ſtalks.*

The firſt of theſe plants grows plentifully about Montpelier, as alſo at the foot of the mountains Jura and Saleva, and in many other parts of Italy, and in Germany; this plant hath leaves very like thoſe of the Daiſy, but are thicker and ſmoother. The flower-ſtalks riſe about ſix inches high, ſupporting a globular head of flowers, compoſed of ſeveral florets, which are included in one common ſcaly empalement; they are of a fine blue colour, and appear in June; theſe are ſucceeded by ſeeds, which ſit in the empalement, and ripen in autumn.

The ſecond ſort grows plentifully in the woods, near the convent of the Carthuſians, and on the Pyrenean mountains; this is much larger than the former, and hath a ſhrubby ſtalk a foot and a half high; the foot-ſtalk is quite naked. The leaves are narrower, and much longer.

The firſt ſort may be propagated by parting of the roots after the manner of Daiſies. The beſt ſeaſon for parting and tranſplanting of the plants is in September, that they may take new root before the froſty weather comes on. They ſhould be planted in a ſhady ſituation, and require a moiſt loamy ſoil, in which they will thrive much better than in a light ground and an open ſituation; but the plants ſhould not be removed oftener than every other year, if they are required to flower ſtrong.

The third ſort grows about Montpelier in France, and in Valentia, and ſeveral other parts of Spain. This has a hard woody ſtem, which riſes about two feet high, having many woody branches, beſet with leaves like thoſe of the Myrtle-tree. On the top of the branches the flowers are produced, which are of a blue colour, and globe-ſhaped; this plant may be propagated by cuttings, which ſhould be cut off in April, juſt before they begin to make new ſhoots; the cuttings ſhould be planted into pots filled with light freſh earth, and then placed into a very moderate hot-bed, obſerving to water and ſhade them until they have taken root, when they may be taken out of the bed, and inured to bear the open air by degrees. In ſummer theſe plants may be expoſed with other hardy exotic plants, and in winter they ſhould be placed under a hot-bed frame, where they may enjoy the free air in mild weather, but ſhould be ſcreened from hard froſt, which will deſtroy them, if they are expoſed thereto, but in mild winters they will live in the open air. This plant never produces good ſeeds in this country.

The fourth ſort was found in the mountains of Granada, by Dr. Albinus; this plant is of low growth, and may be propagated as the firſt; as may alſo the fifth ſort, which is the leaſt of all the ſorts, and the moſt hardy; therefore ſhould have a ſhady ſituation, and a cool moiſt ſoil.

The ſixth ſort was found by Dr. Tournefort in the Levant; this is ſomewhat tender, and ſhould be ſheltered from the froſt in winter, under a frame, but in ſummer it ſhould be expoſed with other hardy exotic plants, and will require to be frequently watered in dry weather. This may be propagated by ſeeds, or by parting of their roots, as was directed for the firſt ſort.

GLORIOSA. Lin. Gen. Plant. 374. Methonica. Tourn. Acad. R. Scien. 1706. *The Superb Lily.*

The Characters are,

The flower hath no empalement; it hath ſix long ſpear-ſhaped petals, which are waved, and reflexed to the foot-ſtalk. It hath ſix ſtamina, which ſpread open each way, and are terminated by proſtrate ſummits. In the center is ſituated a globular germen, ſupporting a ſlender inclining ſtyle, crowned by an obtuſe triple ſtigma. The germen afterward becomes an oval thin capſule having three cells, filled with globular ſeeds, diſpoſed in a double range.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, which includes the plants whoſe flowers have ſix ſtamina and one ſtyle.

1. Glorioſa (*Superba*) foliis longioribus capreolis terminalibus. *Superb Lily with longer leaves ending with claſpers.*

claſpers. Methonica Malabarorum. Hort. Lugd. 688. *Methonica of Malabar*, and the Lilium Zeylanicum ſuperbum. Hort. Amſt. 1. p. 69. *Superb Lily of Ceylon.*

2. Gloriosa (*Cærulea*) foliis ovato-lanceolatis acutis. *Superb Lily with oval, ſpear-ſhaped, acute leaves.*

The firſt ſort grows naturally on the coaſt of Malabar, and alſo in Ceylon, from whence it was firſt brought to the gardens in Holland, where it has been many years cultivated; this hath a long fleſhy root of a whitiſh colour, and a nauſeous bitter taſte, from the middle of which ariſes a round weak ſtalk, which requires ſupport to prevent its trailing on the ground. The ſtalks grow to the height of eight or ten feet, garniſhed with leaves placed alternate on every ſide, which are ſmooth, about eight inches long, and one inch and a half broad at the baſe, growing narrower till within two inches of the end, which runs out in a narrow point, ending with a tendril, or claſper, by which it faſtens to the neighbouring plants for ſupport. At the upper part of the ſtalk the flower is produced from the ſide, ſtanding upon a ſlender foot-ſtalk; it is compoſed of ſix oblong petals, ending with acute points, which, on their firſt opening, are of an herbaceous colour, and ſpread wide open; the flower hanging downward as the Crown Imperial and Fritillary, but afterward the petals turn quite back, and change to a beautiful red flame colour, their acute points meeting at the top; theſe petals are finely waved on their edges. The ſix ſtamina ſpread out every way almoſt horizontal, and are terminated by proſtrate ſummits. In the center of the flower is ſituated a roundiſh germen, ſupporting an inclining ſtyle, crowned by a triple ſtigma. This plant flowers in June and July, but ſeldom perfects ſeeds in this country. The ſtalks decay in autumn, and the roots remain inactive all the winter, and the new ſtalks come out in March. The roots and every part of this plant is very poiſonous, ſo ſhould not be put in the way of children.

The ſeeds of the ſecond ſort were ſent me by Monſ. Richard, gardener to the French king at Trianon; theſe were brought from Senegal by Monſ. Adanſon, who diſcovered this plant growing there naturally; this is ſaid to have a blue flower, but the plants which are in the Chelſea garden have not yet flowered. This hath a climbing ſtalk, which is garniſhed with ſmooth leaves about three inches long, and two broad, ending in acute points, but have no tendril or claſper. The ſtalks as yet have not grown more than two feet high here, but have the appearance of climbing like the other ſort. The leaves have a ſtrong diſagreeable ſcent on being handled, ſo as to be troubleſome to the head if too near, or long ſmelt to.

As theſe plants rarely produce ſeeds in this country, they are generally propagated by their roots; thoſe of the firſt ſort creep and multiply pretty faſt, but the ſecond hath not as yet put out any offſets; but as the plants are young, we cannot as yet ſay how they may increaſe when they are of a proper age. Theſe roots may be taken out of the ground when their ſtalks are decayed, and preſerved in ſand during the winter ſeaſon, but they muſt be kept in the ſtove, or a warm room, where they can receive no injury from the cold; and in the ſpring they muſt be planted in pots filled with light earth, and plunged into the tan-bed in the ſtove; but others chuſe to let the roots continue in the ground all the winter, keeping the pots always in the tan-bed: where this is practiſed, the roots ſhould have very little water in the winter; for as they are then in an inactive ſtate, ſo moiſture at that time frequently rots the roots.

Toward the latter end of March, or the beginning of April, their ſtalks will appear, when there ſhould be ſome tall ſticks put down by them to ſupport them, otherwiſe they will trail over the neighbouring plants, and the firſt ſort will faſten to the plants by the tendrils, which are at the end of the leaves. The ſtalks of this ſort will riſe ten or twelve feet high, if the roots are ſtrong, and ſome of the ſtalks will produce two or three flowers, which come out from the wings of the ſtalk near the top; theſe flowers make a fine appearance in the ſtove, during their continuance, which is ſeldom more than ten days or a fortnight. In ſummer, when the plants are growing, they will require frequently to be watered, but they muſt not have it in too large quantities, for they are very ſubject to rot with much wet at any ſeaſon. Thoſe roots which are not taken out of the pots in winter, ſhould be tranſplanted and parted the beginning of March, before they put out new fibres, or ſtalks, for they muſt not be removed when they are in a growing ſtate; the pots in which theſe roots are planted ſhould not be too large; for unleſs they are confined, they will not put out ſtrong ſtalks; the largeſt roots may be planted in twopenny pots, but the ſmall ones will require only pots of about five or ſix inches over at the top.

GLYCINE. Lin. Gen. Plant. 797. Apios. Boer. Ind. alt. *Knobbed-rooted Liquorice Vetch.*

The Characters are,

The empalement of the flower is of one leaf, divided into two lips at the top, the upper lip being obtuſe and indented; the lower lip is longer, trifid, and acute, the middle indenture being extended beyond the other. The flower is of the butterfly kind. The ſtandard is heart-ſhaped, deflexed on the ſides, gibbous on the back, and indented at the point. The wings are ſmall, oblong, and oval toward their end, and bend backward. The keel is narrow, ſickle-ſhaped, turning upward with its point to the ſtandard, where it is broadeſt. It hath ten ſtamina, nine of which are joined in one body, and the other ſtands ſingle, terminated by ſingle ſummits. In the center is ſituated an oblong germen ſupporting a ſpiral cylindrical ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes an oblong pod with two cells, incloſing kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, which includes the plants whoſe flowers have ten ſtamina joined in two bodies. Tournefort places the firſt ſort under this genus of Aſtragalus, which is ranged in the fifth ſection of his tenth claſs, which includes the herbs with a butterfly flower, whoſe pointal turns to a pod with two cells.

The Species are,

1. Glycine (*Apios*) foliis impari-pinnatis ovato-lanceolatis. Hort. Upſal. 227. *Glycine with oval, ſpear-ſhaped, winged leaves.* Aſtragalus tuberoſus ſcandens, Fraxini folio. Tourn. Inſt. 415. *Climbing tuberous Milk Vetch with an Aſh leaf*; and the Apios Americana. Cornut. 200.
2. Glycine (*Fruteſcens*) foliis impari-pinnatis caule perenni. Hort. Cliff. 361. *Glycine with winged leaves and a perennial ſtalk.* Phaſeoloides fruteſcens, Caroliniana, foliis pinnatis, floribus cæruleis conglomeratis. Hort. Angl. tab. 15. *Carolina Kidney-bean-tree, with winged leaves, and blue flowers growing in whorls.*
3. Glycine (*Abrus*) foliis abrupto-pinnatis pinnis numeroſis obtuſis. Lin. Sp. 1025. *Glycine with abrupt winged leaves, whoſe lobes are obtuſe.* Orobus Americanus, fructu coccineo nigrâ maculâ notato. Tourn. Inſt. 393. *American Bitter Vetch with a ſcarlet fruit, marked with a black ſpot, commonly called wild Liquorice in the Weſt-Indies.*
4. Glycine (*Comoſa*) foliis ternatis hirſutis, racemis lateralibus. Lin. Sp. Plant. 754. *Glycine with hairy trifoliate leaves, and flowers growing in long bunches from the ſides of the ſtalks.* Phaſeolus Marianus ſcandens, floribus commoſis. Pet. Muſ. 453. *Climbing Kidney-bean of Maryland with ſpiked flowers.*
5. Glycine (*Tomentoſa*) foliis ternatis tomentoſis, racemis axillaribus breviſſimis, leguminibus diſpermis. Lin. Sp. Plant. 754. *Glycine with woolly trifoliate leaves, and very ſhort ſpikes of flowers proceeding from the ſides of the ſtalks, with pods containing two ſeeds.* Anonis phaſeoloides ſcandens, floribus flavis ſeſſilibus. Hort. Elth. 30. tab. 26. *Climbing Reſt-Harrow like Kidney-bean, with yellow flowers ſitting cloſe to the ſtalks.*

The firſt ſort grows naturally in Virginia; this hath roots compoſed of ſeveral knobs, or tubers, which hang to each other by ſmall ſtrings; from theſe come out in the ſpring ſlender twining ſtalks, which riſe to the height of eight or ten feet, garniſhed with winged leaves, compoſed of three pair of oval ſpear-ſhaped lobes, terminated by an odd one. The flowers come out in ſhort ſpikes from the ſide of the ſtalks; they are of a Pea-bloſſom kind, of a dirty fleſh-colour, having little ſcent. Theſe appear in Auguſt, but do not produce ſeeds in England. The ſtalks decay in autumn, but the roots continue; this is propagated by parting of the roots, each of the tubers being ſeparated from the principal root, will grow; the beſt time for this is about the end of March, or the beginning of April, before they put out ſhoots. The roots ſhould be planted in a warm ſituation, and in hard froſt covered with tan or mulch to protect them, otherwiſe they will not live abroad in this country: where they have been planted againſt a ſouth wall, they have thriven and flowered extremely well, which they ſeldom do in any other ſituation; and thoſe roots which are planted in pots rarely flower, nor do their ſtalks riſe near ſo high as thoſe which are planted in the full ground; ſome ignorant perſons call this the Twickenham Climber.

The ſecond ſort was brought from Carolina, but has been ſince obſerved in Virginia, and ſome other places in North America; this ſort has woody ſtalks, which twiſt themſelves together, and alſo twine round any trees that grow near, and will riſe to the height of fifteen feet, or more. The leaves are winged, and in ſhape ſomewhat like the Aſh-tree, but have a greater number of pinnæ. The flowers are produced in cluſters from the wings of the leaves, which are of a purple colour; theſe are ſucceeded by long cylindrical pods, ſhaped like thoſe of the ſcarlet Kidney-bean, containing ſeveral kidney-ſhaped ſeeds, but theſe are never perfected in England.

This climbing ſhrub is propagated in ſeveral nurſeries near London, where it is known by the name of Carolina Kidney-bean-tree. It is increaſed by laying down the young branches in October, which will be rooted well by that time twelvemonth (eſpecially if they are duly watered in dry weather) and may then be tranſplanted, either in a nurſery for a year to get ſtrength, or to the place where they are to remain for good, which ſhould be in a warm light ſoil and a ſheltered ſituation, where they will endure the cold of our ordinary winters very well; and if their roots are covered with ſtraw, Fern, Peas-haulm, or any other light covering, there will be no danger of their being deſtroyed by the froſt.

The third ſort grows naturally in both Indies, and alſo in Egypt. This is a perennial plant, with ſlender twining ſtalks, which twiſt about any neighbouring ſupport, and riſe to the height of eight or ten feet, garniſhed with winged leaves, compoſed of ſixteen pair of ſmall, oblong, blunt lobes, ſet cloſe together; theſe have the taſte of Liquorice, from whence the inhabitants of the Weſt-Indies have given it the name of Wild Liquorice, and uſe the herb for the ſame purpoſe as the Liquorice in Europe. The flowers are produced from the ſide of the ſtalks in ſhort ſpikes or bunches; they are of a pale purple colour, and ſhaped like thoſe of the Kidney-bean; theſe are ſucceeded by ſhort pods, each containing three or four hard round ſeeds of a ſcarlet colour, with a black ſpot or eye on that ſide which is faſtened to the pod. The ſeeds of this plant are frequently ſtrung, and are worn as ornaments by the natives of thoſe countries, where the plants grow naturally: they are frequently brought to England from the Weſt-Indies, and are wrought into various forms, with ſhells and other hard ſeeds.

This plant is propagated by ſeeds, which muſt be ſown upon a good hot-bed in the ſpring; but as the ſeeds are very hard, ſo unleſs they are ſoaked in water twelve or fourteen hours before they are ſown, they frequently lie in the ground a whole year before they vegetate; but when ſoaked, the plants will appear in a fortnight after the ſeeds are ſown, if they are good, and the bed in a proper temperature of heat. When the plants are two inches high, they ſhould be each tranſplanted into a ſeparate pot, filled with light earth, and plunged into a hot-bed of tanners bark, where they ſhould be ſhaded from the ſun till they have taken new root; after which they muſt be treated in the ſame manner as other tender plants from the ſame countries, always keeping them in the bark-ſtove, for they are too tender to thrive in any other ſituation in England. This ſort will flower the ſecond year from ſeeds, and ſometimes ripens ſeeds here.

There are two other varieties of this plant, one with a white, and the other a yellow ſeed, but the plants do not differ from the other in leaf or ſtalk; but as theſe have not as yet flowered in England, I do not know how their flowers may differ.

The fourth ſort hath a perennial root and an annual ſtalk, which decays in the autumn. This riſes from two to three feet high, with ſlender herbaceous ſtalks, which are garniſhed with trifoliate hairy leaves, ſitting cloſe to the ſtalks; the ſmall leaves or lobes, are of the oval ſpear-ſhape, ending in acute points. The flowers come out from the ſide of the ſtalks, at the foot-ſtalk of the leaves; the naked part of the foot-ſtalk is about two inches long, and the ſpike of flowers is about the ſame length, and is recurved; the flowers are of a Pea-bloſſom kind, ſitting cloſe together. They are ſmall, and of a fine blue colour, coming out the beginning of June, and are ſometimes ſucceeded by ſeeds in England, which ripen in Auguſt.

This ſort grows naturally in North America, and is hardy enough to live in the open air in England. It may be propagared by ſeeds, or parting of the roots; the former is the beſt method, where good ſeeds can be obtained: theſe may be ſown on a bed of light earth in the ſpring, and if the ſeaſon ſhould prove dry, they muſt be frequently refreſhed with water, otherwiſe they will remain a long time in the ground before they vegetate: when the plants come up, they muſt be kept clean from weeds in the ſummer, and in the autumn when their ſtalks are decayed, if ſome rotten tanners bark is ſpread over the ſurface of the ground, it will protect the roots from being injured by the froſt. In the ſpring, the roots ſhould be tranſplanted to the places where they are deſiged to remain, which muſt be in a warm ſheltered ſituation, but not too much expoſed to the ſun, and in a light ſoil, where they will thrive and produce flowers annually. If this is propagated by parting of the roots, it ſhould be done in the ſpring, before the roots begin to ſhoot, which is the beſt ſeaſon for tranſplanting the plants: but theſe roots ſhould not be parted oftener than every third year, for if they are often removed they will not flower ſo ſtrong.

The fifth ſort hath a perennial root and a climbing ſtalk, which riſes near four feet high, garniſhed with woolly trifoliate leaves: the flowers come out in ſhort bunches from the ſide of the ſtalks; they are ſmall, of a yellow colour, and are ſucceeded by ſhort pods, which contain two roundiſh ſeeds in each. This flowers in June, and the ſeeds ripen in autumn. It grows naturally in America, but is too tender to live in the open air in England. This is propagated in the ſame manner, and requires the ſame treatment as the third ſort.

GLYCYRRHIZA. Lin. Gen. Plant. 788. Tourn. Inſt. R. H. 389. tab. 210. [ſo called of γλυκὺς, ſweet, and ῥίζα, *Gr.* a root, q. d. ſweet root: the ancients called it Scythian Root, becauſe the Scythians firſt brought it into uſe.] Liquorice; in French, *Regliſſe.*

The Characters are,

The flower hath a permanent tubulous empalement of one leaf, divided into two lips; the upper lip is cut into three parts, the middle one being broad and bifid, the under lip is ſingle. The flower hath four petals, is of the butterfly kind, having a long erect ſtandard, with *oblong wings, and a two-leaved keel which is acute. It hath ten ſtamina, nine joined and one ſtanding ſingle; they are longer than the keel, and terminated by roundiſh ſummits. In the bottom is ſituated a ſhort germen, ſupporting an awl-ſhaped ſtyle the length of the ſtamina, crowned by a riſing obtuſe ſtigma. The germen afterward becomes an oblong, or oval compreſſed pod with one cell, including two or three kidney-ſhaped ſeeds.*

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, which includes thoſe plants which have ten ſtamina joined in two bodies.

The SPECIES are,

1. GLYCYRRHIZA (*Glabra*) leguminibus glabris. Hort. Cliff. 490. *Liquorice with ſmooth pods.* Glycyrrhiza ſiliquoſa, vel Germanica. C. B. P. *Common Liquorice.*
2. GLYCYRRHIZA (*Echinata*) leguminibus echinatis. Prod. Leyd. 386. *Liquorice with prickly pods.* Glycyrrhiza capite echinato. C. B. P. *Rough-podded Liquorice.*
3. GLYCYRRHIZA (*Hirſuta*) leguminibus hirſutis. Prod. Leyd. 386. *Liquorice with hairy pods.* Glycyrrhiza Orientalis, ſiliquis hirſutiſſimis. Tourn. Cor. *Eaſtern Liquorice with hairy pods.*

The firſt ſort is that which is commonly cultivated in England for medicine; the other two kinds are preſerved in curious botanic gardens for variety, but their roots are not ſo full of juice as the firſt, nor is the juice ſo ſweet; though the ſecond ſort ſeems to be that which Dioſcorides has deſcribed and recommended, but I ſuppoſe the goodneſs of the firſt has occaſioned its being ſo generally cultivated in Europe.

The roots of this run very deep into the ground, and creep to a conſiderable diſtance, eſpecially where they are permitted to ſtand long unremoved; from theſe ariſe ſtrong herbaceous ſtalks, four or five feet high, garniſhed with winged leaves, compoſed of four or five pair of oval lobes, terminated by an odd one; the leaves and ſtalks are clammy, and of a dark green; the flowers come out in ſpikes from the wings of the ſtalks, ſtanding erect; they are of a pale blue colour, and are ſucceeded by ſhort compreſſed pods, each containing two or three kidney-ſhaped ſeeds. It flowers the latter end of July, but the ſeeds do not ripen in England.

This plant delights in a light ſandy ſoil, which ſhould be three feet deep at leaſt, for the goodneſs of Liquorice conſiſts in the length of the roots: the greateſt quantity of Liquorice which is propagated in England, is about Pontefract in Yorkſhire, and Godalmin in Surry; though of late years there hath been a great deal cultivated in the gardens near London: the ground in which you intend to plant Liquorice, ſhould be well dug and dunged the year before you plant it, that the dung may be perfectly rotted, and mixed with the earth, otherwiſe it will be apt to ſtop the roots from running down; and before you plant it, the ground ſhould be dug three ſpades deep, and laid very light; when your ground is thus well prepared, you ſhould furniſh yourſelf with freſh plants taken from the ſides or heads of the old roots, obſerving that they have a good bud or eye, otherwiſe they are ſubject to miſcarry; theſe plants ſhould be about ten inches long, and perfectly ſound.

The beſt ſeaſon for planting them is in the beginning or middle of March, which muſt be done in the following manner, viz. Firſt ſtrain a line croſs the ground in which you would plant them, then with a long dibble made on purpoſe, put in the ſhoot, ſo that the whole plant may be ſet ſtrait into the ground, with the head about an inch under the ſurface in a ſtrait line, about a foot aſunder, or more, in the rows, and two feet diſtance row from row; and after having finiſhed the whole ſpot of ground, you may ſow a thin crop of Onions, which being plants that do not root deep into the ground, nor ſpread much above, will do the Liquorice no damage the firſt year; for the Liquorice will not ſhoot very high the firſt ſeaſon, and the hoeing of the Onions will alſo keep the ground clear from weeds; but in doing of this you muſt be careful not to cut off the top ſhoots of the Liquorice plants when they appear above ground; which would greatly injure them; and alſo obſerve to cut up all the Onions which grow near the heads of the Liquorice; and after your Onions are pulled up, you ſhould carefully hoe and clean the ground from weeds; and in October, when the ſhoots of the Liquorice are decayed, you ſhould ſpread a little very rotten dung upon the ſurface of the ground, which will prevent the weeds from growing during the winter, and the rain will waſh the virtue of the dung into the ground, which will greatly improve the plants.

In the beginning of March following you ſhould ſlightly dig the ground between the rows of Liquorice, burying the remaining part of the dung; but in doing of this, you ſhould be very careful not to cut the roots. This ſtirring of the ground will not only preſerve it clean from weeds a long time, but alſo greatly ſtrengthen the plants.

The diſtance which I have allowed for planting theſe plants, will, I doubt not, by ſome, be thought too great; but in anſwer to that, I would only obſerve, that as the largeneſs of the roots is the chief advantage to the planter, ſo the only method to obtain this, is by giving them room; and beſides, this will give a greater liberty to ſtir and dreſs the ground, which is of great ſervice to Liquorice; and if the plantation deſigned were to be of an extraordinary bigneſs, I would adviſe the rows to be made at leaſt three feet diſtant, whereby it will be eaſy to ſtir the ground with a breaſt plough, which will greatly leſſen the expence of labour.

Theſe plants ſhould remain three years from the time of planting, when they will be fit to take up for uſe, which ſhould not be done until the ſtalks are perfectly decayed; for when it is taken up too ſoon, it is ſubject to ſhrink greatly, and loſe of its weight.

The ground near London being rich, increaſes the bulk of the root very faſt; but when it is taken up, it appears of a very dark colour, and not near ſo ſightly as that which grows upon a ſandy ſoil in an open country.

The ſecond ſort grows naturally in ſome parts of Italy, and in the Levant; the ſtalks and leaves of this are very like thoſe of the firſt, but the flowers are produced in ſhorter ſpikes, and the pods which ſucceed them are very ſhort, broad at their baſe, ending in acute points, and are armed with ſharp prickles. This flowers about the ſame time as the firſt, and in warm ſeaſons will perfect ſeeds in England.

The third ſort grows naturally in the Levant, from whence the ſeeds were ſent to the royal garden at Paris, by Dr. Tournefort. This hath much the appearance of the other two ſpecies, but the pods of it are hairy, and longer than thoſe of the other. Both theſe ſorts may be propagated in the ſame manner as the firſt, or from ſeeds, which may be ſown in the ſpring on a bed of light earth; but as neither of theſe are uſed, ſo they are ſeldom propagated unleſs for the ſake of variety.

GNAPHALIUM. Lin. Gen. Plant. 850. Elichryſum. Tourn. Inſt. R. H. 452. tab. 259. Goldylocks, or Eternal Flower; in French, *Immortelle.*

The CHARACTERS are,

It hath a compound flower, made up of hermaphrodite florets and female half florets, included in one ſcaly empalement; the hermaphrodite florets are tubulous, funnel-ſhaped, and cut into five parts at the brim, which are reflexed; theſe have five ſhort hairy ſtamina, terminated by cylindrical ſummits. In the center is ſituated a germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by a bifid ſtigma; the germen afterward becomes a ſingle ſeed, which in ſome ſpecies is crowned with a hairy down, and in others a feathery down. The female flowers which are intermixed with theſe have no ſtamina, but a germen ſupporting a ſlender ſtyle, crowned by a bifid reflexed ſtigma. Theſe are in ſome ſpecies fruitful, and in others they are barren. The empalement of the flower is permanent and ſhining.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, which includes thoſe plants which have hermaphrodite and female flowers incloſed in one common empalement, and are fruitful.

The Species are,

1. Gnaphalium (*Stæchas*) fruticoſum foliis linearibus, ramis virgatis, corymbo compoſito. Hort. Cliff. 401. *Goldylocks with a ſhrubby ſtalk garniſhed with very narrow leaves, and a compound corymbus of flowers.* Elichryſum ſeu ſtœchas citrina anguſtifolia. C. B. P. 264. *Caſſidony, or narrow-leaved Goldylocks.*

2. Gnaphalium (*Anguſtiſſimum*) foliis linearibus, caule fruticoſo ramoſo, corymbo compoſito. Hort. Cliff. 401. *Goldylocks with a branching ſhrubby ſtalk, and very narrow leaves, with a compound corymbus of flowers.* Elichryſum anguſtiſſimo folio. Tourn. Inſt. R. H. 452. *Goldylocks with very narrow leaves.*

3. Gnaphalium (*Uniflorum*) foliis alternis, acutè dentatis, ſubtus villoſis, pedunculis longiſſimis unifloris. *Goldylocks with alternate leaves ſharply indented, woolly on their under ſide, with very long foot-ſtalks ſuſtaining one flower.* Elichryſum ſylveſtre latifolium, flore parvo ſingulari. Tourn. Inſt. R. H. 452. *Broad-leaved wild Goldylocks, with a ſingle ſmall flower.*

4. Gnaphalium (*Luteo-album*) foliis ſemiamplexicaulibus enſiformibus, repandis obtuſis, utrinque pubeſcentibus, floribus conglomeratis. Prod. Leyd. 149. *Goldylocks with ſword-ſhaped leaves half embracing the ſtalks, which are obtuſe, reflexed, woolly on both ſides, and flowers growing in cluſters.* Elichryſum ſylveſtre latifolium capitulis conglobatis. C. B. P. 264. *Broad-leaved wild Goldylocks, with heads growing in cluſters.*

5. Gnaphalium (*Aquaticum*) caule ramoſo diffuſo, floribus confertis. Flor. Lapp. 300. *Goldylocks with a diffuſed branching ſtalk, and flowers in cluſters at the top.* Elichryſum aquaticum, ramoſum, minus, capitulis, foliaceis. Tourn. Inſt. 452. *Leſſer branching aquatic Goldylocks, with leafy heads.*

6. Gnaphalium (*Sylvaticum*) caule ſimpliciſſimo, floribus ſparſis. Flor. Lapp. 298. *Goldylocks with a ſingle ſtalk, and flowers growing ſcatteringly.* Elichryſum ſpicatum. Tourn. Inſt. R. H. 453. *Spiked Goldylocks.*

7. Gnaphalium (*Dioicum*) caule ſimpliciſſimo corymbo ſimplici terminali, ſarmentis procumbentibus. Hort. Cliff. 400. *Goldylocks with a ſingle ſtalk terminated by a ſingle corymbus, and trailing branches.* Elichryſum montanum flore rotundiori candido. Tourn. Inſt. R. H. 453. *Mountain Goldylocks with a rounder white flower.*

8. Gnaphalium (*Montanum*) foliis radicalibus cuneiformibus, caulinis acutis ſeſſilibus, caule ſimpliciſſimo, capitulo terminali aphyllo, floribus oblongis. *Goldylocks with the lower leaves wedge-ſhaped, thoſe on the ſtalks acute, and ſitting cloſe, a ſingle ſtalk without leaves, terminated by oblong flowers.* Elichryſum montanum longiore folio & flore albo. Tourn. Inſt. 453. *Mountain Goldylocks, with a longer leaf and white flower.*

9. Gnaphalium (*Chryſocomum*) humile, caule ſuffruticoſo, foliis linearibus ſubtus argenteis, ſquamis calycinis longioribus acuminatis. *Low Goldylocks with a ſhrubby ſtalk, very narrow leaves, ſilvery on their under ſide, and longer acute-pointed ſcales to the empalement.* Chamæchryſocoma prælongis purpuraſcentibuſque Jacææ capitulis. Barrel. Icon. 406. *Dwarf Goldylocks with longer and purpliſh heads like Knapweed.*

10. Gnaphalium (*Orientale*) ſubherbaceum, foliis lineari-lanceolatis ſeſſilibus, corymbo compoſito, pedunculis elongatis. Lin. Sp. 195. *Herbaceous Goldylocks with narrow ſpear-ſhaped leaves, and a compound cluſter of flowers.* Elichryſum Orientale. C. B. P. 264. *Eaſtern Goldylocks, called Immortal Flower.*

11. Gnaphalium (*Igneſcens*) fruticoſum, foliis ſublanceolatis tomentoſis ſeſſilibus, corymbis alternis conglobatis, floribus globoſis. Prod. Leyd. 149. *Shrubby Goldylocks, with ſpear-ſhaped woolly leaves ſitting cloſe to the ſtalks, and alternate cluſters of globular flowers.* Elichryſum Germanicum, calyce ex aureo rutilante. Tourn. Inſt. R. H. 452. *German Goldylocks having a reddiſh gold-coloured empalement.*

12. Gnaphalium (*Margaritaceum*) herbaceum foliis lineari-lanceolatis acuminatis, alternis, caule ſupernè ramoſo corymbis faſtigiatis. Hort. Cliff. 401. *Herbaceous Goldylocks with narrow, ſpear-ſhaped, pointed leaves placed alternate, and the upper part of the ſtalk branching, with a compact corymbus of flowers.* Elichryſum Americanum latifolium. Tourn. Inſt. R. H. 453. *Broad-leaved American Goldylocks.*

13. Gnaphalium (*Fœtidum*) herbaceum foliis amplexicaulibus, integerrimis acutis ſubtus tomentoſis, caule ramoſo. Hort. Cliff. 402. Lin. Sp. Plant. 850. *Herbaceous Goldylocks with entire leaves embracing the ſtalks, woolly on their under ſide, and a branching ſtalk.* Elichryſum Africanum fœtidiſſimum, ampliſſimo folio. Tourn. Inſt. R. H. 454. *Moſt ſtinking African Goldylocks with a large leaf.*

14. Gnaphalium (*Argenteum*) foliis amplexicaulibus integerrimis ovatis nervoſis utrinque tomentoſis, caule ramoſo. Hort. Cliff. 402. *Goldylocks with entire acute leaves embracing the ſtalks, woolly on both ſides, and a branching ſtalk.* Elichryſum Africanum fœtidiſſimum ampliſſimo folio calyce argenteo. Tourn. Inſt. 454. *Moſt ſtinking African Goldylocks, with a very large leaf, and a ſilvery empalement to the flower.*

15. Gnaphalium (*Undulatum*) herbaceum foliis decurrentibus lanceolatis acutis, undatis, ſubtus tomentoſis, caule ramoſo. Hort. Cliff. 402. *Goldylocks with acute running leaves which are waved, and woolly on their under ſide, and a branching ſtalk.* Elichryſum graveolens acutifolium, caule alato. Hort. Elth. 130. *Stinking Goldylocks, with an acute leaf and winged ſtalk.*

16. Gnaphalium (*Cymoſum*) herbaceum foliis lanceolatis trinerviis ſupra glabris caule infernè ramoſo terminali. Hort. Cliff. 401. *Goldylocks with ſpear-ſhaped leaves, having three veins, ſmooth on their upper ſide, and the under branches terminated with flowers.* Elichryſum Africanum folio oblongo, ſubtus incano, ſuprâ viridi, flore luteo. Boerh. Ind. alt. 1. 121. *African Goldylocks with an oblong leaf, hoary on the under ſide, and green above, with a yellow flower.*

17. Gnaphalium (*Americanum*) caule herbaceo ſimpliciſſimo, foliis lanceolatis obtuſis tomentoſis, floribus ſpicatis lateralibuſque. *Goldylocks with a ſingle herbaceous ſtalk, obtuſe, ſpear-ſhaped, woolly leaves, and flowers growing in ſpikes from the ſides of the ſtalks.* Gnaphalium ad ſtœchadem citrinam accedens. Sloan. Cat. Jam. 125. *Cudweed like golden Caſſidony.*

18. Gnaphalium (*Rutilans*) herbaceum foliis lineari-lanceolatis, caule infernè ramoſo, corymbo compoſito terminali. Hort. Cliff. 401. *Herbaceous Goldylocks with narrow ſpear-ſhaped leaves, the under part of the ſtalk branching, and a compound corymbus terminating the branches.* Elichryſum Africanum, folio oblongo anguſto, flore rubello poſtea aureo. Boerh. Ind. alt. 121. *African Goldylocks with an oblong narrow leaf and a reddiſh flower, which is afterwards yellow.*

19. Gnaphalium (*Sanguineum*) herbaceum, foliis decurrentibus lanceolatis tomentoſis planis apiculo nudo terminali. Amœn. Acad. 4. p. 78. *Herbaceous Goldylocks, with ſpear-ſhaped, woolly, running leaves, terminated by a naked point.* Chryſocoma Syriaca, flore atro rubente. Breyn. Cent. 146.

20. Gnaphalium (*Fruticoſum*) fruteſcens foliis infernè lanceolatis caulinis lineari-lanceolatis, utrinque tomentoſis, corymbo compoſito terminali. *Shrubby Goldylocks with the under leaves ſpear-ſhaped, thoſe on the ſtalks narrow, ſpear-ſhaped, woolly on both ſides, and the ſtalks terminated by a corymbus of flowers.* Elichryſum Africanum fruteſcens, anguſtis & longioribus foliis incanis. Hort. Amſt. 2. p. 109. *Shrubby African Goldylocks, with longer and narrower leaves which are hoary.*

21. Gnaphalium (*Odoratiſſimum*) foliis decurrentibus obtuſis infernè villoſis, corymbis conglobatis terminalibus. *Goldylocks with obtuſe running leaves, hoary on their under ſide, and a cluſtered corymbus of flowers terminating the ſtalk.* Elichryſum foliis linearibus decurrentibus, ſubtus incanis, floribus corymboſis. Fig. Plant. tab. 131. fol. 2. *Goldylocks with narrow running leaves, hoary on their under ſide, and flowers growing in a corymbus.*

22. Gnaphalium (*Plantaginifolium*) ſarmentis procumbentibus caule ſimpliciſſimo, foliis radicalibus ovatis

maximis, ſarmentis procumbentibus. Lin. Sp. Plant. 850. *Goldylocks with a ſimple ſtalk, large oval leaves at bottom, and trailing runners.* Gnaphalium plantaginis folio, Virginianum. Pluk. Alm. 171. *Virginia Goldylocks with a Plantain leaf.*

23. Gnaphalium (*Obtuſifolium*) herbaceum foliis lanceolatis, caule tomentoſo paniculato terminalibus glomeratis conicis. Lin. Sp. Plant. 851. *Goldylocks with ſpear-ſhaped leaves, a woolly ſtalk, terminated by a conical cluſter of flowers.* Elichryſum obtuſifolium, capitulis argenteis conglobatis. Hort. Elth. 130. *Blunt-leaved Goldylocks, with ſilvery heads growing in cluſters.*

24. Gnaphalium (*Spicatum*) foliis lanceolatis decurrentibus tomentoſis, floribus ſpicatis terminalibus lateralibuſque. *Goldylocks with ſpear-ſhaped, woolly, running leaves, and flowers growing in ſpikes at the ends and ſides of the ſtalks.* Elichryſum caule alato, floribus ſpicatis. Sloan. Cat. Jam. 125. *Goldylocks with a winged ſtalk and ſpiked flowers.*

The firſt ſort hath a ſhrubby ſtalk, which riſes about three feet high, branching out into long ſlender ſtalks irregularly; the lower branches are garniſhed with obtuſe leaves, two inches and a half long, and an eighth of an inch broad at the point, but thoſe upon the flower-ſtalks are very narrow, ending in acute points; the whole plant is very woolly: the flowers terminate the ſtalks in a compound corymbus; their empalements are of a ſilvery colour at firſt, and very neat, but afterward turn of a yellowiſh ſulphur colour. If theſe are gathered before the flowers are much opened, the heads will continue in beauty many years, eſpecially if they are kept from the air and duſt. The plants begin to flower in June, and there is a ſucceſſion of flowers all the ſummer, ſome of which will continue in beauty moſt part of the winter. This is generally ſuppoſed to be the true golden Caſſidony of the ſhops, but the ſecond ſort is uſually ſubſtituted for it in England.

It is propagated by ſlips or cuttings, which may be planted in June or July, in a bed of light earth, and covered with glaſſes, or ſhaded with mats, obſerving to refreſh them frequently with water, but it muſt not be given in large quantities; theſe cuttings will put out roots in ſix or eight weeks, then they ſhould be taken up and planted in pots filled with light earth, and placed in a ſhady ſituation till they have taken new root, when they may be removed to an open ſituation, and placed among other hardy exotics, till about the middle or end of October; at which time they ſhould be placed under a common frame, where they may be protected from froſt, but in mild weather they ſhould be expoſed to the open air. With this management in winter, the plants will be much ſtronger than thoſe which are kept in the green-houſe, where they generally draw too weak; for this ſort only wants to be ſheltered from hard froſt, being ſo hardy as in very mild winters to live abroad in warm borders near walls, with little ſhelter.

The ſecond ſort hath a ſhrubby ſtalk, which divides into many ſlender branches, covered with a white bark; theſe form a thick buſhy under ſhrub, and riſe near three feet, garniſhed with very narrow leaves, hoary on their under ſide, but green on their upper, placed without order on every ſide the ſtalks; the flowers are produced in a compound corymbus at the end of the branches; their heads are ſmall, and are of a yellow colour when fully blown; theſe are continued in ſucceſſion moſt part of ſummer. This grows naturally in France and Germany, and is hardy enough to live in the open air in England. It is propagated by ſlips or cuttings, which may be planted in a ſhady border during any of the ſummer months, and in the autumn they may be tranſplanted into the places where they are deſigned to remain. This ſhould have a dry undunged ſoil, in which it is rarely injured unleſs in the moſt ſevere froſt.

The third ſort is an annual plant, which grows naturally in Italy and Sicily; this hath an herbaceous ſtalk, which riſes little more than a foot high, garniſhed with acute indented leaves, which are hoary on their under ſide; the flowers ſtand upon long foot-ſtalks, which riſe far above the branches, each ſuſtaining one ſmall whitiſh flower. Theſe appear in July, and the ſeeds ripen in September. It is propagated by ſeeds, which ſhould be ſown in autumn upon a bed of light earth, where the plants are deſigned to remain; and when the plants come up in the ſpring, they ſhould be thinned where they are too cloſe, and kept clean from weeds, which is all the culture they require.

The fourth ſort is an annual plant with woolly leaves, which riſe with woolly ſtalks about eight inches high, garniſhed with oblong leaves which embrace the ſtalks with their baſe; the flowers grow in cloſe cluſters at the top, and from the ſide of their ſtalks, which are included in dry ſilvery empalements.

There is another ſpecies of this with narrower leaves, not quite ſo woolly; the ſtalks riſe higher, and are more branched; the flowers grow in cloſe bunches on the top of the ſtalks, and are of a pale yellow colour. Both theſe ſorts will come up better from the ſcattered ſeeds, than when they are ſown by art; but if the ſeeds are ſown, it muſt be ſoon after they are ripe, otherwiſe they will not ſucceed. The plants require no other care but to keep them clean from weeds, and thinned where they are too cloſe. They flower in July, and the ſeeds ripen in autumn.

The fifth ſort is an annual plant, which grows naturally in many parts of England, on places which are covered with water in the winter; this is a low branching plant, with ſilvery leaves and dark heads of flowers, but being of no uſe is not cultivated in gardens.

The ſixth ſort is alſo an annual plant with narrow leaves, which are hoary on their under ſide; the ſtalks grow erect about a foot high, and at every joint is produced a ſhort ſpike of white flowers, with dark-coloured empalements. This is found growing naturally in ſome parts of England, ſo is not often admitted into gardens. If the ſeeds of this ſort are permitted to ſcatter, the plants will come up in the ſpring with greater certainty than if ſown, and they will require little culture. Theſe flower in July, and the plants decay ſoon after they have ripened their ſeeds.

The ſeventh ſort grows naturally in the northern parts of England, upon the tops of hills and mountains, where the ſhoots which are ſent out from every ſide of the plant put out roots, whereby it is propagated in great plenty: the leaves of this grow cloſe to the ground, they are narrow at their baſe, but rounded at the end where they are broad; they are near an inch long, and hoary on their under ſide; the ſtalks are ſingle, and riſe about four inches high, terminated by a corymbus of flowers which is ſingle. This flowers in May and June.

There are two varieties of this, one with a purple and the other a variegated flower, which have riſen accidentally from ſeeds, but continue their difference in the gardens. They are eaſily propagated by offſets, which ſhould be planted in the autumn, in a ſhady ſituation, where they will require no other care but to keep them clean from weeds. This plant is called Pes Cati, or *Catsfoot.*

The eighth ſort grows naturally on the Alps. This is a low plant, with under leaves like the laſt mentioned; the ſtalks are ſingle, and riſe about ſix inches high, garniſhed with very ſmall acute leaves, and terminated by four or five oblong flowers, which in ſome plants are white, and in others of a purpliſh colour. They appear about the ſame time as the former ſort, and the plants may be propagated and treated in the ſame manner.

The ninth ſort grows naturally in Spain and Italy. This is a low plant with a ligneous ſtalk, which ſeldom riſes more than ſix inches high, garniſhed with very narrow leaves, white on their under ſide; the flowers are produced from the ſide of the ſtalks, each ſtanding upon a ſeparate foot-ſtalk; their empalements are ſcaly and long, ending in acute ſtiff points, and are of a purpliſh colour. This ſort flowers in July, but ſeldom perfects ſeeds in this country.

The tenth ſort is ſuppoſed to have been brought firſt from India to Portugal, where it has been long propagated for the beauty of its golden heads of flowers, which, if gathered before they are too open, will continue in beauty ſeveral years; ſo that in the winter ſeaſon they ornament their churches with theſe flowers, and many of them are annually brought to England, and ſold for ornaments to the ladies. Theſe plants have a ſhort ſhrubby ſtalk, ſeldom riſing more than three or four inches high, putting out many heads; the leaves are narrow and woolly on both ſides, and come out without order; the flower-ſtalks ariſe from theſe heads; they grow eight or ten inches high, are garniſhed all the way with narrow hoary leaves, and terminated by a compound corymbus of bright yellow flowers with large heads. Theſe begin to flower in May, and there is a ſucceſſion of them moſt part of ſummer. This is propagated by ſlipping off the heads during any of the ſummer months, and after ſtripping off the lower leaves, they ſhould be planted in a bed of light earth, covering them with hand-glaſſes, which muſt be ſhaded every day when the ſun is warm; and the cuttings muſt be ſupplied with water, which ſhould be often repeated, but not in too great quantities; when theſe are rooted they ſhould be planted in pots, and treated in the ſame manner as hath been directed for the firſt ſort. Theſe plants in mild winters will live abroad in a very warm border with little ſhelter, and the hardier they are treated, the greater number of flowers they will produce; for when they are drawn weak in a green-houſe, they never flower ſo ſtrong.

The eleventh ſort hath very woolly ſtalks and leaves, which are much longer than thoſe of the tenth; the ſtalks riſe a foot high, ſending out a few ſide branches; theſe are terminated by a compound corymbus of flowers, whoſe heads are ſmall, and of a gold colour, changing a little red as they fade. This is propagated by ſlips in the ſame manner as the laſt mentioned, but the plants will live in the open air, if they are planted on a dry ſoil.

The twelfth ſort grows naturally in North America, but has been long in the Engliſh gardens. This hath a creeping root, which ſpreads far in the ground, ſo as to become a troubleſome weed very often, unleſs it is kept within bounds; the ſtalks of this are woolly, riſing a foot and a half high, garniſhed with long leaves ending in acute points, which are placed alternate, and are woolly on their under ſide; the upper part of the ſtalk branches into two or three diviſions, each being terminated by a cloſe corymbus of flowers, with pretty large ſilvery empalements, which, if gathered and properly dried, will retain their beauty ſeveral years. This ſort will thrive in almoſt any ſoil or ſituation, and is eaſily propagated by its creeping roots. It flowers in June and July, and the ſtalks decay in autumn.

The thirteenth ſort grows naturally at the Cape of Good Hope. This is an annual plant, which ſends out many oblong blunt leaves near the root; the ſtalks riſe a foot and a half high, garniſhed with leaves placed alternate, which are broad at their baſe where they embrace the ſtalks, but end in acute points; they are woolly, and when handled, emit a very rank odour; the ſtalks are terminated by a corymbus of flowers, in large ſilvery empalements, which will retain their beauty ſeveral years.

The fourteenth ſort grows naturally at the Cape of Good Hope, and is an annual plant, very like the former ſort, but the leaves are of a yellowiſh green on their upper ſide, and woolly on their under; the ſtalks branch, and the heads of flowers are of a bright yellow colour, and theſe differences are permanent. Both theſe plants are propagated by ſeeds, which, if ſown in the autumn on a warm border, will more certainly ſucceed, than when they are ſown in the ſpring; or if the ſeeds are permitted to ſcatter, the plants will come up without care, and may be tranſplanted while they are young, to the places where they are deſigned to remain: when the plants have taken root, they will require no other care but to keep them clean from weeds. They flower in July, and the ſeeds ripen in autumn.

The fifteenth ſort grows in Africa, and alſo in North America, from both theſe countries I have received the ſeeds. It is an annual plant, with oblong leaves at the bottom, which are a little waved, and hoary on their under ſide. The ſtalks riſe about a foot high, and are garniſhed with acute-pointed leaves; from their baſe runs a border or wing along the ſtalk; the whole plant has a diſagreeable odour. The flowers grow in a corymbus on the top of the ſtalks, they are white, and appear in July. The ſeeds ripen in the autumn, which, if permitted to ſcatter, the plants will come up without care, as the two former ſorts.

The ſixteenth ſort riſes with a ſhrubby ſtalk three or four feet high, ſending out many branches from the lower part, garniſhed with narrow ſpear-ſhaped leaves, which half embrace the ſtalks with their baſe; they are of a dark green on their upper ſide, but are hoary on their under; the ſtalks are terminated by a compound corymbus of yellow flowers, whoſe heads are ſmall: theſe continue in ſucceſſion great part of the ſummer, but are rarely ſucceeded by ſeeds in England. It is eaſily propagated by cuttings in any of the ſummer months, which may be planted in a ſhady border, and duly watered. Theſe will take root in a month or five weeks, and may then be taken up and planted in pots, placing them in a ſhady ſituation till they have taken freſh root; then they may be removed to a ſheltered ſituation, and placed with other hardy green-houſe plants till autumn, when they muſt be carried into the green-houſe, where, during the winter ſeaſon, they ſhould have as much free air as poſſible in mild weather, for they only require protection from froſt, ſo they ſhould be treated in the ſame manner as other hardy green-houſe plants.

The ſeventeenth ſort is an annual plant, which grows naturally in France, Italy, and Spain. This hath a woolly herbaceous ſtalk, which riſes ſix or eight inches high, garniſhed with obtuſe, ſpear-ſhaped, woolly leaves. The flowers are produced in ſhort ſpikes from the ſide, and at the top of the ſtalks; they are of a ſilvery colour, and appear in June and July. The ſeeds ripen in autumn, which, if permitted to ſcatter, the plants will come up without care, and require no other culture, but to keep them clean from weeds.

The eighteenth ſort grows naturally at the Cape of Good Hope; this riſes with a ſlender ſhrubby ſtalk, which ſends out many lateral branches below; theſe are garniſhed with very narrow leaves, which are hoary on their under ſide. The flowers are produced in a compound corymbus at the end of the branches; they are at their firſt appearance of a pale red colour, but afterward change to a gold colour; the empalements of this ſort are ſmall, and dry like the other ſpecies of this genus. This ſort is propagated by cuttings, in the ſame manner as the ſixteenth, and the plants require the ſame treatment.

The nineteenth ſort grows naturally in Egypt and Paleſtine. This is a perennial plant, whoſe under leaves ſpread near the ground; they are woolly on their under ſide; the ſtalks riſe about ſix inches high; the leaves upon theſe are ſpear-ſhaped, ending in acute points; the ſtalks and leaves are woolly, and the ſtalk is terminated by a large corymbus of flowers ſitting very cloſe; theſe are of a fine ſoft red colour, ſo make a pretty appearance in the month of June, when they are in beauty.

This ſort is propagated by offſets in the ſame manner as the ſeventh and eighth ſorts, but this doth not produce them in plenty, ſo is very uncommon in the Engliſh gardens at preſent: it requires a drier ſoil than the ſeventh, and a warmer ſituation, but not too much expoſed to the mid-day ſun, ſo ſhould be planted to a ſouth-eaſt aſpect.

The twentieth ſort grows naturally at the Cape of Good Hope, but has been long preſerved in many curious gardens in Europe; the ſtalk riſes three or four feet high, ſending out ſeveral long irregular branches, which are terminated by a compound corymbus of flowers. The heads of this ſort are compoſed of leaves, which are much longer than thoſe of any other ſort; the heads of the flowers are of a bright ſilver colour. This is propagated by cuttings, which ſhould be planted in the ſame manner as hath been directed for the tenth ſort, and the plants ſhould alſo be treated in the ſame way.

The twenty-firſt ſort was raiſed from ſeeds in the Chelſea garden, which came from the Cape of Good Hope; the lower leaves of this are oblong and blunt. The ſtalks are ſhrubby, and divide into many irregular branches, which riſe about three feet high; theſe are garniſhed with oblong blunt-pointed leaves, hoary on their under ſide, but of a dark green above; from the baſe of the leaves runs a border along the ſtalk, like a wing, of the ſame conſiſtence with the leaves, ſo is what the former botaniſts termed a winged ſtalk, but Dr. Linnæus calls it a running leaf. The ſtalks are terminated by a compound corymbus of flowers, which are very cloſely joined together, and are of a bright gold colour, but the flowers are ſmall, and change to a darker colour as they fade; there is a ſucceſſion of theſe flowers moſt part of the ſummer, and the early flowers are frequently ſucceeded by ſeeds in England. This ſort may be propagated by ſlips, or cuttings, in the ſame manner as the tenth, and the plants may be treated in the ſame manner as is directed for that. It is engraven in the 131ſt plate of the figures of plants.

The twenty-ſecond ſort grows naturally in North America, from whence the ſeeds have been brought to England; this is a perennial plant, whoſe lower leaves are large and oval; from the main ſtalk there come out runners, which take root in the ground, and have young plants at their extremity. The ſtalks are ſingle, and garniſhed with narrower woolly leaves, placed alternate. The flowers are produced at the top of the ſtalks in a corymbus, they are of a white colour and ſmall. They appear in June and July, and ſometimes are ſucceeded by ſeeds, but the plants propagate ſo faſt by offſets, that the ſeeds are little regarded; this will thrive in the open air, if planted in a dry ſoil and a warm ſituation.

The twenty-third ſort grows naturally in North America; it is an annual plant, with woolly obtuſe leaves. The ſtalks are ſingle, and riſe about nine inches high. The flowers grow in ſpikes from the ſide of the ſtalks; they are of a dirty white colour, ſo make no great appearance. If the ſeeds of this are permitted to ſcatter, the plants will riſe without trouble, and only require to be kept clean from weeds.

The twenty-fourth ſort grows naturally in Jamaica, and other of the hot parts of America; this riſes with a ſhrubby ſtalk about two feet high, garniſhed with leaves about the ſize and ſhape of thoſe of Sage, but woolly on their under ſide, and much veined; from the baſe of each leaf runs a border along the ſtalk. The flowers are produced in ſpikes from the ſide, and at the end of the ſtalk; theſe are long, and cloſely joined in the ſpike. It flowers in July and Auguſt, but never perfects ſeeds in England.

It is propagated by ſeeds, which ſhould be ſown on a hot-bed in pots, becauſe the plants do not often riſe the ſame year; therefore when it ſo happens, the pots ſhould be placed in the ſtove in winter, and the following ſpring put upon a freſh hot-bed to bring up the plants; when theſe appear they muſt be planted into pots, and kept conſtantly in the hot-bed, otherwiſe they will not thrive in England.

GNAPHALODES. See MICROPUS.

GNIDIA.

The CHARACTERS are,

It hath a funnel-ſhaped empalement of one coloured leaf, with a long tube divided into four ſegments; the flower hath four plain petals ſhorter than the empalement inſerted to it, and eight briſtly erect ſtamina, terminated by ſimple ſummits, and an oval germen ſupporting a ſlender ſtyle on the ſide inſerted with the ſtamina, crowned by a ſtinging ſtigma; the germen afterward becomes one oval oblique-pointed ſeed, incloſed in the empalement.

This genus of plants is ranged in the firſt order of Linnæus's eighth claſs, intitled Octandria Monogynia, the flower having eight ſtamina and one ſtyle.

We have but one SPECIES of this genus, viz.

1. GNIDIA (*Pinifolia*) foliis ſparſis lineari-ſubulatis, floribus verticillatis, aggregatis terminalibus. Lin. Sp. 512. *Gnidia with linear awl-ſhaped leaves, and flowers placed cloſely in whorls terminating the branches.* Rapunculus foliis nervoſis linearibus, floribus argenteis non galeatis. Burm. Afr. 112.

This plant grows naturally in Æthiopia. It hath a low ſhrubby ſtalk, which riſes three or four feet high, ſending out a few ſide branches, garniſhed with narrow, oblong, acute-pointed leaves, which are green on their upper ſide, but pale on their under, with a ſtrong longitudinal nerve, reſembling the leaves of Roſemary: the flowers come out almoſt in whorls from between the leaves on the extremity of the branches, ſtanding on ſhort foot-ſtalks; they have long ſlender tubes, and are divided at the top into four ſegments which ſpread horizontally, having eight very ſhort ſtamina in the bottom of the tube, and an oval germen with a ſlender ſtyle faſtened to the ſide of the ſtamina; the germen is afterward ſucceeded by one oval-pointed ſeed. There are two varieties of this, one with a white, and the other hath a blue flower.

This is uſually propagated here by cuttings, which if carefully planted during the ſummer months, in pots filled with light earth, plunged into a very moderate hot-bed, covering the pots cloſely with either bell or hand-glaſſes to exclude the air, being careful to ſhade the glaſſes daily, the cuttings will put out roots in ſix weeks, when they ſhould be gradually inured to the open air. In winter the plants ſhould be placed in a dry airy glaſs-caſe, where they may enjoy free air in mild weather, but protected from froſt and damp air.

GOMPHRENA. Lin. Gen. Plant. 279. Amaranthoides. Tourn. Inſt. R. H. 654. tab. 420.

The CHARACTERS are,

The flower hath a large three-leaved empalement, which is coloured and permanent. The petal is erect, and cut into five parts at the top; it hath a cylindrical tubulous empalement the length of the petal, cut into five ſmall parts at the brim, which ſpread open; it hath five ſtamina ſcarcely diſcernible, ſituated in the brim of the nectarium, terminated by ſummits, ſhut up in the mouth of the nectarium. In the center is ſituated an oval-pointed germen, with two ſmall ſtyles, crowned with ſingle ſtigma the length of the ſtamina. The germen afterward becomes one large roundiſh ſeed, incloſed in a thin cruſted capſule with one cell.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, which includes the plants whoſe flowers have five ſtamina and two ſtyles.

The SPECIES are,

1. GOMPHRENA (*Globoſa*) caule erecto, foliis ovato-lanceolatis, capitulis ſolitariis, pedunculis diphyllis. Hort. Cliff. 86. *Gomphrena with an erect ſtalk, oval ſpear-ſhaped leaves, ſingle heads, and foot-ſtalks having two leaves.* Amaranthoides Lychnidis folio, capitulis purpureis. Tourn. Inſt. R. H. 654. *Globe Amaranthus with purple heads.*
2. GOMPHRENA (*Serrata*) caule erecto, ſpicâ interruptâ. Prod. Leyd. 419. *Gomphrena with an erect ſtalk, and an interrupted ſpike of flowers.*
3. GOMPHRENA (*Perennis*) foliis lanceolatis, capitulis diphyllis, floſculis perianthio proprio diſtinctis. Lin. Sp. Plant. 224. *Gomphrena with ſpear-ſhaped leaves, two leaves to the heads, and each floret having its proper empalement.* Amaranthoides perenne, floribus ſtramineis radiatis. Hort. Elth. 24. tab. 20. *Perennial Globe Amaranthus with radiated ſtraw-coloured flowers.*

The firſt ſort grows naturally in India, from whence the ſeeds were brought to Europe, and the plants have been many years cultivated in all the curious gardens: it is an annual plant, which riſes with an upright branching ſtalk about two feet high, garniſhed with ſpear-ſhaped leaves placed oppoſite. The branches alſo come out oppoſite, and the foot-ſtalks of the flowers, which are long and naked, having two ſhort leaves, cloſe under each head of flowers ariſes from the forks of the branches. The heads at their firſt appearance are globular, but as they increaſe in ſize become oval; theſe are compoſed of dry ſcaly leaves or petals, placed imbricatim like the ſcales of fiſh; under each of theſe is ſituated a tubulous flower, which juſt peeps out of the covering, but theſe are not much regarded by the generality of people; for the ſcaly empalement which covers them is ſo beautiful, and theſe if gathered before they are too much faded, will retain their beauty ſeveral years. After the flowers are paſt, the germen, which is ſituated in the bottom of each, becomes a large oval ſeed, incloſed in a chaffy covering, which ripens late in autumn, and the plants decay ſoon after.

There are two varieties of this ſort, one with fine bright purple heads, the other hath white or ſilvery heads, and theſe never alter from ſeeds, ſo that they are permanent varieties, though in other reſpects they do not differ: there is alſo one with mixed colours, but whether this aroſe accidentally from the ſeeds of either of the former, I cannot determine, for this variety continues from ſeeds, and the other two I have cultivated more than thirty years, and have never found either of them vary.

There are alſo two varieties of theſe which grow naturally in the Weſt-Indies, one with purple, and the other with white heads, which are much ſmaller and rounder than thoſe before-mentioned. The plants grow much larger, and ſpread more into branches, and they are later before they flower, ſo that in cold ſeaſons the ſeeds rarely ripen in England; theſe are called Bachelors Buttons by the inhabitants of America, but whether they are ſpecifically different from the others, I cannot with certainty determine.

The ſecond ſort hath much ſlenderer ſtalks than the firſt, which grow taller, and are irregular. The leaves are ſmaller, but of the ſame ſhape. The flowers grow in ſpikes at the end of the branches, which are broken, or divided into three or four parts with ſpaces between them. The ſpikes are ſmall, and of a pale purple colour. The ſeeds of this ſort were ſent me by the late Dr. Houſtoun from Campeachy.

The third ſort hath ſlender upright ſtalks, which are garniſhed with ſpear-ſhaped leaves placed oppoſite; they are hairy, and ſit cloſe to the ſtalks, which alſo are hairy, and terminated by ſmall heads of flowers, which ſpread open from each other, ſo as that the empalement appear diſtinct; theſe are of a pale ſtraw colour, and appear in July. The ſeeds ſometimes will ripen in England, but the plants will live two or three years, if they are preſerved in a ſtove.

The two ſorts with large heads of flowers which are firſt mentioned, one with purple, and the other which is ſilver-coloured, are very ornamental plants in gardens, and are now very commonly cultivated in the Engliſh gardens. In Portugal, and other warm countries, they are cultivated to adorn their churches in the winter; for if theſe are gathered when they are fully grown, and dried in the ſhade, they will retain their beauty a long time, eſpecially if they are not expoſed to the air; theſe plants are annual, ſo are only propagated by ſeeds, which ſhould be ſown on a good hot-bed the beginning of March; but if the ſeeds are not taken out of their chaffy covering, it will be proper to ſoak them in water for twelve hours before they are ſown, which will greatly facilitate their growing. When the plants are come up an inch high, they ſhould be tranſplanted on a freſh hot-bed, at about four inches diſtance, obſerving to ſhade them till they have taken root; then they ſhould have freſh air admitted to them every day, in proportion to the warmth of the ſeaſon; they will alſo require to be frequently refreſhed with water. In about a month's time, if the hot-bed is of a proper warmth, the plants will have grown ſo large, as to nearly meet, therefore they will require more room, otherwiſe they will draw up weak; then a freſh hot-bed ſhould be prepared, into which there ſhould be a ſufficient number of three farthing pots plunged, filled with light rich earth, and when the bed is in a proper temperature of warmth, the plants ſhould be carefully taken up with balls of earth to their roots, and each planted into a ſeparate pot, obſerving to ſhade them till they have taken new root, afterward they muſt be treated in the ſame manner as other tender exotic plants. When the plants have filled theſe pots with their roots, they ſhould be ſhaken out of the pots, and their roots on the outſide of the ball of earth muſt be carefully pared off; then they ſhould be put into pots a ſize larger, and when there is conveniency of a deep frame, to plunge the pots into another gentle hot-bed, it will bring the plants early to flower, and cauſe them to grow much larger than thoſe which are placed abroad. In July the plants ſhould be inured gradually to bear the open air, into which they may be removed about the middle of that month, and intermixed with other annual plants to adorn the pleaſure-garden; but it will be proper to keep a plant or two of each ſort in ſhelter for ſeeds, becauſe when the autumn proves cold or wet, thoſe plants which are expoſed abroad, ſeldom produce good ſeeds.

GOOSEBERRY. See GROSSULARIA.

GORTERIA.

The CHARACTERS are,

The empalement of the flower is ſtiff, ſcaly, ending in briſtly ſpines; the flower is compoſed of hermaphrodite florets in the diſk, and female in the rays or border; the hermaphrodite florets are funnel-ſhaped, five-pointed, having five ſhort ſtamina terminated by cylindrical ſummits, with a hairy germen ſupporting a ſlender ſtyle, crowned by a bifid ſtigma; the germen afterward becomes one roundiſh ſeed, ſurrounded by fine hairs. The female florets are tongue-ſhaped, have no ſtyle or ſtigma, and are barren.

This genus of plants is ranged in the third ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia fruſtranea, the flowers being compoſed of hermaphrodite florets in the diſk which are fruitful, and female florets in the border, having neither ſtyle or ſtigma, ſo are barren.

The SPECIES are,

1. GORTERIA (*Ringens*) ſcapis unifloris, foliis lanceolatis pinnatifidis, caule depreſſo. Amœn. Acad. 6. p. 86. *Gorteria with one flower on each foot-ſtalk, ſpear-ſhaped, wing-pointed leaves, and a depreſſed ſtalk.* Arctotis ramis decumbentibus, foliis lineari-lanceolatis rigidis ſubtus argenteis. Ed. prior.
2. GORTERIA (*Fruticoſa*) foliis lanceolatis integris dentato-ſpinoſis ſubtus tomentoſis, caule fruticoſo. Lin. Sp. 1284. *Gorteria with entire ſpear-ſhaped leaves, whoſe indentures end in ſpines, woolly on their under ſide, and a ſhrubby ſtalk.* Carthamus Africanus fruteſcens, folio ilicis, flore aureo. Walth. Hort. 13. tab. 7.

The firſt ſort grows naturally at the Cape of Good Hope; it is a low ſpreading plant, with ligneous ſtalks ſix or eight inches long trailing on the ground, having two or three ſide branches, each terminating in a cloſe head of leaves, which are narrow, green on their upper ſide, but ſilvery on their under, cut into three or five ſegments at their ends. The foot-ſtalks of the flowers ariſe from the heads, and are ſix inches long, naked, ſupporting one large Orange-coloured flower at the top, compoſed of ſeveral hermaphrodite florets in the diſk, which are fruitful; but the female half florets on the border are tongue-ſhaped, ſpreading open, each having a dark mark toward their baſe, with a white ſpot intermixed. The flowers appear in May and June, but are ſeldom ſucceeded by ſeeds in England.

This plant is eaſily propagated by cuttings planted in a ſhady border during any of the ſummer months, and the plants muſt be afterward treated as is directed for ARCTOTIS.

The ſecond ſort grows naturally at the Cape of Good Hope. This riſes with a ſhrubby ſlender ſtalk three feet high, ſending out a few weak branches, garniſhed with oblong leaves ſitting cloſe to the branches; they are ſmooth on their upper ſide, woolly underneath, and indented on their edges, each indenture ending with a weak ſpine. The flowers terminate the ſtalks, having leafy empalements ending with ſpines; the flowers are yellow, and appear in the ſummer months, but are not ſucceeded by ſeeds in England.

It is propagated by planting of the ſmall heads at the end of the branches, in June or July, which muſt be cloſely covered with either bell or hand-glaſſes, or they will not ſucceed, and ſhould be carefully ſcreened from the ſun. When theſe are well rooted, they ſhould be put each into a ſmall pot, and in winter ſhould be placed in an airy glaſs-caſe ſecure from damps.

GORZ. See Ulex.

GOSSYPIUM. Lin. Gen. Plant. 755. Xylon. Tourn. Inſt. R. H. 101. tab. 27. Cotton.

The Characters are,

The flower has a double empalement; the outer is large, of one leaf, and cut half way into three ſegments; the inner is cup-ſhaped, of one leaf, cut into five obtuſe ſegments at the top. It hath five plain heart-ſhaped petals, which join at their baſe, and ſpread open. It hath a great number of ſtamina, which are joined at bottom in a column, but are looſe above, and inſerted into the petals; theſe are terminated by kidney-ſhaped ſummits. It hath a round germen, ſupporting four ſtyles, joined in the column, and are the ſame length of the ſtamina, crowned by four thick ſtigmas. The germen afterward becomes a roundiſh capſule, ending in a point, having four cells, which are filled with oval ſeeds, wrapped up in down.

This genus of plants is ranged in the third ſection of Linnæus's ſixteenth claſs, intitled Monodelphia Polyandria, which includes the plants whoſe flowers have many ſtamina, which are joined together with the ſtyles in one column or body.

The Species are,

1. Gossypium (*Herbaceum*) foliis quinquelobis, caule herbaceo lævi. Hort. Upſal. 203. *Cotton with leaves having five lobes, and a ſmooth herbaceous ſtalk.* Goſſypium. Camer. Epit. 203. *The common herbaceous Cotton.*
2. Gossypium (*Barbadenſe*) foliis trilobis integerrimis ſubtus biglandulosis. Hort. Upſal. 205. *Cotton-tree with entire leaves, having three lobes with three glands under their ſide.* Goſſypium fruteſcens annuum, folio trilobo Barbadenſe. Pluk. Alm. 172. tab. 188. *Shrubby annual Barbadoes Cotton, with leaves having three lobes.*
3. Gossypium (*Arboreum*) foliis palmatis, lobis lanceolatis, caule fruticoſo. Lin. Sp. Plant. 693. *Cotton with hand-ſhaped leaves, having five ſpear-ſhaped lobes, and a ſhrubby ſtalk.* Xylon arboreum, flore flavo. Tourn. Inſt. R. H. 101. *Tree Cotton with a yellow flower.*
4. Gossypium (*Hirſutum*) foliis trilobis & quinquelobiſque acutis, caule ramoſo hirſuto. *Cotton with leaves having three and five lobes, ending in acute points, and a hairy branching ſtalk.* Xylon Americanum præſtantiſſimum, ſemine vireſcente. Lign. Tourn. Inſt. R. H. 101. *Fineſt American Cotton with a green ſeed.*

The firſt ſort is the common Levant Cotton, which is cultivated in ſeveral Iſlands of the Archipelago, as alſo in Malta, Sicily, and the kingdom of Naples; it is ſown in tilled ground in the ſpring of the year, and is ripe in about four months after, when it is cut down in harveſt as Corn is in England; the plants always periſh ſoon after the ſeeds are ripe: this plant grows about two feet high, with an herbaceous ſtalk, garniſhed with ſmooth leaves divided into five lobes. The ſtalks ſend out a few weak branches upward, which are garniſhed with leaves of the ſame form but ſmaller. The flowers are produced near the extremity of the branches, at the foot-ſtalks of the leaves; theſe have two large empalements, the outer is cut into three parts, and the inner into five. The petals of the flower are of a pale yellow colour, inclining to white; theſe are ſucceeded by oval capſules, which open in four parts, having four cells, which are filled with ſeeds wrapped up in down, which is the Cotton.

The ſecond ſort grows naturally in ſeveral iſlands of the Weſt-Indies; this riſes with a ſhrubby ſmooth ſtalk four or five feet high, ſending out a few ſide branches, which are garniſhed with ſmooth leaves, divided into three lobes. The flowers are produced toward the end of the branches, which are ſhaped like thoſe of the former ſort, but are larger, and of a deeper yellow colour. The pods are larger, and the ſeeds are black.

The third ſort hath a perennial ſhrubby ſtalk, which riſes ſix or eight feet high, and divides into many ſmooth branches, garniſhed with hand-ſhaped leaves, having four or five lobes. The flowers are produced toward the end of the branches; theſe are larger than thoſe of the two former ſorts, and are of a deep yellow colour. The pods of this ſort are larger than thoſe of the former.

The fourth ſort is a native of the Eaſt and Weſt-Indies, from whence the ſeeds have been brought to Europe; this is alſo an annual plant, which periſhes ſoon after the ſeeds are ripe. It riſes to the height of three feet or more, and ſends out many lateral branches, which extend to a great diſtance, where they are allowed room to grow; theſe are hairy, and garniſhed with leaves, having in ſome three, and others five acute-pointed lobes, with ſhort hairy down on their ſurface. The flowers are produced from the ſide, and at the end of the branches; theſe are large, of a dirty ſulphur colour, each petal having a large purple ſpot at the baſe, and are ſucceeded by oval pods, which open into four cells, which are filled with oblong green ſeeds wrapped up in a ſoft down. Where the plants have room to ſpread, their branches will produce four or five pods of Cotton upon each, ſo that from a ſingle plant, thirty or more pods may be produced; and each of theſe are as large as middling Apples, ſo there will be a much greater produce from this than from any other ſort, and the ſtaple is much finer; therefore it is well worth the attention of the inhabitants of the Britiſh colonies in America to cultivate and improve this ſort, ſince it will ſucceed in Carolina, where it it has been cultivated for ſome years; and might be a commodity worthy of encouragement by the public, could they contrive a proper gin to ſeparate the Cotton from the ſeeds, to which this ſort adheres much cloſer than any of the other ſorts, the Cotton from this ſhrub being preferable to any other yet known.

All theſe ſorts are very tender plants, therefore will not thrive in the open air in England, but they are frequently ſown in curious gardens for variety: the firſt and fourth ſorts will produce ripe ſeeds in England, if their ſeeds are ſown early in the ſpring, upon a good hot-bed; and when the plants are come up, planted each into ſeparate pots, and plunged into a hot-bed of tanners bark to bring them forward; and when they are grown too tall to remain under the frames, removed into the tan-bed in the ſtove, and ſhifted into larger pots, when their roots have filled the other; with this management I have had their flowers appear in July, and toward the end of September the ſeeds have been perfectly ripe, and the pods as large as thoſe produced in the Eaſt and Weſt-Indies; but if the plants are not brought forward early in the ſpring, it will be late in the ſummer before the flowers will appear, and there will be no hopes of the pods coming to perfection.

The Shrub-cotton will riſe from the ſeeds very eaſily, if they are ſown upon a good hot-bed; and when they are ſown early in the ſpring, and brought forward in the ſame manner as hath been directed for the former ſorts, the plants will grow to be five or ſix feet high the ſame ſummer; but it is difficult to preſerve the plants through the winter, unleſs they are hardened gradually in Auguſt during the continuance of the warm weather; for when they are forced on at that time, they will be ſo tender, as to render them incapable of reſiſting the leaſt injury. The plants of this ſort muſt be placed in the bark-ſtove in autumn, and kept in the firſt claſs of heat, otherwiſe they will not live through the winter in England.

GRAFTING is the taking a ſhoot from one tree, and inſerting it into another, in ſuch a manner, as that both may unite cloſely, and become one tree; this is called by the ancient writers in huſbandry and gardening, inciſion, to diſtinguiſh it from inoculating, or budding, which they call inſerere oculos.

The uſe of grafting is to propagate any curious ſorts of fruits, ſo as to be certain of the kinds, which cannot be done by any other method; for as all the good fruits have been accidentally obtained from ſeeds, ſo the ſeeds of theſe, when ſown, will many of them degenerate, and produce ſuch fruit as are not worth cultivating; but when ſhoots are taken from ſuch trees as produce good fruit, theſe will never alter from their kind, whatever be the ſtock, or tree, on which they are grafted; for though the grafts receive their nouriſhment from the ſtocks, yet their varieties are never altered by them, but continue to produce the ſame kind of fruit as the tree from which they were taken; the only alteration is, that when the ſtocks on which they are grafted do not grow ſo faſt, and afford a ſufficient ſupply of nouriſhment to the grafts, they will not make near ſo great progreſs as they otherwiſe would do, nor will the fruit they produce be ſo fair, and ſometimes not ſo well flavoured.

Theſe ſhoots are termed cions, or graffs; in the choice of theſe the following directions ſhould be carefully obſerved. 1ſt, That they are ſhoots of the former year, for when they are older, they never ſucceed well. 2dly, Always to take them from healthy fruitful trees, for if the trees are ſickly from whence they are taken, the grafts very often partake ſo much of the diſtemper as rarely to get the better of it, at leaſt for ſome years; and when they are taken from young luxuriant trees, whoſe veſſels are generally large, they will continue to produce luxuriant ſhoots, and are ſeldom ſo fruitful as thoſe which are taken from fruitful trees, whoſe ſhoots are more compact, and the joints cloſer together; at leaſt it will be a great number of years before the luxuriant grafts begin to produce fruit, if they are managed with the greateſt ſkill. 3dly, You ſhould prefer thoſe grafts which are taken from the lateral, or horizontal branches, to thoſe from the ſtrong perpendicular ſhoots, for the reaſons before given.

Theſe grafts, or cions, ſhould be cut off from the trees before their buds begin to ſwell, which is generally three weeks or a month before the ſeaſon for grafting; therefore, when they are cut off, they ſhould be laid in the ground with the cut downwards, burying them half their length, and covering their tops with dry litter, to prevent their drying; if a ſmall joint of the former year's wood is cut off with the cion, it will preſerve it the better, and when they are grafted, this may be cut off; for at the ſame time the cions muſt be cut to a proper length before they are inſerted in the ſtocks; but, till then, the ſhoots ſhould remain their full length, as they were taken from the tree, which will preſerve them better from ſhrinking; if theſe cions are to be carried to a conſiderable diſtance, it will be proper to put their ends into a lump of clay, and to wrap them up in moſs, which will preſerve them freſh for a month, or longer; but theſe ſhould be cut off earlier from the trees than thoſe which are to be grafted near the place where the trees are growing.

Having given directions for the cions and grafts, we next come to that of the ſtock, which is a term applied to the trees intended for grafting; theſe are either ſuch old trees as are already growing in the places where they are to remain, whoſe fruit is intended to be changed, or young trees, which have been raiſed in a nurſery for a ſupply to the garden; in the former caſe there is no other choice, but that of the branches, which ſhould be ſuch as are young, healthy, well ſituated, and have a ſmooth bark; if theſe trees are growing againſt walls, or eſpaliers, it will be proper to graft ſix, eight, or ten branches, according to the ſize of the trees, by which they will be much ſooner furniſhed with branches again, than when a leſs number of cions are put in; but in ſtandard-trees, four, or at moſt ſix cions will be ſufficient.

In the choice of young ſtocks for grafting, you ſhould always prefer ſuch as have been raiſed from the ſeed, and that have been once or twice tranſplanted. Next to theſe, are thoſe ſtocks which have been raiſed from cuttings, or layers, but thoſe which are ſuckers from the roots of other trees ſhould always be rejected, for theſe are never ſo well rooted as the others, and conſtantly put out a great number of ſuckers from their roots, whereby the borders and walks of the garden will be always peſtered with them during the ſummer ſeaſon, which is not only unſightly, but they alſo take off part of the nouriſhment from the trees.

If theſe ſtocks have been allowed a proper diſtance in the nurſery where they have grown, the wood will be better ripened, and more compact than thoſe which have grown cloſe and have been there drawn up to a greater height; the wood of theſe will be ſoft, and their veſſels large, ſo that the cions grafted into them will ſhoot very ſtrong, but they will be leſs diſpoſed to produce fruit than the other; and when trees acquire an ill habit at firſt, it will be very difficult to reclaim them afterward.

Having directed the choice of cions and ſtocks, we come next to the operation, in order to which you muſt be provided with the following tools.

1. A neat ſmall hand-ſaw to cut off the heads of large ſtocks.
2. A good ſtrong knife with a thick back, to make clefts in the ſtocks.
3. A ſharp penknife to cut the grafts.
4. A grafting chiſſel and a ſmall mallet.
5. Baſs ſtrings, or woollen yarn, to tie the grafts with, and ſuch other inſtruments and materials as you ſhould find neceſſary, according to the manner of grafting you are to perform.
6. A quantity of clay, which ſhould be prepared a month before it is uſed, and kept turned and mixed, like mortar every other day, which is to be made after the following manner:

Get a quantity of ſtrong fat loam (in proportion to the quantity of trees intended to be grafted, then take ſome new ſtone-horſe dung, and break it in amongſt the loam, and if you cut a little ſtraw, or hay, very ſmall, and mix amongſt it, the loam will hold together the better; and if there be a quantity of ſalt added, it will prevent the clay from dividing in dry weather; theſe muſt be well ſtirred together, putting water to them after the manner of making mortar; it ſhould be hollowed like a diſh, and filled with water, and kept every other day ſtirred; but it ought to be remembered, that it ſhould not be expoſed to the froſt, or drying winds, and the oftener it is ſtirred and wrought the better.

Of late years ſome perſons have made uſe of another compoſition for grafting, which they have found to anſwer the intention of keeping out the air, better than the clay before deſcribed. This is compoſed of turpentine, bees-wax, and roſin, melted together, which, when of a proper conſiſtence, may be put on the ſtock round the graft, in the ſame manner as the clay is uſually applied; and though it be not above a quarter of an inch thick, yet it will keep out the air more effectually than the clay; and as cold will harden this, there is no danger of its being hurt by froſt, which is very apt to cauſe the clay to cleave, and ſometimes fall off; and when the heat of ſummer comes on, this mixture will melt, and fall off without any trouble. In uſing of this, there ſhould be a tin, or copper-pot, with conveniency under it to keep a very gentle fire with ſmall-coal, otherwiſe the cold will ſoon condenſe the mixture; but you muſt be careful not to apply it too hot, leſt you injure the graft. A perſon who is a little accuſtomed to this compoſition, will apply it very faſt, and it is much eaſier for him than clay, eſpecially if the ſeaſon ſhould prove cold.

There are ſeveral ways of grafting, the principal of which are four:

1. Grafting in the rind, called alſo ſhoulder-grafting, which is only proper for large trees; this is called crown-grafting, becauſe the grafts are ſet in form of a circle, or crown, and is generally performed

formed about the latter end of March, or the beginning of April.

2. Cleft-grafting, which is alſo called ſtock, or ſlit-grafting; this is proper for trees or ſtocks of a leſſer ſize, from an inch, to two inches or more diameter; this grafting is to be performed in the months of February and March, and ſupplies the failure of the eſcutcheon way, which is practiſed in June, July, and Auguſt.

3. Whip-grafting, which is alſo called tongue-grafting; this is proper for ſmall ſtocks of an inch, half an inch, or leſs, diameter; this is the moſt effectual way of any, and which is moſt in uſe.

4. Grafting by approach, or ablactation; this is to be performed when the ſtock you would graft on, and the tree from which you take your graft, ſtand ſo near together, that they may be joined; this is to be performed in the month of April, and is alſo called inarching, and is chiefly uſed for Jaſmines, Oranges, and other tender exotic trees.

We come next to the manner of performing the ſeveral ways of grafting.

The firſt method, which is termed rind, or ſhoulder-grafting, is ſeldom practiſed but on large trees, where either the head, or the large branches, are cut off horizontally, and two or four cions put in, according to the ſize of the branch, or ſtem; in doing of this, the cions are cut flat on one ſide, with a ſhoulder to reſt upon the crown of the ſtock; then the rind of the ſtock muſt be raiſed up, to admit the cion between the wood and the bark of the ſtock, which muſt be inſerted about two inches, ſo as the ſhoulder of the cion may meet, and cloſely join the crown of the ſtock; and after the number of cions are inſerted, the whole crown of the ſtock ſhould be well clayed over, leaving two eyes of the cions uncovered therewith, which will be ſufficient for ſhooting; this method of grafting, was much more in practice formerly than at preſent; the diſcontinuance of it was occaſioned by the ill ſucceſs it was attended with; for as theſe cions were placed between the rind of the ſtock and the wood, ſo they are frequently blown out by ſtrong winds, after they had made large ſhoots, which has ſometimes happened after five or ſix years growth; ſo that whenever this method is practiſed, there ſhould be ſome ſtakes faſtened to ſupport the cions, until they have almoſt covered the ſtock.

The next method is termed cleft, or ſtock-grafting; this is practiſed upon ſtocks, or trees, of a ſmaller ſize, and may be uſed with ſucceſs, where the rind of the ſtock is not too thick, whereby the inner bark of the cion will be prevented joining to that of the ſtock; this may be performed on ſtocks, or branches, which are more than one inch diameter; in the doing of this, the head of the ſtock, or branch, muſt be cut off with a ſlope, and a ſlit made the contrary way, in the top of the ſlope, deep enough to receive the cion, which ſhould be cut ſloping like a wedge, ſo as to fit the ſlit made in the ſtock, being careful to leave that ſide of the wedge, which is to be placed outward, much thicker than the other; and in putting the cion into the ſlit of the ſtock, there muſt be great care taken to join the rind of the cion to that of the ſtock; for if theſe do not unite, the grafts will not ſucceed: when this method of grafting is uſed to ſtocks which are not ſtrong, it will be proper to make a ligature of baſs, to prevent the ſlit of the ſtock from opening; then the whole ſhould be clayed over, to prevent the air from penetrating the ſlit, ſo as to deſtroy the grafts, only leaving two eyes of the cions above the clay for ſhooting.

The third method is termed whip, or tongue-grafting, which is the moſt commonly practiſed of any by the nurſerymen near London, eſpecially for ſmall ſtocks, becauſe the cions much ſooner cover the ſtocks in this method than in any other.

This is performed by cutting off the head of the ſtocks ſloping; then there muſt be a notch made in the ſlope toward the upper part downward, a little more than half an inch deep, to receive the cion, which muſt be cut with a ſlope upward, and a ſlit made in this ſlope like a tongue, which tongue muſt be inſerted into the ſlit made in the ſlope of the ſtock, and the cion muſt be placed on one ſide of the ſtock, ſo as that the two rinds of both cion and ſtock may be equal, and join together exactly; then there ſhould be a ligature of baſs to faſten the cion, ſo as that it may not be eaſily diſplaced; and afterward clay it over, as in the former methods.

The fourth ſort of grafting is termed inarching, grafting by approach, or ablactation. This is only to be performed when the ſtocks, which are deſigned to be grafted, and the tree from which the graft is to be taken, ſtand ſo near together, or may be brought ſo near together, as that their branches may be united; this method of grafting is commonly practiſed on tender exotic plants, and ſome other ſorts which do not ſucceed in any of the other methods.

In performing this operation, a part of the ſtock, or branch, muſt be ſlit off about two inches in length, obſerving always to make choice of a ſmooth part of the ſtock; then a ſmall notch ſhould be made in this ſlit of the ſtock downward, in the ſame manner as hath been directed for whip-grafting; then the branch of the tree deſigned to be inarched, ſhould have a part ſlit off in like manner as the ſtock, and a ſlit made upward in this, ſo as to leave a tongue; which tongue ſhould be inſerted into the ſlit of the ſtock, obſerving to join their rinds equally, that they may unite well together; then make a ligature of baſs, to keep them exactly in their ſituation, and afterward clay this part of the ſtock over well, to keep out the air; in this method of grafting, the cion is not ſeparated from the tree, until it is firmly united with the ſtock, nor is the head of the ſtock, or branch, which is grafted, cut off till this time, and only half the wood pared off with a ſlope, about three inches in length, and the ſame of the cion, or graft.

This method of grafting is not performed ſo early in the ſeaſon as thoſe of the other, it being done in the month of April, when the ſap is flowing, at which time the cion and ſtock will join together, and unite much ſooner than at any other ſeaſon.

The Walnut, Fig, and Mulberry, will take by this method of grafting, but neither of theſe will ſucceed in any of the other methods; there are alſo ſeveral ſorts of Evergreens, which may be propagated by this method of grafting; but all the trees which are grafted in this way are weaker, and never grow to the ſize of thoſe which are grafted in the other methods; therefore this is rarely practiſed, but on ſuch ſorts of trees as will not take by the other methods.

The next thing which is neceſſary to be known, by thoſe who would practiſe this art, is, what trees will take and thrive by being grafted upon each other; and here there have been no ſure directions given by any of the writers on this ſubject, for there will be found great miſtakes in all their books, in relation to this matter; but as it would ſwell this article too great, if all the ſorts of trees were to be here enumerated, which will take upon each other by grafting, I ſhall only mention ſuch general directions, as, if attended to, will be ſufficient to inſtruct perſons, ſo as they may ſucceed.

All ſuch trees as are of the ſame genus, i. e. which will agree in their flower and fruit, will take upon each other: for inſtance, all the Nut-bearing trees may be ſafely grafted on each other, as may all the Plumb-bearing trees, under which head I reckon not only the ſeveral ſorts of Plumbs, but alſo the Almond, Peach, Nectarine, Apricot, &c. which agree exactly in their general characters, by which they are diſtinguiſhed from all other trees; but as many of theſe are very ſubject to emit large quantities of gum from the parts of the trees as are deeply cut and wounded, ſo the tender trees of this kind, viz. Peaches and Nectarines, which are moſt ſubject to this, it is found to be the ſureſt method to bud or inoculate theſe ſorts of fruits, for which ſee Inoculation.

Then all ſuch trees as bear cones will do well upon each other, though they may differ in one being evergreen, and the other ſhedding its leaves in winter; as is obſervbale in the Cedar of Libanus, and the Larch-tree, which are found to ſucceed upon each other very well; but theſe muſt be grafted by approach, for they abound with a great quantity of reſin which is apt to evaporate from the graft, if ſeparated from the tree before it is joined with the ſtock, whereby they are often deſtroyed; as alſo the Laurel on the Cherry, or the Cherry on the Laurel. All the maſt-bearing trees will alſo take upon each other, and thoſe which have a tender ſoft wood will do well if grafted in the common way; but thoſe that are of a more firm contexture, and are ſlow growers, ſhould be grafted by approach.

By ſtrictly obſerving this rule, we ſhall ſeldom miſcarry, provided the operation be rightly performed, and at a proper ſeaſon, unleſs the weather ſhould prove very bad, as it ſometimes happens, whereby whole quarters of fruit-trees miſcarry; and it is by this method that many kinds of exotic trees are not only propagated, but alſo rendered hardy enough to endure the cold of our climate in the open air; for, being grafted upon ſtocks of the ſame ſort which are hardy, the grafts are rendered more capable to endure the cold, as hath been experienced by moſt of our valuable fruits now in England, which were formerly tranſplanted here from more ſoutherly climates, and were at firſt too impatient of our cold to ſucceed well abroad; but have been, by budding or grafting upon more hardy trees, rendered capable of reſiſting our ſevereſt cold.

And theſe different graftings ſeem to have been greatly in uſe among the ancients, though they were certainly miſtaken in the ſeveral ſorts of fruits which they mention to have ſucceeded upon each other; as the Fig upon the Mulberry, the Plumb upon the Cheſtnut, with many others of the like kind; moſt of which I have already tried, and find they will not ſucceed; therefore what has been advanced on this head by the ancients, is not founded on experience; or at leaſt they did not mean the ſame plants, which at preſent are called by thoſe names; though I cannot help thinking we are apt to pay too much deference to the writings of the ancients, in ſuppoſing them ſeldom to be miſtaken, or to aſſert a falſhood; whereas, if their works are carefully examined, it will be found, that they have often copied from each other's writings, without making experiments to prove the truth of their aſſertions: and it is well known, that the ranging of plants before Cæſalpinus's time (which is about 170 years ſince) was, by their outward appearance, or from the ſuppoſed virtues of them, which method is now juſtly exploded; and it hath been obſerved, from many repeated trials, that however plants may reſemble each other in the ſhape and make of their leaves, manner of ſhooting, &c. unleſs they agree in their fruit, and their other diſtinctive characters, they will not grow upon each other, though performed with ever ſo much art.

GRAMEN. Tourn. Inſt. R. H. 516. tab. 297. Raii Meth. Plant. 171. Graſs; in French, *Chien-dent*.

To enumerate all the ſpecies of Graſs which are found growing naturally in England, would ſwell this article greatly beyond the deſign of the work; therefore I ſhall only take notice of a few ſpecies, which are either uſed in medicine, or cultivated for fodder; for there is ſcarce a paſture in this country, where at leaſt twenty different ſpecies are not to be found intermixed, and in moſt of them more than twice that number. Theſe were, by the former writers on botany, all included under the common denomination of Gramen, but were divided into different ſections. Mr. Ray has ranged them in the following order, Gramen Triticum, i. e. Wheat-graſs. Gramen Secalinum, i. e. Rye-graſs. Gramen Loliaceum, i. e. Darnel-graſs. Gramen Paniceum, i. e. Panic-graſs. Gramen Phalaroides, i. e. Canary-graſs. Gramen Alopecuroides, i. e. Fox-tail-graſs. Gramen Typhinum, i. e. Cat's-tail-graſs. Gramen Echinatum, i. e. Hedgehog-graſs. Gramen Criſtatum, i. e. Creſted-graſs. Gramen Avenacium, i. e. Oat-graſs. Gramen Dactylon, i. e. Cock's-foot-graſs. Gramen Arundinaceum, i. e. Reed-graſs. Gramen Milleacem, i. e. Millet-graſs. And under each of theſe ſections there are many ſpecies. And there are many others, which, by older writers, were included under this general title, ſome of which have no relation to this claſs; but there are others which are near nearly allied to it, as the Cyperus and Cypreſs Graſſes, &c. Theſe Dr. Linnæus has divided into genera; but by this method of claſſing them, he has ſeparated them to a great diſtance from each other; for all thoſe whoſe flowers have three ſtamina, are ranged in his third claſs; and others which have male and female flowers, are removed to his twenty-firſt claſs. However, it would have been much better to have kept them together, as Dr. Van Royen has done in the Prodromus of the Leyden garden, under one general title to the claſs of Graminea.

As the ſeveral genera under which the different ſpecies of Graſs are ranged, have different characters by which they are diſtinguiſhed, ſo it would be to little purpoſe to give them all in this work; and as there are no general characteriſtics by which the whole claſs can be known, ſo I ſhall not trouble the reader with any of them here, but proceed to enumerate a few of the ſpecies.

1. GRAMEN ſpicâ triticeâ repens vulgare, caninum dictum. Raii Syn. 2. p. 247. *Common creeping Graſs with a ſpike like Wheat, called Dog-graſs.* Triticum calycibus ſublatis trifloris acuminatis. Lin. Sp. Plant. *Wheat with an awl-ſhaped pointed empalement including three flowers, commonly called Couch, Couch-graſs, or Quick-graſs.*
2. GRAMEN loliaceum, anguſtiore folio & ſpicâ. C. B. P. *Darnel-graſs, with a narrower leaf and ſpike.* Lolium ſpicâ muticâ. Lin. Sp. Plant. 83. *Darnel with a chaffy ſpike, commonly called Ray, or Rye-graſs.*
3. GRAMEN pratenſe, paniculatum majus anguſtiore folio. C. B. P. 2. *Meadow-graſs with larger panicles and a narrower leaf.* Poa paniculâ diffuſa, ſpiculis quadrifloris pubeſcentibus, culmo erecto tereti. Flor. Suec. 77. *Poa with a diffuſed panicle, the ſmaller ſpikes having four hairy flowers, and a taper erect ſtraw.*
4. GRAMEN pratenſe, paniculatum majus, latiore folio. C. B. P. 2. *Meadow-graſs with a larger panicle and broader leaf.* Poa paniculâ diffuſâ ſpiculis trifloris glabris, culmo erecto tereti. Flor. Suec. 76. *Poa with a diffuſed panicle, ſmall ſpikes with three flowers, and an upright ſtraw.*
5. GRAMEN avenacium pratenſe elatius paniculâ flaveſcente, locuſtis parvis. Raii Syn. 407. *Taller Meadow Oat-graſs, with a yellowiſh panicle and ſmall huſks.* Avena paniculâ laxâ, calycibus trifloris brevibus, floſculis omnibus ariſtatis. Prod. Leyd. 66. *Oat-graſs with a looſe panicle, three flowers in each empalement, which is ſhort, and all the flowers having awns.*
6. GRAMEN ſecalinum. Ger. Emac. lib. 1. cap. 22. n. 4. *Tall Meadow Rye graſs.*
7. GRAMEN tremulum maximum. C. B. P. 2. *Greateſt Quaking-graſs, or Cowquakes.* Briza ſpiculis cordatis, floſculis ſeptendecim. Hort. Cliff. 23. *Briza with heart-ſhaped little ſpikes, and ſeventeen flowers in each.*

The firſt ſort of Graſs is that which is directed to be uſed in medicine; the roots of this are chiefly uſed, and are accounted aperitive and diuretic, opening obſtructions of the reins and bladder, provoking urine, and are of ſervice againſt the gravel and ſtone. The juice of the leaves and ſtalks was greatly eſteemed by Dr. Boerhaave, who generally preſcribed this in all caſes where he ſuppoſed there were any obſtructions in the bile conduit.

This hath a creeping root, which ſpreads far in the ground, and is a very troubleſome weed in gardens and arable land; for every ſmall piece of the root will grow and multiply exceedingly, ſo it is very difficult to extirpate where it once gets poſſeſſion: in gardens, the common method of deſtroying it is, to fork out the roots as often as the blades appear above ground; where this is two or three times carefully repeated, it may be totally rooted out; but when the ſurface of the ground is very full of the roots of this Graſs, the ſhorteſt way of deſtroying it, is to trench the ground two ſpits and a ſhovelling deep, turning all the couch into the bottom, where it will rot, and never ſhoot up; but this can only be practiſed, where there is a ſufficient depth of ſoil; for in ſhallow ground the roots cannot be buried ſo deep, as to lie below the depth to which they naturally ſhoot.

Where the roots of this Graſs get poſſeſſion in arable fields, it is very difficult to root out again; the uſual method is by laying the land fallow in ſummer, and frequently harrowing it well over to draw out the roots: where this is carefully practiſed, the ground may be ſo well cleaned in one ſummer, as that the roots cannot much injure the crop which may be ſown upon it; but ſuch land ſhould be cropped with Beans, Peas, or ſuch things as require the horſe-hoeing culture; for where the land can be frequently ſtirred and harrowed afterward, it will be of great ſervice in cleaning it from the roots of this Graſs and other bad weeds. The blade of this Graſs is ſo rough, that cattle will not feed upon it.

The ſecond ſort is frequently cultivated, eſpecially in ſtrong cold land, upon which this Graſs will ſucceed better than any other ſpecies, and is an earlier feed in the ſpring; but this is a very coarſe Graſs, and unleſs it is cut very early for hay, it becomes hard and wiery in the ſtalks, ſo that few cattle care to eat it; for this ſpecies has but few leaves, running all to ſtalk, ſo is uſually called Bents, and in ſome counties Bennet; when this graſs is fed, it will be proper to mow off the Bents in the beginning of June, otherwiſe they will dry upon the ground, and have the appearance of a ſtubble field all the latter part of ſummer; ſo that it will not only be very diſagreeable to the ſight, but alſo be troubleſome to the cattle that feed on it, by tickling their noſtrils; ſo that the want of better paſture only, will force them to eat of the young Graſs which ſprings up between theſe Bents, for thoſe they will not touch; therefore thoſe who ſuppoſe that theſe are eaten in ſcarcity of feed by the cattle, are greatly miſtaken; for I have many years cloſely attended to this, and have always found theſe Bents remaining on the ground untouched, till the froſt, rain, and winds, deſtroy it in winter; and, by permitting theſe to ſtand, the after-growth of the Graſs is greatly retarded, and the beautiful verdure is loſt for three or four months; ſo that it is good huſbandry to mow them before they grow too dry, and rake them off the ground: if theſe are then made into the hay, it will ſerve for cart-horſes or cows feed in winter, and will pay the expence of mowing it.

There is another ſpecies of this Graſs called Red Darnel, which is of a worſe nature than the firſt, the ſtalks growing hard much ſooner, and having narrower leaves. This is very common in moſt paſture grounds, for as it comes early to flower, ſo the ſeeds are generally ripe before the hay is cut, and from the falling ſeeds the ground is ſupplied with plenty of this ſort; therefore thoſe who are deſirous to keep their paſtures as clear from this Graſs as poſſible, ſhould always mow it before the ſeeds are ripe.

This Graſs is uſually ſown with Clover, upon ſuch lands as are deſigned to be ploughed again in a few years, and the common method is to ſow it with Spring Corn; but from many repeated trials, I have always found, that by ſowing theſe ſeeds in Auguſt, when there has happened a few ſhowers to bring up the Graſs, that the crop has anſwered much better than any which has been ſown in the common way; for the Graſs has often been ſo rank, as to afford a good feed the ſame autumn; and the following ſpring there has been a ton and a half of hay per acre mowed very early in the ſeaſon, and this has been upon cold ſour land; ſo that I am convinced of that being the beſt ſeaſon for ſowing theſe Graſſes, though it will be very difficult to perſuade thoſe perſons to alter their practice, who have been long wedded to old cuſtoms. The quantity of ſeeds which I allow to an acre is about two buſhels, and eight pounds of the common Clover, which, together, will make as good plants upon the ground as can be deſired; but this is not to be practiſed upon ſuch lands where the beauty of the verdure is principally regarded, therefore is fit for thoſe who have only profit in view.

The third and fourth ſorts are the two beſt ſpecies of Graſs for paſtures, ſo that if the ſeeds of theſe were carefully collected and ſown ſeparately without any other mixture of Graſs-ſeeds, they would not only afford a greater quantity of feed on the ſame ſpace of land, but the Graſs would alſo be better, the hay ſweeter, and the verdure more laſting than of any other ſorts; but there requires ſome attention to the ſaving of theſe ſeeds pure without mixture. I have tried to ſave the ſeeds of ſeveral ſpecies of Graſs ſeparately, in order to determine their qualities, but have found it very difficult to keep them diſtinct in gardens where the ſeeds of other ſorts of Graſs have been ſcattered: the only method in which I could ſucceed, was by ſowing each ſpecies in a diſtinct pot, and when the plants came up, to weed out all the other kinds of Graſs which came up in the pots; by this means I preſerved a great variety of the graſſy tribe ſeveral years, but not having ground enough to propagate the moſt uſeful ſpecies in any quantity, I was obliged to abandon the purſuit: but I muſt recommend this to perſons of leiſure and ſkill who have a ſufficient quantity of land for the purpoſe, to carry this project into execution, which may be of ſingular benefit to the public; for we have an inſtance of the advantage which the inhabitants of the Netherlands have made, by ſaving the ſeeds of the White Clover, or Honeyſuckle Trefoil, which is a plant common to moſt of the Engliſh paſtures; yet few perſons in this country ever gave themſelves the trouble to collect the ſeeds from the fields for ſowing, but have purchaſed vaſt quantities of this ſeed annually, at a conſiderable price from Flanders, where the peaſants have been ſo induſtrious, as to collect the ſeeds and ſow great quantities of land with it, with a view of ſale to this country only. This is not an inconſiderable article in huſbandry, but deſerves the attention of all thoſe, who, by choice or otherwiſe, are engaged in the buſineſs of agriculture; for one acre of land will produce as much ſeeds of this ſpecies of Trefoil, as will ſell for 12 l. where it is well planted and ſaved from the ſpring crop; and if the Graſs-ſeeds before-mentioned were ſeparately ſown, and carefully weeded from all other ſpecies, and permitted to ſtand till their ſeeds were ripe, it might be of equal advantage with the other, eſpecially now, when every gentleman is endeavouring to improve the verdure near their habitations.

The fifth and ſixth ſorts are alſo very good Graſſes for paſtures, and have perennial roots, ſo are the next beſt ſorts for ſowing to thoſe before-mentioned, which, in my opinion, deſerve the preference to all the other; but as it will be difficult to ſave a ſufficient quantity of ſeeds of thoſe alone, to ſupply the demand which may be for their ſeeds; ſo theſe two ſpecies may be admitted in aid of the other, as they are very leafy kinds of Graſs, and their ſtalks do not become ſtiff and harſh like many other ſpecies, but with proper care may be made very fine; and, if duly rolled, their roots will mat and form a very cloſe ſward, therefore theſe ſhould be included in the number of ſown Graſſes.

The ſeventh ſort is mentioned for the ſake of variety, and not for uſe; this hath an annual root, which ſends up many broad hairy leaves, between which ariſe ſlender ſtiff ſtalks from a foot to near two two feet high, dividing upward into a large looſe panicle, garniſhed with heart-ſhaped ſmall ſpikes, each having about ſeventeen ſmall floſcules or florets; theſe, after the flowers are paſt, have a ſingle ſeed ſucceeding them; the heads hang by ſlender long foot-ſtalks, which are moved by every wind, ſo that they generally appear ſhaking, from whence it had the title of Quaking Graſs. There are four ſpecies of this Graſs, two of them grow naturally in England; and theſe Graſſes coming to head in May, occaſioned the following

Engliſh proverb, *May come ſhe early come ſhe late, makes the cow quake.* The large ſort here mentioned, grows naturally in the ſouth of France and Italy, and is only preſerved in ſome Engliſh gardens for the ſake of variety.

If the ſeeds of this ſort are ſown in the autumn, or permitted to ſcatter when ripe, the plants will come up ſtronger, and flower much earlier, than when they are ſown in the ſpring, ſo good ſeeds may always be expected from them, which can ſeldom be attained from the ſpring plants in England; and as two or three plants of this ſort will be full enough in a garden for variety, ſo theſe ſhould be allowed to ſpread; for where they grow at a diſtance from each other, the roots will ſend out a great number of ſtalks, which will be ſtronger, and produce much larger panicles than thoſe which are too near together.

The Cock's-foot Graſs, Capon's-tail Graſs, and Millet Graſſes are too coarſe to deſerve attention in England, though ſome of their ſpecies are very uſeful in the warm parts of America, where there is a great ſcarcity of finer Graſs; and ſome of theſe are much better adapted to thoſe warm countries, than any of our European Graſſes, for many of them lie flat on the ground, and emit roots from their joints, ſo are well prepared for heat; their ſtalks are large and juicy, ſo will live in heat where few of the European Graſſes can be made to thrive.

The land on which Graſs-ſeed is intended to be ſown, ſhould be well ploughed, and cleared from the roots of noxious weeds, ſuch as Couch-graſs, Fern, Ruſhes, Heath, Gorſe, Broom, Reſt-harrow, &c. which, if left in the ground, will ſoon get the better of the Graſs, and over-run the land. Therefore in ſuch places where either of theſe weeds abound, it will be a good method to plough up the ſurface in April, and let it lie ſome time to dry; then harrow the roots into ſmall heaps, and burn them. The aſhes ſo produced, when ſpread on the land, will be a good manure for it. The method of burning the roots is particularly directed under the article LAND, which ſee: but where Couch-graſs, Fern, or Reſt-harrow is in plenty, whoſe roots run far under ground, the land muſt be ploughed two or three times pretty deep in dry weather, and the roots carefully harrowed off after each ploughing, which is the moſt ſure method to deſtroy them. Where the land is very low, and of a ſtiff clayey nature, which holds water in winter, it will be of ſingular ſervice to make ſome under-ground drains to carry off the wet; which, if detained too long on the ground, will render the Graſs ſour. The method of making theſe drains is preſcribed under the article LAND, which ſee.

Before the ſeed is ſown, the ſurface of the ground ſhould be made level and fine, otherwiſe the ſeed will be buried unequal. When the ſeed is ſown, it muſt be gently harrowed in, and the ground rolled with a wooden roller, which will make the ſurface even, and prevent the ſeeds being blown in patches. When the Graſs comes up, if there ſhould be any bare ſpots, where the ſeed has not grown, they may be ſown again, and the ground rolled, which will fix the ſeeds; and the firſt kindly ſhowers will bring up the Graſs, and make it very thick.

Where the land is deſigned to continue in paſture, it ſhould be ſown with the beſt ſorts of Graſs-ſeeds, and white Dutch Clover, or what is commonly called Honeyſuckle Graſs in many parts of England, but there is a great difficulty of procuring hay-ſeeds which are good; for in all the good paſtures near London, which abound with the beſt ſorts of Graſs, the hay is commonly cut before the ſeeds of the Graſs are ripe; ſo that thoſe ſeeds which are procured from the ſtables where the horſes are fed with the beſt ſort of hay, are little more than chaff, or at beſt are only ſuch as are of the early kinds of Graſs, with a great quantity of Plantain and other weeds: which has diſcouraged many gentlemen from ſowing them, nor has any one attempted to ſave theſe ſeeds properly; and as it requires longer time, and more attention, to ſave a quantity of ſeeds of the purer ſort of Graſs than the generality of people care to beſtow, ſo I would recommend the ſetting ſome of thoſe upland paſtures, which are cleaneſt from weeds, and have the ſweeteſt herbage aſide, to ſtand for ſeeds; and although by ſo doing the hay will be leſs valuable, yet from the ſale of the ſeeds, it may anſwer better to the poſſeſſor, than to mow it merely for the hay; for any gentleman who has regard to the beauty of his land, had better give ſix times the price for ſuch ſeeds, as is uſually paid for the ordinary ſeeds, ſince the firſt expence of ſeeds is not to be put in competition with the beauty and advantage of having ſuch as are good; for when the land is brought to a good ſward (which may be done in one year, where it is properly prepared and ſown with good ſeeds) it may be kept in good order, and by good management improved annually, and will continue ſo, as long as proper care is taken of it. I know ſome land which was ſown in the method hereafter directed above forty years ago, which are now as good paſtures as any I have ſeen, and may be always continued ſo.

Theſe grounds abounded with many bad weeds, ſo they had a winter and ſummer's fallow, in which time they were five times ploughed and ten times harrowed in order to deſtroy the weeds, and make the ſurface of the ground fine; in Auguſt they were ſown with the beſt Graſs-ſeeds as could be procured, three buſhels of this, and nine pounds of the white Dutch Clover-ſeeds were allowed to each acre; as there happened rains ſoon after the ſeeds were ſown, ſo the Graſs came up well; but among it were a great number of weeds, which were drawn up and carried off the ground, and in the beginning of October the fields were rolled with a Barley roller; in the ſpring the fields were again weeded, and afterward rolled, and that ſummer there was more than two tons of hay per acre mowed off the land; and by conſtant weeding twice a year, ſweeping it with a buſh harrow, rolling and dreſſing of the land, the Graſs has been greatly improved ſince, and is now as good paſture as any in England: and ſince I have laid down great quantities of land in the ſame manner, and with equal ſucceſs; therefore from many years experience can recommend it, as the ſureſt method of having good paſtures.

But I know the generality of farmers will object to the firſt loſs of their crop, and alſo to the after expence of weeding, rolling, &c. as too great for common practice: however, I am well ſatisfied from experience, that whoever will be at the expence, will find their account in it; for the crops of hay will be ſo much better, and the after paſture alſo, that it will more than pay the expence, as from many exact accounts, which have been kept of the whole, is ſufficiently demonſtrated, and the verdure of theſe paſtures is charming to all thoſe who have any taſte of natural beauties.

The proper management of paſture land is the leaſt underſtood of any part of agriculture; the farmers never have attended to this, being more inclined to the plough, though the profits attending that have not of late years been ſo great as to encourage them in that part of huſbandry; but theſe people never think of laying down land for paſture, to continue longer than three years, at the end of which time they plough it up again, to ſow it with grain.

There is a ſort of ſtriped Graſs which is preſerved in many gardens for the beauty of its variegated leaves, which continue freſh the greateſt part of the ſummer. This ſort is eaſily propagated by parting the roots, either in ſpring or autumn, for every offſet will increaſe to be a large root in one year's time. It will grow on any ſoil or in any ſituation, therefore may be planted in any abject part of the garden, where it will thrive, and afford an agreeable variety. This ſort is by many perſons called Ribband-graſs, from the ſtripes of white and green, which run the whole length of the blade, like the ſtripes in ſome ribbands.

For the further management of Graſs in fields, ſee PASTURE and MEADOW; and for that in gardens, ſee GRASS.

Clover-graſs. See TRIFOLIUM.

Saint-foin. See ONOBRYCHIS, or HEDYSARUM.

La Lucerne. See MEDICA.

Noneſuch, See MELILOTUS, or TRIFOLIUM.

Trefoil. See TRIFOLIUM.

Spurry. See SPERGULA.

GRANADILLA. See PASSIFLORA.

GRAPES. See VITIS.

GRASS. The Engliſh Graſs is of ſo good a quality for walks or Graſs-plats, that if they be kept in good order, they have that exquiſite beauty that they cannot come up to in France, and ſeveral other countries. But green walks and green plats are, for the moſt part, not made by ſowing the Graſs-ſeed, but by laying turfs; and, indeed, the turfs from a fine common or down, are much preferable to ſown Graſs.

In ſowing a fine green plat, there is a difficulty in getting good ſeed; it ought not to be ſuch as is taken out of the hay-loft without diſtinction; for that ſeed ſhooting too high and making large ſtalks, the lower part will be naked and bare; and although it be mowed ever ſo often, it will never make handſome Graſs; but, on the contrary, will come to nothing but tufts of weeds and Quick-graſs, very little better than that of the common fields.

If walks or plats be made by ſowing, the beſt way is to procure the ſeed from thoſe paſtures where the Graſs is naturally fine and clear, or elſe the trouble of keeping it from ſpiry and benty Graſs will be very great, and it will ſcarce ever look handſome.

In order to ſow Graſs-ſeed, the ground muſt be firſt dug or broken up with a ſpade; and when it has been dreſſed and laid even, it muſt be very finely raked over, and all the clods and ſtones taken off, and covered over an inch thick with good mould, to facilitate the growth of the ſeed; this being done, the ſeed is to be ſown pretty thick, that it may come up cloſe and ſhort; and it muſt be raked over again to bury and cover the ſeed, that if the weather ſhould happen to be windy, it may not be blown away.

As to the ſeaſon of ſowing Graſs, the middle or latter end of Auguſt is a good time, becauſe the ſeed naturally requires nothing but moiſture to make it grow: if be not ſown till the latter end of February, or the beginning of March, if the weather proves dry, it will not ſo ſoon make the walks or quarters green. It is alſo beſt to ſow it in a mild day, and inclining to rain; for that, by ſinking down the ſeed in the earth, will cauſe it to ſhoot the ſooner. But where Graſs is ſown in gardens, either for lawns or walks, there ſhould always be a good quantity of the White Trefoil or Dutch Clover ſown with it, for this will make a fine turf much ſooner than any other ſown Graſs, and will continue a better verdure than any of the Graſs tribe.

After the ſeed is well come up, and the Graſs is very thick and of a beautiful green, it will require a conſtant care to keep it in order: this conſiſts in mowing the Graſs often, for the oftener it is mowed, the thicker and handſomer it grows; it muſt alſo be rolled with a cylinder or roller of wood, to level it as much as poſſible.

If Graſs be neglected, it will run into Quick-graſs and weeds; and if it does ſo, there is no way to recover it, but either by ſowing it, or laying it over again, and that once in every two years; but if the ground be well cleared from the roots of ſtrong weeds, and the turf be taken from a fine level common, it will continue handſome for ſeveral years, provided it be well kept.

In order to keep Graſs-plats or walks handſome and in good order, in autumn you may ſow ſome freſh ſeed over any places that are not well filled, or where the Graſs is dead, to renew and furniſh them again; but there is nothing which improves Graſs ſo much as conſtant rolling and polling it, to deſtroy wormcaſts, and thereby the turf is rendered fine.

It is a general practice when turf is laid in gardens, to cover the ſurface of the ground under the turf, either with ſand or very poor earth; the deſign of this is to keep the Graſs fine, by preventing its growing too rank. This is proper enough for very rich ground, but is not ſo for ſuch land as is but middling or poor; for when this is practiſed in ſuch places, the Graſs will ſoon wear out, and decay in patches.

When turf is taken from a common or down, there ſhould be regard had to the cleanneſs of it, and not to take ſuch as is full of weeds: for it will be a very tedious piece of work, to weed them out after the turf is laid; and unleſs this is done, the Graſs will never appear handſome.

Where turf is deſigned to remain for years without renewing, there ſhould be dreſſing laid upon it every other year, either of very rotten dung, aſhes, or, where it can be eaſily procured, very rotten tan, is a good dreſſing for Graſs; but theſe dreſſings ſhould be laid on early in winter, that the rain may waſh them into the ground, before the drought of the ſpring comes on, otherwiſe they will occaſion the Graſs to burn when the warmth of ſummer begins. Where Graſs is ſo dreſſed, and kept well rolled and mowed, it may be kept very beautiful for many years; but where it is not dreſſed or fed with ſheep, it will rarely continue handſome more than eight or ten years.

GRATIOLA. Lin. Gen. Plant. 27. Raii Meth. Plant. 90. Digitalis. Tourn. Inſt. R. H. 165. Hedge Hyſſop.

The CHARACTERS are,

The flower hath a permanent empalement, which is cut into five parts; it hath one petal of the grinning kind, with a tube longer than the empalement, cut at the top into four ſmall ſegments, the upper being broader and indented at the end where it is reflexed; the other three are erect and equal. It hath five awl-ſhaped ſtamina, three of which are ſhorter than the petal, and ſteril; the other two are longer, and adhere to the tube of the petal; theſe are fruitful in male duſt; they are terminated by roundiſh ſummits. In the center is ſituated a conical germen, ſupporting an erect ſtyle, crowned by a ſtigma with two lips, which cloſe after being fœcundated. The germen afterward becomes an oval capſule ending in a point, having two cells which are filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, intitled Diandria Monogynia, which includes thoſe plants whoſe flowers have but two ſtamina and one ſtyle, for he does not eſteem the three barren ſtamina as worthy notice.

The SPECIES are,

1. GRATIOLA (*Officinalis*) floribus pedunculatis, foliis lanceolatis ſerratis. Lin. Mat. Med. 18. *Hedge Hyſſop with flowers ſtanding on foot-ſtalks, and ſpear-ſhaped leaves.* Digitalis minima Gratiolata dicta. Mor. Hiſt. 2. 479. *Leaſt Foxglove, called Gratiola.*
2. GRATIOLA (*Virginiana*) foliis lanceolatis obtuſis ſub dentatis. Flor. Virg. 6. *Hedge Hyſſop with obtuſe indented leaves.*
3. GRATIOLA (*Peruviana*) floribus ſubſeſſilibus. Lin. Sp. Plant. 17. *Hedge Hyſſop with flowers ſitting cloſe to the branches.* Gratiola latiore folio flore albo. Feuill. Peruv.

The firſt ſort grows naturally on the Alps, and other mountainous parts of Europe. This hath a thick, fleſhy, fibrous, creeping root, which propagates very much when planted in a proper ſoil and ſituation, from which ariſe ſeveral upright ſquare ſtalks, near a foot high, garniſhed with narrow ſpear-ſhaped leaves placed oppoſite; the flowers are produced on the ſide of the ſtalks at each joint, they are ſhaped like thoſe of the Foxglove, but are ſmall, and of a pale yellowiſh colour. Theſe appear in July, but are ſeldom ſucceeded by ſeeds in England.

It is eaſily propagated by parting of the roots; the beſt time to do this is in the autumn, when the ſtalks decay; the plants ſhould have a moiſt ſoil and a ſhady ſituation, in which they will thrive exceedingly; but in dry ground they often decay in ſummer, unleſs they are plentifully watered.

This ſtands in the liſt of medicinal plants, but is very rarely uſed in England, though it is recommended by ſome good writers as a purger of ſerous and choleric humours.

The ſecond ſort grows naturally in North America, from whence I received the ſeeds. This grows naturally in moiſt places, where it riſes more than a foot high, but in England I have not ſeen it more than eight inches; the leaves are blunt, and indented at their extremities; the flowers are white, and come out from the ſide of the ſtalks, like thoſe of the other, but are not ſucceeded by ſeeds here. It may be propagated in the ſame manner as the firſt ſort, and requires the ſame treatment.

The ſeeds of the third ſort were ſent me from Carthagena, where it was found growing naturally in places where there had been ſtanding waters, which were then dried up; this plant grew about nine inches high, with a weak ſtalk, and the leaves placed oppoſite; they were about three quarters of an inch long, and half an inch broad, ſawed on their edges; the flowers came out ſingle on each ſide the ſtalk; they were white, and much ſmaller than thoſe of the firſt ſort, but were not ſucceeded by ſeeds, ſo the plant was loſt here.

GRAVEL and Graſs are naturally ornaments to a country-ſeat, and the glory of the Engliſh gardens, and things in which we excel all other nations, as France, Holland, Flanders, &c.

There are different ſorts of Gravel, but for thoſe who can conveniently have it, I approve of that Gravel on Blackheath, as preferable to moſt that we have in England; it conſiſting of ſmooth even pebbles, which, when mixed with a due quantity of loam, will bind exceeding cloſe, and look very beautiful, and continue handſome longer than any other ſort of Gravel which I have yet ſeen.

Some recommend a ſort of iron-mould Gravel, or Gravel with a little binding loam amongſt it, than which nothing, they ſay, binds better when it is dry; but in wet weather it is apt to ſtick to the heels of one's ſhoes, and will never appear handſome.

Sometimes loam is mixed with Gravel that is over ſandy or ſharp, which muſt be very well blended together, and let lie in heaps, after which it will bind like a rock.

There are many kinds of Gravel which do not bind, and thereby cauſe a continual trouble of rolling, to little or no purpoſe; as for ſuch,

If the Gravel be looſe or ſandy, you ſhould take one load of ſtrong loam, to two or three of Gravel, and ſo caſt them well together, and turn this mixture over three or four times, that they may be well blended together; if this is done in proper porportion, it will bind well, and not ſtick to the feet in wet weather.

There are many different opinions about the choice of Gravel; ſome are for having the Gravel as white as poſſible, and in order to make the walks more ſo, they roll them well with ſtone rollers, which are often hewn by the maſons, that they may add a whiteneſs to the walks; but this renders it very troubleſome to the eyes, by reflecting the rays of light ſo ſtrongly, therefore this ſhould ever be avoided; and ſuch Gravel as will lie ſmooth, and reflect the leaſt, ſhould be preferred.

Some ſcreen the Gravel too fine, which is an error; for if it be caſt into a round heap, and the great ſtones only raked off, it will be the better.

Some are apt to lay Gravel-walks too round, but this is likewiſe an error, becauſe they are not ſo good to walk upon, and beſides, it makes them look narrow; one inch riſe is enough in a crown for a walk of five feet; and it will be ſufficient, if a walk be ten feet wide, that it lies two inches higher in the middle than it does on each ſide; if fifteen feet, three inches; twenty feet, four; and ſo in proportion.

For the depth of Gravel-walks, ſix or eight inches may do well enough, but a foot thickneſs will be ſufficient for any; but then there ſhould always be a depth of rubbiſh laid under the Gravel, eſpecially if the ground is wet; in which caſe there cannot be too much care to fill the bottom of the walks with large ſtones, flints, brick rubbiſh, chalk, or any other materials which can be beſt procured, which will drain off the moiſture from the Gravel, and prevent its being poachy in wet weather; but as it may be difficult in ſome places to procure a ſufficient quantity of theſe materials to lay in the bottom of the walks, ſo there may be a bed of Heath, or Furze, which ever can be procured at the leaſt expence, laid under the Gravel to keep it dry: and if either of theſe are uſed green, they will lie a long time, as they will be covered from air, and theſe will prevent the Gravel from getting down into the clay, and will always keep the Gravel dry; and where there is not this precaution in the firſt laying of the Gravel upon clay, the water being detained by the clay, will cauſe the Gravel to be poachy whenever there is much rain.

In making of Gravel-walks, there muſt be great regard had to the level of the ground, ſo as to lay the walks with eaſy deſcents toward the low parts of the ground, that the wet may be drained off eaſily; for when this is omitted, the water will lie upon the walks a conſiderable time after hard rains, which will render them unfit for uſe, eſpecially when the ground is naturally wet or ſtrong; but where the ground is level, and there are no declivities to carry off the wet, it will be proper to have ſink-ſtones laid by the ſides of the walks, at convenient diſtances, to let off the wet; and where the ground is naturally dry, that the water will ſoon ſoak away, the drains of the ſink-ſtones may be contrived ſo as to convey the water in ſeſſpools, from which the water will ſoak away in a ſhort time; but in wet land there ſhould be under-ground drains, to convey the wet off, either into ponds, ditches, or the neareſt place to receive it; for where this is not well provided for, the walks will never be ſo handſome or ſo uſeful.

The month of March is the propereſt time for laying Gravel; it is not prudent to do it ſooner, or to lay walks in any of the winter months before that time.

Some indeed turn up Gravel-walks in ridges in December, in order to kill the weeds; but this is very wrong, for beſides that it deprives them of the benefit of them all the winter, it does not anſwer the end for which it is done, but rather the contrary; for though it does kill the weeds for the preſent, yet it adds a fertility to them, as to the great future increaſe of both them and Graſs.

If conſtant rolling them after the rains and froſt will not effectually kill the weeds and moſs, you ſhould turn the walks in March, and lay them down at the ſame time.

In order to deſtroy worms that ſpoil the beauty of Gravel, or Graſs-walks, ſome recommended the watering them well with water, in which Walnut-tree leaves have been ſteeped, and made very bitter, eſpecially thoſe places moſt annoyed with them; and this they ſay, as ſoon as it reaches them, will make them come out haſtily, ſo that they may be gathered; but if, in the firſt laying of the walks, there is a good bed of lime rubbiſh laid in the bottom, it is the moſt effectual method to keep out the worms, for they do not care to harbour near lime.

GREEN-HOUSE, or Conſervatory.

As of late years there have been great quantities of curious exotic plants introduced into the Engliſh gardens, ſo the number of Green-houſes, or Conſervatories, have increaſed; and not only a greater ſkill in the management and ordering of theſe plants has increaſed therewith, but alſo a greater knowledge of the ſtructure and contrivance of theſe places, ſo as to render them both uſeful and ornamental, hath been acquired; and ſince there are many particulars to be obſerved in the conſtruction of theſe houſes, whereby they will be greatly improved, I thought it neceſſary not only to give the beſt inſtructions for this I was capable of, but alſo to give a deſign of one in the manner I would chuſe to erect it, upon the annexed copper-plate.

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Sometimes loam is mixed with Gravel that is over ſandy or ſharp, which muſt be very well blended together, and let lie in heaps, after which it will bind like a rock.

There are many kinds of Gravel which do not bind, and thereby cauſe a continual trouble of rolling, to little or no purpoſe; as for ſuch,

If the Gravel be looſe or ſandy, you ſhould take one load of ſtrong loam, to two or three of Gravel, and ſo caſt them well together, and turn this mixture over three or four times, that they may be well blended together; if this is done in proper proportion, it will bind well, and not ſtick to the feet in wet weather.

There are many different opinions about the choice of Gravel; ſome are for having the Gravel as white as poſſible, and in order to make the walks more ſo, they roll them well with ſtone rollers, which are often hewn by the maſons, that they may add a whiteneſs to the walks; but this renders it very troubleſome to the eyes, by reflecting the rays of light ſo ſtrongly, therefore this ſhould ever be avoided; and ſuch Gravel as will lie ſmooth, and reflect the leaſt, ſhould be preferred.

Some ſcreen the Gravel too fine, which is an error; for if it be caſt into a round heap, and the great ſtones only raked off, it will be the better.

Some are apt to lay Gravel-walks too round, but this is likewiſe an error, becauſe they are not ſo good to walk upon, and beſides, it makes them look narrow; one inch riſe is enough in a crown for a walk of five feet; and it will be ſufficient, if a walk be ten feet wide, that it lies two inches higher in the middle than it does on each ſide; if fifteen feet, three inches; twenty feet, four; and ſo in proportion.

As for the depth of Gravel-walks, ſix or eight inches may do well enough, but a foot thickneſs will be ſufficient for any; but then there ſhould always be a depth of rubbiſh laid under the Gravel, eſpecially if the ground is wet; in which caſe there cannot be too much care to fill the bottom of the walks with large ſtones, flints, brick rubbiſh, chalk, or any other materials which can be beſt procured, which will drain off the moiſture from the Gravel, and prevent its being poachy in wet weather; but as it may be difficult in ſome places to procure a ſufficient quantity of theſe materials to lay in the bottom of the walks, ſo there may be a bed of Heath, or Furzes, which ever can be procured at the leaſt expence, laid under the Gravel to keep it dry; and if either of theſe are uſed green, they will lie a long time, as they will be covered from air, and theſe will prevent the Gravel from getting down into the clay, and will always keep the Gravel dry; and where there is not this precaution in the firſt laying of the Gravel upon clay, the water being detained by the clay, will cauſe the Gravel to be poachy whenever there is much rain.

In making of Gravel-walks, there muſt be great regard had to the level of the ground, ſo as to lay the walks with eaſy deſcents toward the low parts of the ground, that the wet may be drained off eaſily; for when this is omitted, the water will lie upon the walks a conſiderable time after hard rains, which will render them unfit for uſe, eſpecially when the ground is naturally wet or ſtrong; but where the ground is level, and there are no declivities to carry off the wet, it will be proper to have ſink-ſtones laid by the ſides of the walks, at convenient diſtances, to let off the wet; and where the ground is naturally dry, that the water will ſoon ſoak away, the drains of the ſink-ſtones may be contrived ſo as to convey the water into ſinkholes, from which the water will ſoak away in a ſhort time; but in wet land there ſhould be under-ground drains, to convey the wet off, either into ponds, ditches, or the neareſt place to receive it; for where this is not well provided for, the walks will never be ſo handſome or ſo uſeful.

The month of March is the propereſt time for laying Gravel; it is not prudent to do it ſooner, or to lay walks in any of the winter months before that time. Some indeed turn up Gravel-walks in ridges in December, in order to kill the weeds; but this is very wrong, for beſides that it deprives them of the benefit of them all the winter, it does not anſwer the end for which it is done, but rather the contrary; for though it does kill the weeds for the preſent, yet it adds a fertility to them, as to the great future increaſe of both them and Graſs.

If conſtant rolling them after the rains and froſt will not effectually kill the weeds and moſs, you ſhould turn the walks in March, and lay them down at the ſame time.

In order to deſtroy worms that ſpoil the beauty of Gravel, or Graſs-walks, ſome recommended the watering them well with water, in which Walnut-tree leaves have been ſteeped, and made very bitter, eſpecially thoſe places moſt annoyed with them; and they ſay, as ſoon as it reaches them, will make them come out haſtily, ſo that they may be gathered; but if, in the firſt laying of the walks, there is a good bed of lime rubbiſh laid in the bottom, it is the moſt effectual method to keep out the worms, for they do not care to harbour near lime.

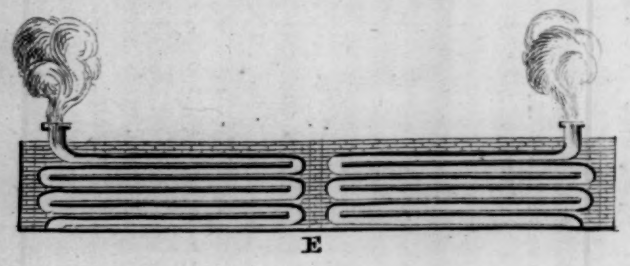
GREENHOUSE, or Conſervatory.

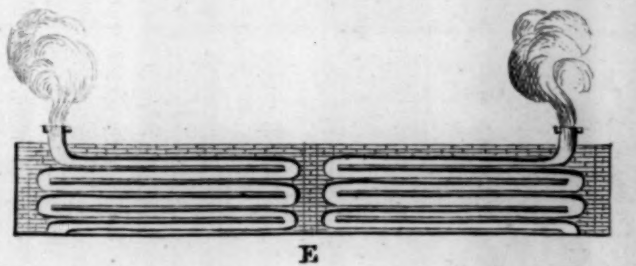
As of late years there have been great quantities of curious exotic plants introduced into the Engliſh gardens, ſo the number of Green-houſes, or Conſervatories, have increaſed; and not only a greater ſkill in the management and ordering of theſe plants has increaſed therewith, but alſo a greater knowledge of the ſtructure and contrivance of theſe places, ſo as to render them both uſeful and ornamental, hath been acquired; and ſince there are many particulars to be obſerved in the conſtruction of theſe houſes, whereby they will be greatly improved, I thought it neceſſary not only to give the beſt inſtructions that I was capable of, but alſo to give a deſign of one in the manner of [illegible] [illegible]

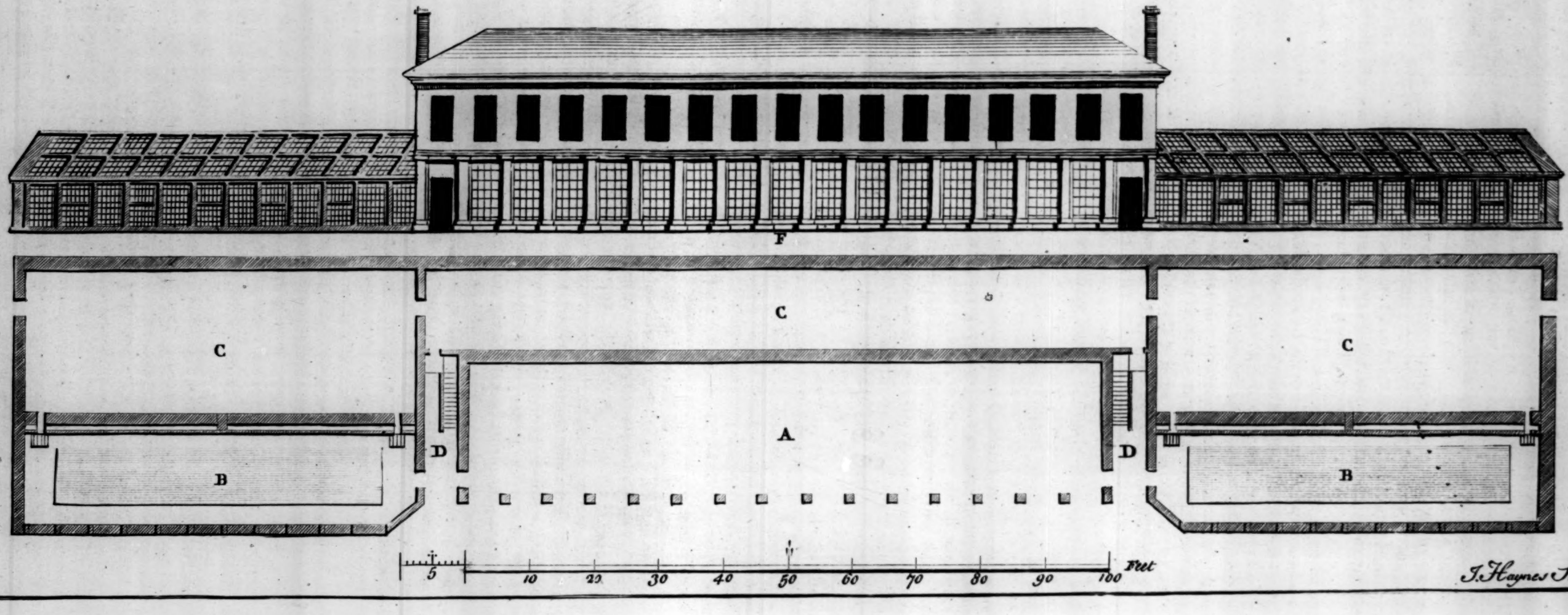
4H.

Plan of the Green house.

A.. The Ground Plan of the Green-house.
B.B. The Ground Plan of the two Stoves.
C.C.C. The Sheds behind the Green-houſe and Stoves.
D.D. The paſsage of communication between the Green-houſe and Stoves, where the Stairs are placed which lead to the Rooms over the Green-houſe.
E.E. The Section of the Flues in the back of the Stoves.
F. The upright of the Green-house and Stoves.



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Feet

J. Haynes Sculp.

As to the length of theſe houſes, that muſt be proportioned to the number of plants they are to contain, or the fancy of the owner; but their depth ſhould never be greater than their height in the clear, which in ſmall, or middling houſes, may be ſixteen or eighteen feet, but for large ones, from twenty to twenty-four feet, is a good proportion; for if the Green-houſe is long, and too narrow, it will have a bad appearance both within and without, nor will it contain ſo many plants, if proper room be allowed for paſſing in front, and on the backſide of the ſtands on which the plants are placed; and on the other hand, if the depth of the Green-houſe is more than twenty-four feet, there muſt be more rows of plants placed to fill the houſe, than can with conveniency be reached in watering and cleaning; nor are houſes of too great depth ſo proper for keeping of plants, as thoſe of moderate ſize.

The windows in front ſhould extend from about one foot and a half above the pavement, to within the ſame diſtance of the cieling, which will admit of a cornice round the building, over the heads of the windows. As it is neceſſary to have theſe windows ſo long, it will be impoſſible to make them in proportion as to their breadth; for if in the largeſt buildings the ſaſhes are more than ſeven, or ſeven feet and a half broad, they will be ſo heavy and troubleſome to move up and down, as to render it very difficult for one perſon to perform; beſides, their weight will occaſion their ſoon decaying. There is alſo another inconvenience in having the windows too broad, which is that of fixing proper ſhutters to them, in ſuch a manner as that they may fall back cloſe to the piers, ſo as not to be incommodious, or when open to obſtruct any part of the rays of light from reaching the plants. The piers between theſe windows ſhould be as narrow as poſſible to ſupport the building, for which reaſon I ſhould chuſe to have them of ſtone, or of hard well-burnt bricks; for if they are built with fine rubbed bricks, thoſe are generally ſo ſoft, that the piers will require to be made thicker, and the building will be leſs ſtrong, eſpecially if there are any rooms over the Green-houſe; which is what I would always adviſe, as being of great uſe to keep the froſt out in very hard winters. If theſe piers are made of ſtone, I would adviſe them to be two feet and a half in diameter, worked as columns cylindrical, whereby the rays of the ſun will not be taken off, or obſtructed by the corners of the piers, which it would be if they were ſquare; but if they are built with bricks, it will be proper to make them three feet in front, otherwiſe they will be too weak to ſupport the building; theſe I would alſo adviſe to be ſloped off toward the inſide to admit the ſun.

At the back of the Green-houſe there may be erected a houſe for tools, and for many other purpoſes, which will be extremely uſeful, and will alſo prevent the froſt from entering the houſe on the backſide, ſo that the wall between theſe need not be more than two bricks and a half in thickneſs; whereas were it quite expoſed behind, it ſhould be at leaſt three bricks, or three and a half in thickneſs; and by this contrivance, if you are willing to make a handſome building, and to have a noble room over the Green-houſe, you may make the room over the tool-houſe, and carry up the ſtair-caſe in the back, ſo as not to be ſeen in the Green-houſe, and hereby you may have a room twenty-five or thirty feet in width, and of a proportionable length; and under this ſtair-caſe there ſhould be a private door into the green-houſe, at which the gardener may enter in hard froſty weather, when it will not be ſafe to open any of the glaſſes in the front. The floor of the Green-houſe, which ſhould be laid either with Bremen ſquares, Purbeck ſtone, or broad tiles, according to the fancy of the owner, muſt be raiſed two feet above the ſurface of the ground whereon the houſe is placed, which in dry ground will be ſufficient; but if the ſituation is moiſt and ſpringy, and thereby ſubject to damps, it ſhould be raiſed at leaſt three feet above the ſurface; and if the whole is arched with low brick arches under the floor, it will be of great ſervice in preventing the damps riſing in winter, which are often very hurtful to the plants, eſpecially in great thaws; when the air is often too cold to be admitted into the houſe, to take off the damps. Under the floor, about one foot from the front, I would adviſe a flue of one foot in width, and two feet deep, to be carried the whole length of the houſe, which may be returned againſt the back wall, and carried up in proper funnels adjoining to the tool-houſe, three times over each other, by which the ſmoke may paſs off. The fire-place may be contrived at one end of the houſe, and the door at which the fuel is put in, as alſo the aſh-grate, may be contrived to open into the tool-houſe, ſo that it may be quite hid from the ſight, and be in the dry, and the fuel may be laid in the ſame ſhed, whereby it will always be ready for uſe.

I ſuppoſe many people will be ſurpriſed to ſee me direct the making of flues under a Green-houſe, which has been diſuſed ſo long, and by moſt people thought of ill conſequence, as indeed they have often proved, when under the direction of unſkilful managers, who have thought it neceſſary, whenever the weather was cold to make fires therein; but however injurious flues may have been under ſuch management, yet when ſkilfully looked after they will be found of very great ſervice; for though perhaps it may happen, that there will be no neceſſity to make any fires in them for two or three years together, as when the winters prove mild there will not, yet in very hard winters they will be extremely uſeful to keep out the froſt, which cannot be effected any other way, but with great trouble and difficulty.

Withinſide of the windows, in front of the Green-houſe, you ſhould have good ſtrong ſhutters, which ſhould be made with hinges to fold back, that they may fall back quite cloſe to the piers, that the rays of the ſun may not be obſtructed thereby. Theſe ſhutters need not be above an inch and a half thick, or little more when wrought, which if made to join cloſe, will be ſufficient to keep out our common froſt; and when the weather is ſo cold as to endanger the freezing in the houſe, it is but making a fire in the oven, which will effectually prevent it; and without this conveniency it will be very troubleſome, as I have often ſeen, where perſons have been obliged to nail mats before their windows, or to ſtuff the hollow ſpace between the ſhutters, and the glaſs with Straw, which when done, is commonly ſuffered to remain till the froſt goes away; which if it ſhould continue very long, the keeping the Green-houſe cloſely ſhut up, will prove very injurious to the plants; and as it frequently happens, that we have an hour or two of the ſun-ſhine in the middle of the day, in continued froſts, which is of great ſervice to plants, when they can enjoy the rays thereof through the glaſſes, ſo when there is nothing more to do than to open the ſhutters, which may be performed in a very ſhort time, and as ſoon ſhut again when the ſun is clouded, the plants may have the benefit thereof whenever it appears; whereas, where there is ſo much trouble to uncover, and as much to cover again, it would take up the whole time in uncovering and ſhutting them up, and thereby the advantage of the ſun's influence would be loſt. Beſides, where there is ſo much trouble required to keep out the froſt, it will be a great chance if it be not neglected by the gardener; for if he be not as fond of preſerving his plants, and as much in love with them as his maſter, this labour will be thought too great by him; and if he takes the pains to cover the glaſſes up with mats, &c. he will not care to take them away again until the weather alters, ſo that the plants will be ſhut up cloſe during the whole continuance of the froſt.

There are ſome people who commonly make uſe of pots filled with charcoal to ſet in their Green-houſe in very ſevere froſts, but this is very dangerous to the perſons who attend theſe fires, and I have ſometimes known they have been almoſt ſuffocated therewith, and at the ſame time they are very injurious to the plants; nor is the trouble of tending upon theſe ſmall, and the many hazards to which the uſe of theſe fires is liable, have juſtly brought them into diſuſe with all ſkilful perſons; and as the contrivances of flues, and of the fires, are but ſmall charges in their firſt erecting, they are much to be preferred to any other method for warming the air of the houſe.

The wall on the back part of the houſe ſhould be either laid over with ſtucco, or plaſtered with mortar, and white-waſhed, for otherwiſe the air in ſevere froſt will penetrate through the walls, eſpecially when the froſt is attended with a ſtrong wind, which is often the caſe in moſt ſevere winters. There are ſome perſons who are at the expence of wainſcotting their Green-houſes, but when this is done, it is proper to plaſter the walls with lime and hair behind the wainſcot, to keep out the cold; and when they are lined with wainſcot, they ſhould be painted white, as ſhould the cieling, and every part withinſide of the houſe; for this reflects the rays of light in a much greater quantity than any other colour, and is of ſignal ſervice to plants, eſpecially in the winter, when the houſe is pretty much cloſed, and but a ſmall ſhare of light is admitted through the windows; for at ſuch times I have obſerved, that in ſome Green-houſes which have been painted black, or of a dark colour, the plants have caſt moſt of their leaves.

Where green-houſes are built in ſuch places as will not admit of rooms over them, or the perſon is unwilling to be at the expence of ſuch buildings, there muſt be care taken to keep out the froſt from entering through the roof. To prevent which it will be very proper to have a thickneſs of Reeds, Heath, or Eurz, laid between the cieling and the tiles; in the doing of which there muſt be care taken in framing the joiſts, ſo as to ſupport theſe, that their weight may not lie upon the ceiling, which might endanger it; for theſe ſhould be laid a foot thick at leaſt, and as ſmooth as poſſible, and faſtened down well with laths to prevent their riſing, and then covered over with a coat of lime and hair, which will keep out the air, and alſo prevent mice and other vermin from harbouring in them, which, if left uncovered, they would certainly do. For want of this precaution there are many Green-houſes built, which will not keep out the froſt in hard winters, and this is many times attributed to the glaſſes in front admitting the cold, when the fault is in the roof; for where there is only the covering, either of tiles or ſlates, over the cieling, every ſevere froſt will penetrate through them.

In this Green-houſe you ſhould have truſſels, which may be moved out and into the houſe, upon which you ſhould fix rows of planks, ſo as to place the pots or tubs of plants in regular rows one above another, whereby the heads of the plants may be ſo ſituated, as not to interfere with each other. The loweſt row of plants, which ſhould be the forwardeſt towards the windows, ſhould be placed about four feet therefrom, that there may be a convenient breadth left next the glaſſes to walk in front; and the rows of plants ſhould riſe gradually from the firſt, in ſuch a manner that the heads of the ſecond row ſhould be entirely advanced above the firſt, the ſtems only being hid thereby; and at the back ſide of the houſe there ſhould be allowed a ſpace of at leaſt five feet, for the conveniency of watering the plants, as alſo to admit of a current of air round them, that the damps occaſioned by the perſpiration of the plants, may be the better diſſipated, which, by being pent in too cloſely, often occaſions a mouldineſs upon the tender ſhoots and leaves, and when the houſe is cloſe ſhut up, this ſtagnating rancid vapour is often very deſtructive to the plants; for which reaſon alſo you ſhould never croud them too cloſe to each other, nor ſhould you ever place Sedums, Euphorbiums, Torch Thiſtles, and other tender ſucculent plants, amongſt Oranges, Myrtles, and other Evergreen trees; for, by an experiment which I made, anno 1729, I found that a Sedum placed in a Green-houſe among ſuch trees, almoſt daily increaſed its weight, although there was no water given to it the whole time; which increaſe of weight was owing to the moiſture imbibed from the air, which, being replete with the rancid vapours perſpired from the other plants, occaſioned the leaves to grow pale, and in a ſhort time they decayed and dropped off; which I have often obſerved has been the caſe with many other ſucculent plants, when placed in thoſe houſes which were filled with many ſorts of Evergreen trees, that required to be frequently watered.

Therefore, to avoid the inconvenience which attends the placing of plants of very different natures in the ſame houſe, it will be very proper to have two wings added to the main Green-houſe, which, if placed in the manner expreſſed in the annexed plan, will greatly add to the beauty of the building, and alſo collect a greater ſhare of heat. In this plan the Green-houſe is placed exactly fronting the ſouth, and one of the wings faces the ſouth-eaſt, and the other the ſouth-weſt; ſo that from the time of the ſun's firſt appearance upon any part of the building, until it goes off at night, it is conſtantly reflected from one part to the other, and the cold winds are alſo kept off from the front of the main Green-houſe hereby; and in the area of this place you may contrive to place many of the moſt tender exotic plants, which will bear to be expoſed in the ſummer ſeaſon; and in the ſpring, before the weather will permit you to ſet out the plants, the beds and borders of this area may be full of Anemonies, Ranunculuſes, early Tulips, &c. which will be paſt flowering, and the roots fit to take out of the ground by the time you carry out the plants, which will render this place very agreeable during the ſpring ſeaſon, when the flowers are blown: and here you may walk and divert yourſelf in a fine day, when perhaps the air in moſt other parts of the garden will be too cold for perſons not much uſed thereto, to take pleaſure in being out of the houſe.

In the center of this area may be contrived a ſmall baſon for water, which will be very convenient for watering of plants, and add much to the beauty of the place; beſides the water being thus ſituated, will be ſoftened by the heat which will be reflected from the glaſſes upon it, whereby it will be rendered much better than raw cold water for theſe tender plants.

The two wings of the building ſhould be contrived ſo as to maintain plants of differing degrees of hardineſs, which muſt be effected by the ſituation and extent of the fire-place, and the manner of conducting the flues, a particular account of which will be exhibited under the article of Stoves. But I would here obſerve, that the wing facing the ſouth-eaſt ſhould always be preferred for the warmeſt ſtove, its ſituation being ſuch, as that the ſun, upon its firſt appearance in the morning, ſhines directly upon the glaſſes, which is of great ſervice in warming the air of the houſe, and adding life to the plants, after having been ſhut up during the long nights in the winter ſeaſon. Theſe wings being in the draught annexed, allowed ſixty feet in length, may be divided in the middle by partitions of glaſs, with glaſs-doors to paſs from one to the other. To each of theſe there ſhould be a fire-place, with flues carried up againſt the back wall, through which the ſmoke ſhould be made to paſs, as many times the length of the houſe, as the height will admit of the number of flues; for the longer the ſmoke is in paſſing, the more heat will be given to the houſe, with a leſs quantity of fuel, which is an article worth conſideration, eſpecially where fuel is dear. By this contrivance you may keep ſuch plants as require the ſame degree of heat in one part of the houſe, and thoſe which will thrive in a much leſs warmth in the other part, but this will be more fully explained under the article of Stoves.

The other wing of the houſe, facing the ſouth-weſt, may alſo be divided in the ſame manner, and flues carried through both parts, which may be uſed according to the ſeaſons, or the particular ſorts of plants which are placed therein; ſo that here will be four diviſions in the wings, each of which may be kept up to a different degree of warmth, which, together with the Green-houſe, will be ſufficient to maintain plants from all the ſeveral countries of the world; and without having theſe ſeveral degrees of warmth, it will be impoſſible to preſerve the various kinds of plants from the ſeveral parts of Africa and America, which are annually introduced into the Engliſh gardens; for when plants from different countries are placed in the ſame houſe, ſome are deſtroyed for want of heat, while others are forced and ſpoiled by too much of it; and this is often the caſe in many places, where there are large collections of plants.

In the building theſe wings, if there are not ſheds running behind them their whole length, the walls ſhould not be leſs than three bricks thick; and if they are more, it will be better, becauſe where the walls are thin, and expoſed to the open air, the cold will penetrate them, and when the fires are made, the heat will come out through the walls, ſo that it will require a larger quantity of fuel, to maintain a proper temperature of warmth in the houſe. The back part of theſe houſes having ſloping roofs, which are covered either with tiles or ſlates, ſhould alſo be lined with Reeds, &c. under the covering, as is before directed for the Green-houſe, which will keep out the cold air, and ſave a great expence of fuel; for the cloſer and better theſe houſes are built, and the glaſſes of the ſlope, as alſo in front, well guarded by ſhutters, or Reeds in hard froſt, the leſs fuel will be required to warm the houſes; ſo that the firſt expence in building theſe houſes properly, will be the cheapeſt, when the after-expence of fires is taken into conſideration.

The ſloping glaſſes of theſe houſes ſhould be made to ſlide and take off, ſo that they may be drawn down more or leſs in warm weather, to admit air to the plants; and the upright glaſſes in front may be ſo contrived, as that every other may open as doors upon hinges, and the alternate glaſſes may be divided into two; the upper part of each ſhould be contrived ſo as to be drawn down like ſaſhes, ſo that either of theſe may be uſed to admit air, in a greater or leſs proportion, according as there may be occaſion.

But beſides the Conſervatories here mentioned, it will be proper to have a deep hot-bed frame, ſuch as is commonly uſed to raiſe large annuals in the ſpring, into which may be ſet pots of ſuch plants as come from Carolina, Virginia, &c. while the plants are too ſmall to plant in the open air, as alſo many other ſorts from Spain, &c. which require only to be ſcreened from the violence of froſts, and ſhould have as much free air as poſſible in mild weather; which can be no better effected than in one of theſe frames, where the glaſſes may be taken off every day when the weather will permit, and put on every night; and in hard froſts the glaſſes may be covered with mats, Straw, Peas-haulm, or the like, ſo as to prevent the froſt from entering to the pots to freeze the roots of the plants, which is what will many times utterly deſtroy them, though a ſlight froſt pinching the leaves or ſhoots, very ſeldom does them much harm; if theſe pits are ſunk a foot or more, below the ſurface of the ground, they will be the better, provided the ground is dry, otherwiſe they muſt be wholly above ground; the ſides of this frame ſhould be built with brick, with a curb of wood laid round on the top of the wall, into which the gutters, on which the glaſſes ſlide may be laid; the back wall of this frame may be four feet high, and two bricks and a half thick, the front one foot and a half; the width of the inſide of the frame about ſix feet, and the length in proportion to the number of plants to be containd therein.

GREWIA. Lin. Gen. Plant. 914. This genus of plants was conſtituted by Dr. Linnæus, who gave it this name in honour of Dr. Grew, F. R. S. who publiſhed a curious book of the anatomy of plants.

The CHARACTERS are,

The flower hath a thick leathery empalement, compoſed of five ſpear-ſhaped leaves, which are coloured, and ſpread open. The flower hath five petals of the ſame form, but ſmaller, and are indented at their baſe, where is ſituated a ſcaly nectarium to each petal, which is thick and incurved, inclining to the border, to which the ſtyle is fixed; it hath many ſtamina, which are briſtly, the length of the petals, terminated by roundiſh ſummits. In the center is ſituated the roundiſh germen, which is lengthened to a column, ſupporting a ſlender ſtyle, crowned by a four-cornered obtuſe ſtigma. The germen afterward becomes a four-cornered berry with four cells, each incloſing one globular ſeed.

This genus of plants is ranged in the ſeventh ſection of Linnæus's twentieth claſs, which includes thoſe plants whoſe flowers have many ſtamina joined to the ſtyle, forming a column of one body.

The SPECIES are,

1. GREWIA (*Occidentalis*) foliis ſubovatis crenatis. *Grewia with oval crenated leaves.* Ulmi facie arbuſcula Æthiopica, ramulis alatis, floribus purpuraſcentibus. Hort. Amſt. 1. p. 165. tab. 85. *Ethiopian Shrub with the appearance of Elm, winged branches, and purpliſh flowers.*
2. GREWIA (*Africanus*) foliis ovato-lanceolatis ſerratis. *Grewia with oval ſpear-ſhaped leaves which are ſawed.*

The firſt ſort has been long preſerved in many curious gardens, both in England and Holland, and is figured by Dr. Plukenet, by the title of Ulmifolia arbor Africana baccifera, floribus purpureis; but by Dr. Boerhaave it was ſuppoſed to be one of Father Plumier's American plants, intitled Guidonia Ulmi foliis, flore roſeo; but the characters of this do not at all agree with thoſe of the Guidonia, that particular ſpecies of this genus being in the royal garden at Paris, which is extremely different from this. It grows naturally at the Cape of Good Hope, from whence I have received the ſeeds, which have ſucceeded in the Chelſea garden.

This will grow to the height of ten or twelve feet, and has a ſtem and branches very like thoſe of the ſmall-leaved Elm, the bark being ſmooth, and of the ſame colour as that of Elm when young; the leaves are alſo very like thoſe of the Elm, and fall off in winter; the flowers are produced ſingly along the young branches from the wings of the leaves, which are of a bright purple colour; theſe appear toward the end of July, and continue in Auguſt, and the beginning of September, but are never ſucceeded by fruit in this country.

This may be propagated from cuttings or layers; the cuttings ſhould be taken off, and planted in April, before the buds ſwell, for they do not ſucceed well after; theſe cuttings ſhould be planted in ſmall pots filled with loamy earth, and the pots ſhould be plunged into a moderate hot-bed of tanners bark, where, if they are duly watered, and in the heat of the day ſhaded from the ſun, they will take good root in about two months, and may then be gradually inured to bear the open air, into which they ſhould be removed in June, and placed in a ſheltered ſituation, where they may remain till autumn, when they muſt be removed into the green-houſe; the beſt time to lay down the layers of this plant is in the ſpring, before the buds come out, and theſe will be rooted by the ſame time the following year, when they may be cut off from the old plants, and planted each into a ſeparate pot filled with a ſoft loamy ſoil.

The beſt time to remove or tranſplant this plant is, either in the ſpring, juſt before the buds begin to ſwell, or in autumn, when the leaves begin to drop; for in ſummer, when the plants are in full leaf, it will be very improper to diſturb them.

In winter theſe plants ſhould be placed in the green-houſe, for they are too tender to live abroad in England; but they ſhould have as much free air as poſſible in mild weather, for they only require to be protected from froſt, and after their leaves are fallen, they will require very moderate watering; but in ſummer they ſhould be conſtantly watered three or four times a week in dry weather, and placed in a ſheltered ſituation, with other hardy green-houſe plants, where they will add to the variety.

The ſeeds of the ſecond ſort were ſent me by Monſ. Richard, gardener to the King of France at Marſeilles,

ſeilles, which were brought from Senegal in Africa, by Monſ. Adanſon; this riſes in this country with a ſhrubby ſtalk five or ſix feet high, ſending out many lateral branches, which are covered with a brown hairy bark, and garniſhed with oval ſpear-ſhaped leaves, about two inches long, and one inch and a quarter broad in the middle, having ſeveral tranſverſe veins from the midrib to the ſides, where they are ſawed; theſe are placed alternately on the branches, having very ſhort foot-ſtalks, and continue in verdure through the year; the plants are young, ſo have not as yet flowered in England, therefore I can give no further account of them.

This ſort is tender, ſo will not live through the winter in England, unleſs it is placed in a warm ſtove; nor do thoſe plants thrive well, which are placed on ſhelves in the dry ſtove; therefore the only method to have them ſucceed, is to place them in the bark-bed in the tan-ſtove, where the plants have grown very well for ſome years. In ſummer theſe plants require a good ſhare of free air to be admitted to them, and ſhould have water three or four times a week in warm weather; but in winter they muſt be ſparingly watered, and require to be kept warm.

GRIAS. Lin. Gen. 659. Anchovy Pear.

The Characters are,

The empalement is cup-ſhaped, of one leaf, cut into four equal ſegments; the flower has four leathery concave petals, and many briſtly ſtamina which are inſerted to the receptacle, terminated by roundiſh ſummits, and a depreſſed germen immerſed in the empalement, having no ſtyle, crowned by a four-cornered croſs-ſhaped ſtigma, which afterward becomes a fleſhy berry, with a large nut having eight furrows, and one cell containing a large pointed ſeed.

This genus of plants is ranged in the firſt order of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, the flower having many ſtamina and one ſtyle.

We know but one Species of this genus, viz.

1. Grias (*Cauliflora*). Lin. Sp. 732. *Anchovy Pear.* Palmis affinis malus Perſica maxima, caudice non ramoſa, foliis longiſſimis, flore tetrapetalo pallide luteo, fructu ex arboris trunco prodeunte. Sloan. Hiſt. Jam. 2. p. 122.

This plant grows naturally in Jamaica, and in many other warm parts of America, where it riſes with a ſtrait undivided ſtem about twenty feet high, having a gray bark, marked with the veſtigia of the fallen leaves; the top of the ſtem is garniſhed with leaves near two feet long and ſix inches broad, ſitting cloſe without foot-ſtalks; theſe have one longitudinal midrib with ſeveral tranſverſe veins, and are of a lucid green; the flowers come out from the ſtem below the leaves, having no foot-ſtalk, in ſome places one, and in others they are in cluſters, each having four thick yellow petals, and a great number of ſtamina which are fixed to the empalement of the flower; the germen is included in the empalement, which afterward becomes a large oval Plumb, including a large pointed nut.

The fruit of this tree is by the Spaniards in the Weſt-Indies pickled and ſent to old Spain as preſents, who eat them as Mango's, and ſome ſay the ripe fruit is eaten as a deſart.

The plant is propagated by planting of the ſtones, which ſhould be put into the ground ſoon after the fruit is gathered, and the plants muſt be conſtantly kept in the bark-bed in the ſtove, otherwiſe it will not thrive in this country.

GRONOVIA. Martyn. Cent. 4. Lin. Gen. Plant. 284. The name of this genus was given by the late Dr. Houſton, in honour of Dr. Gronovius, a learned botaniſt at Leyden.

The Characters are,

The flower hath a permanent empalement of one leaf, which is coloured, and cut to the middle into five ſegments. It hath five ſmall petals which are fixed to the cuts of the empalement, and five hairy ſtamina the length of the petals, which are inſerted into the empalement, and are placed alternate with the petals, terminated by twin ſummits which are erect. The germen is ſituated under the flower, ſupporting a ſlender ſtyle which is longer than the ſtamina, crowned by an obtuſe ſtigma. The germen afterward becomes a roundiſh-coloured fruit with one cell, incloſing one large roundiſh ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Gronovia (*Scandens*). Hort. Cliff. 74. Gronovia ſcandens lappacea, pampinea fronde. Houſt. *Climbing burry Gronovia.*

This plant was diſcovered by the late Dr. Houſtoun at La Vera Cruz, from whence he ſent the ſeeds to Europe, which have ſucceeded in many gardens. It is an annual plant, which ſends forth many trailing branches like thoſe of the Cucumber, which are cloſely ſet with broad green leaves, in ſhape like thoſe of the Vine; but they are covered with ſmall ſpines on both ſides, which ſting like the Nettle: the branches have many tendrils or claſpers, by which they faſten themſelves to whatever plants they grow near, and will riſe to the height of ſix or eight feet; the flowers are ſmall, and of a greeniſh yellow colour, ſo make no great appearance.

This being a very tender plant, muſt be raiſed on a hot-bed early in the ſpring, and afterward placed in the bark-ſtove, and treated in the ſame way as the Momordica, with which management it will produce ripe ſeeds; but this having neither uſe or beauty, is rarely cultivated but in botanic gardens for the ſake of variety.

GROSSULARIA. Raii Meth. Plant. 145. Tourn. Inſt. R. H. 639. tab. 409. Ribes. Lin. Gen. Plant. 247. Gooſeberry; in French, *Groſelier.*

This and the Currant are by Tournefort placed in the ſame genus, under the title of Groſſularia; they are alſo joined together by Dr. Linnæus, under the title of Ribes, for in their principal characters they agree; ſo according to the ſyſtems of botany, they ſhould be included in the ſame genus; but this may not be quite ſo proper in a body of gardening, for as theſe fruits have always paſſed under different denominations, ſo if they are here joined together, it may occaſion ſome confuſion among thoſe who do not enter into the ſtudy of botany. Mr. Ray has ſeparated theſe into different genera, and makes the difference of Gooſeberry from the Currant, to conſiſt in the firſt having thorns on the branches, and the fruit growing ſingle; whereas the latter hath ſmooth branches, and the fruit growing in long bunches; and although theſe differences may not be ſtrictly ſcientific, yet it may be allowed ſufficient to diſtinguiſh them among gardeners.

The Characters are,

The flower has a permanent empalement of one leaf, cut into five ſegments at the top, which is ſwollen, concave, and coloured. It hath five ſmall, obtuſe, erect petals, which riſe from the border of the empalement; and five awl-ſhaped ſtamina, which are inſerted into the empalement, terminated by compreſſed proſtrate ſummits. The germen is ſituated below the flower, having a bifid ſtyle crowned by an obtuſe ſtigma, and afterward becomes a globular berry having a navel, with one cell, which is filled with roundiſh compreſſed ſeeds included in a pulp.

This genus of plants is ranged by Dr. Linnæus in the firſt ſection of his fifth claſs, intitled Pentandria Monogynia, which contains thoſe plants whoſe flowers have five ſtamina and one ſtyle.

The Species are,

1. Grossularia (*Reclinatum*) ramis reclinatis aculeatis, pedunculis triphyllis. *Gooſeberry with reclining branches armed with ſpines, and a three-leaved foot-ſtalk.* Groſſularia ſpinoſa, fructu obſcure purpuraſcente. J. B. 1. 48. *Prickly Gooſeberry with a dark purpliſh fruit.*
2. Grossularia (*Hirſuta*) ramis aculeatis, baccis hirſutis. *Gooſeberry with prickly branches and hairy berries.* Groſſularia fructu maximo hiſpido margaritarum ferè colore. Raii Hiſt. 1484. *Gooſeberry with a very large rough fruit, almoſt of a pearl colour.*

3. GROSSULARIA (*Uva Criſpa*) ramis aculeatis, erectis, baccis glabris. *Gooſeberry with erect prickly branches, and ſmooth berries.* Groſſularia ſimplici acino, vel ſpinoſa ſylveſtris. C. B. P. 455. *Gooſeberry with a ſingle fruit, or wild prickly Gooſeberry.*

4. GROSSULARIA (*Oxyacanthoides*) ramis undique aculeatis. *Gooſeberry whoſe branches are armed on all ſides with ſpines.* Groſſularia oxyacanthæ foliis amplioribus è ſinu Hudſonis. Pluk. Amalth. 212. *Gooſeberry with larger Hawthorn leaves from Hudſon's Bay.*

5. GROSSULARIA (*Cynoſbati*) aculeis ſubaxillaribus, baccis aculeatis racemoſis. *Gooſeberry with ſpines on the lower part of the branches, and prickly berries growing in cluſters.* Ribes aculeis ſubaxillaribus, baccis aculeatis racemoſis. Lin. Sp. Plant. 202. *Currant with ſpines on the lower part of the branches, and prickly berries growing in bunches.*

The ſorts which are here enumerated, are ſuppoſed to be diſtinct ſpecies; but there are ſeveral other varieties which have been obtained from ſeeds, and are propagated for ſale in the nurſeries; moſt of theſe are titled from the perſons who raiſed them, as Lamb's Gooſeberry, Hunt's Gooſeberry, Edwards's Gooſeberry, &c. and as there are frequently new varieties obtained, it is needleſs to enumerate them here, therefore I ſhall proceed to their culture.

Theſe are propagated either by ſuckers taken from the old plants, or by cuttings; the latter of which I prefer to the former, becauſe thoſe plants which are produced from ſuckers are always more diſpoſed to ſhoot out a greater number of ſuckers from their roots, than ſuch as are raiſed from cuttings, which generally form much better roots.

The beſt ſeaſon for planting theſe cuttings is in autumn, juſt before their leaves begin to fall; obſerving always to take the handſomeſt ſhoots, and from ſuch branches as generally produce the greateſt quantity of fruit; for if you take thoſe which are produced from the ſtem of the old plants (which are commonly very luxuriant) they will not be near ſo fruitful as thoſe taken from bearing branches: theſe cuttings ſhould be about ſix or eight inches long, and muſt be planted in a border of light earth, expoſed to the morning ſun, about three inches deep, obſerving to water them gently when the weather proves dry, to facilitate their taking root; and in the ſummer, when they have put out branches, you ſhould rub off all the under ſhoots, leaving only the uppermoſt or ſtrongeſt, which ſhould be trained upright, to form a regular ſtem. In October following theſe plants may be removed; at which time you ſhould prepare an open ſpot of freſh earth, which ſhould be well dug, and cleanſed from all noxious weeds, roots, &c. and being levelled, you ſhould proceed to take up your plants, trimming their roots, and cutting off all lateral ſide branches; then plant them at three feet diſtance row from row, and one foot aſunder in the rows, obſerving to place ſome ſhort ſticks to the plants, in order to train their ſtems upright and regular. In this place they may remain one or two years, being careful to keep them clear from weeds, as alſo to trim off all lateral ſhoots which are produced below the head of the plant, ſo that the ſtem may be clear about a foot in height above the ſurface of the earth, which will be full enough; and as the branches are produced commonly very irregular in the head, you muſt cut out ſuch of them as croſs each other, or thin them where they are too cloſe, whereby the head of the plant will be open, and capable of admitting the air freely into the middle, which is of great uſe to all kinds of fruits.

After theſe plants have remained in this nurſery one or two years at moſt, they will be fit to tranſplant to the places where they are deſigned to remain; for it is not ſo well to let them grow in the nurſeries too large which will occaſion their roots to be woody, whereby the removing of them will not only hazard the growth of the plants, but ſuch of them as may take very well will remain ſtined for two or three years, before they will be able to recover their check. The ſoil in which theſe plants thrive to the greateſt advantage, is a rich light earth; though they will do very well upon middling ſoils, which are not too ſtrong or moiſt, and in all ſituations; but where the fruit is cultivated, in order to procure it in the greateſt perfection, they ſhould never be planted in the ſhade of other trees, but muſt have a free open expoſure. The diſtance they ought to be planted is eight feet row from row, and ſix feet aſunder in the rows. The beſt ſeaſon for tranſplanting them is in October, when their leaves begin to decay; obſerving, as was before directed, to prune their roots, and trim off all lateral ſhoots, or ſuch as croſs each other, ſhortening all long branches, ſo as to make the head regular.

In the pruning of theſe ſhrubs moſt people make uſe of garden-ſhears, obſerving only to cut the head round, as is practiſed for Evergreens, &c. whereby the branches become ſo much crowded, that what fruit is produced, never grows to half the ſize as it would do were the branches thinned, and pruned according to art; which ſhould always be done with a pruning-knife, ſhortening the ſtrong ſhoots to about ten inches, and cutting out all thoſe which grow irregular, thinning the fruit-bearing branches where they are too thick, obſerving always to cut behind a leaf bud. With this management your fruit will be near twice as large as thoſe which are produced upon ſuch buſhes as are not thus pruned, and the ſhrubs will continue in vigour much longer; but you muſt obſerve to keep the ground clear from weeds, and dig it at leaſt once a year; and every other year you ſhould beſtow a little rotten dung upon it, which will greatly improve the fruit.

It is a common practice with the gardeners near London, who have great quantities of theſe buſhes in order to ſupply the markets, to prune them ſoon after Michaelmas, and then to dig up the ground between the rows, and plant it with Coleworts for ſpring uſe, whereby their ground is employed all the winter, without prejudicing the Gooſeberries; and in hard winters theſe Coleworts often eſcape, when thoſe which are planted in an open expoſure are all deſtroyed; and theſe are generally pulled up for uſe in February or March, ſo that the ground is clear before the Gooſeberries come out in the ſpring; which is a piece of huſbandry well worth practiſing where ground is dear, or where perſons are confined for room.

GROVES are the greateſt ornaments to a garden, nor can a garden be complete which has not one or more of theſe. In ſmall gardens there is ſcarce room to admit of Groves of any extent, yet in theſe there ſhould be at leaſt one contrived, which ſhould be as large as the ground will allow it; and where theſe are ſmall, there is more ſkill required in the diſpoſition, to give them the appearance of being larger than they really are.

Groves have been in all ages held in great veneration: the ancient Romans had a ſort of Groves near ſeveral of their temples, which were conſecrated to ſome God, and were called luci by antiphraſis, à non lucendo, as being ſhady and dark; and theſe were dedicated to holy uſes, being places of ſolitude and retirement, and were never to be violated with the ax.

Theſe Groves are not only great ornaments to gardens, but are alſo the greateſt relief againſt the violent heats of the ſun, affording ſhade to walk under in the hotteſt part of the day, when the other parts of the garden are uſeleſs; ſo that every garden is defective which has not ſhade.

Groves are of two ſorts, viz. open and cloſe Groves: open Groves are ſuch as have large ſhady trees, which ſtand at ſuch diſtances, as that their branches may approach ſo near each other, as to prevent the rays of the ſun from penetrating through them; but as ſuch trees are a long time in growing to a proper ſize for affording a ſhade, ſo where new Groves are planted, the trees muſt be placed cloſer together, in order to have ſhade as ſoon as poſſible; but in planting of theſe Groves, it is much the beſt way to diſpoſe all the trees irregularly, which will give them a greater magnificence, and alſo form a ſhade ſooner, than when the trees are planted in lines; for when the ſun ſhines between the rows of trees, as it muſt do ſome part of the day in ſummer, the walks between them will be expoſed to the heat at ſuch times, until the branches of theſe trees meet; whereas in the irregular plantations, the trees intervene, and obſtruct the direct rays of the ſun.

When a perſon who is to lay out a garden, is ſo happy as to meet with large full grown trees upon the ſpot, they ſhould remain inviolate, if poſſible; for it will be better to put up with many inconveniencies, than to deſtroy theſe, which will require an age to retrieve; ſo that nothing but that of offending the habitation, by being ſo near as to occaſion great damps or obſtructing fine views, ſhould tempt the cutting of them down.

Moſt of the Groves which have been planted either in England, or in thoſe celebrated gardens of France, are only a few regular lines of trees; many of which are avenues to the habitation, or lead to ſome building, or object; but theſe do not appear ſo grand, as thoſe which have been made in woods where the trees have grown accidentally, and at irregular diſtances; and where the trees have large ſpreading heads, and are left at ſuch a diſtance, as to permit the Graſs to grow under them, then they afford the greateſt pleaſure: for nothing is more noble than fine ſpreading trees with large ſtems, growing through Graſs, eſpecially if the Graſs is well kept, and has a good verdure; beſides, moſt of theſe planted Groves have generally a gravel-walk, made in a ſtrait line between them, which greatly offends the ſight of perſons who have true taſte; therefore whenever a gravel-walk is abſolutely neceſſary to be carried through theſe Groves, it will be much better to twiſt it about, according as the trees naturally ſtand, than to attempt regularity; but dry walks under large trees are not ſo uſeful as in open places, becauſe the dropping of the trees will render theſe walks uſeleſs after rain, for a conſiderable time.

Cloſe Groves have frequently large trees ſtanding in them, but the ground is filled under theſe with ſhrubs, or under-wood; ſo that the walks which are made in them are private, and ſcreened from winds, whereby they are rendered agreeable for walking, at ſuch times when the air is too violent or cold for walking in the more expoſed parts of the garden.

Theſe are often contrived ſo as to bound the open Groves, and frequently to hide the walls, or other incloſures of the garden; and when they are properly laid out, with dry walks winding through them, and on the ſides of theſe ſweet-ſmelling ſhrubs and flowers irregularly planted, they have a charming effect; for here a perſon may walk in private, ſheltered from the inclemency of cold or violent winds, and enjoy the greater ſweets of the vegetable kingdom: therefore where it can be admitted, if they are continued round the whole incloſure of the garden, there will be a much greater extent of walk; and theſe ſhrubs will appear the beſt boundary, when there are not fine proſpects to be gained.

Theſe cloſe Groves are by the French termed boſquets, from the Italian word boſquetto, which ſignifies a little wood, and in moſt of the French gardens there are many of them planted; but theſe are reduced to regular figures, as ovals, triangles, ſquares, and ſtars; which have neither the beauty or uſe which thoſe have that are made irregularly, and whoſe walks are not ſhut up on each ſide by hedges, which prevents the eye from ſeeing the quarters; and theſe want the fragancy of the ſhrubs and flowers, which are the great delight of theſe private walks: add to this, the keeping of the hedges in good order is attended with a great expence, which is a capital thing to be conſidered in the making of gardens.

GUAIABARA. See Coccolobos.

GUAJACANA. See Diospyros.

GUAJACUM. Plum. Nov. Gen. 39. tab. 17. Lin. Gen. Plant. 465. Lignum Vitæ, or Pockwood.

The Characters are,

The flower hath a concave empalement of one leaf, which is quinquefid. It hath five oblong, oval, concave petals, which are inſerted in the empalement and ſpread open, and ten erect ſtamina inſerted in the empalement, terminated by ſmall ſummits. The ſtyle is long and ſlender, the germen is oval and pointed, and the ſtigma is ſingle and ſlender. The germen afterward becomes a berry which is roundiſh, with an oblique point, and deeply furrowed, incloſing an oval hard ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, which includes thoſe plants whoſe flowers have ten ſtamina and one ſtyle.

The Species are,

1. Guajacum (*Officinale*) foliolis bijugatis obtuſis. Lin. Sp. Plant. 381. *Guajacum with obtuſe lobes placed by pairs.* Guajacum flore cæruleo, fructu ſubrotundo. Plum. Nov. Gen. 391. *Guajacum with a blue flower and a roundiſh fruit.*
2. Guajacum (*Sanctum*) foliolis multijugatis obtuſis. Lin. Sp. Plant. 382. *Guajacum with many pair of obtuſe lobes.* Guajacum flore cæruleo fimbriato, fructu tetragono. Plum. Nov. Gen. 391. *Guajacum with a blue fringed flower, and a four-cornered fruit.*
3. Guajacum (*Afrum*) foliolis multijugatis obtuſis. Lin. Sp. Plant. 382. *Guajacum with many pair of acute-pointed lobes.* Guilandinoides. Hort. Cliff. 489. and the Afra arbor acaciæ ſimilis, foliis myrti aculeatis ſplendentibus. Boerh. Ind. alt. 2. p. 57. *African-tree like the Acacia, with ſhining, acute-pointed, Myrtle leaves.*

The firſt ſort is the common Lignum Vitæ, or Guajacum, which is uſed in medicine, and grows naturally in moſt of the iſlands in the Weſt-Indies, where it riſes to be a very large tree, having a hard, brittle, browniſh bark, not very thick; the wood is firm, ſolid, and ponderous, appearing very reſinous, of a blackiſh yellow colour within, and of a hot aromatic taſte; the ſmaller branches have an Aſh-coloured bark, garniſhed with leaves, which are divided by pairs, each pair having two pair of ſmall, oval, blunt leaves (or pinnæ) of a ſtiff conſiſtence, and a lucid green; the flowers are produced in cluſters at the end of the branches, compoſed of five oval concave petals, of a fine blue colour; in the center of theſe is fixed a ſtyle with an oval germen, crowned by a ſlender ſtigma; and round this is ſituated from ten to twenty ſtamina, which are as long as the ſtyle, terminated by ſickle-ſhaped ſummits. Dr. Linnæus ſuppoſes the flowers to have but ten ſtamina, whereas they certainly have near twenty.

The bark and wood of this tree are much of the ſame nature, only the wood is accounted hotter; they are uſed in diet-drinks to purify and cleanſe the blood, and to cauſe ſweating; they are eſteemed good for the gout and dropſy, the king's-evil, and particularly for the French pox. The gum or reſin, which is black, ſhining, and brittle, and when powdered, of a greeniſh white colour, of an aromatic ſmell, and poignant taſte, is ſomewhat cathartic, and a good purge in rheumatic caſes, to the quantity of two ſcruples mixed with the yolk of an egg, and given in a convenient vehicle.

The wood of this tree is ſo hard as to break the tools in felling them, ſo they are ſeldom cut down for fire-wood, being difficult to burn; but the wood is of great uſe to the ſugar-planters, for making of wheels and cogs for the ſugar-mills, &c. It is alſo frequently brought to Europe, and wrought into bowls, and other utenſils are made of the wood.

This tree can only be propagated by ſeeds, which muſt be procured from the countries where it naturally grows; theſe muſt be freſh, otherwiſe they will not grow; when they arrive, they ſhould be ſown in pots filled with light earth, and plunged into a good hot-bed: if the ſeeds are good, and the bed in which they are plunged is of a proper temperature of heat, the plants will appear in ſix weeks or two months after; and in ſix weeks will grow to be of ſtrength enough more for tranſplanting; then they ſhould be carefully taken out of the ſeed-pots, ſo as to preſerve their roots as entire as poſſible, and each planted in ſeparate ſmall pots filled with light earth, and plunged into a new hot-bed of tanners bark, where they muſt be ſhaded from the ſun till they have taken freſh root; then they muſt be treated in the ſame manner as other tender exotic plants from warm countries, admitting a large ſhare of free air to them when the weather is warm: they will require to be frequently refreſhed with water in warm weather, but it muſt be given them with caution, for too much wet will infallibly deſtroy them. While the plants are young, they may be kept during the ſummer ſeaſon in a hot-bed of tanners bark under a frame; but in the autumn they muſt be removed into the bark-ſtove, and plunged into the hot-bed of tan, where they ſhould conſtantly remain, and muſt be treated in the ſame manner as other tender plants, being careful not to give them too much water in the winter, when it is very prejudicial to them, and in ſummer they ſhould have a large ſhare of free air admitted to them every day. With this treatment the plants will thrive very well, but they are plants of ſlow growth in their own country, ſo cannot be expected to make great progreſs in Europe.

The ſecond ſort has many ſmall leaves placed along the midrib by pairs, which are rounded and obtuſe at their ends, but narrow at their baſe: they are of the ſame conſiſtence with thoſe of the former ſort, but of a darker green colour; the flowers are produced in looſe bunches toward the end of the branches, which are of a fine blue colour, and their petals are fringed on their edges. This is called in ſome of the iſlands Baſtard Lignum Vitæ; I received it from Antigua by that title. It requires the ſame treatment as the firſt ſort, and is propagated by ſeeds in the ſame way.

I have alſo received ſpecimens from the iſland of Barbuda of one, which ſeems different from either of thoſe before-mentioned: the branches have the ſame appearance with thoſe of the firſt ſort, but the leaves are larger and indented at their extremities, and are placed all round the branches, on very ſhort footſtalks; the flowers were broken off, ſo I cannot determine the difference between them, but by all appearance they ſeem to be of the ſame genus.

The third ſort has been long an inhabitant in ſome of the curious gardens in England and Holland, but ſeldom produces flowers in Europe. This grows naturally at the Cape of Good Hope, from whence the ſeeds were brought firſt to Holland, where it paſſed for a ſpecies of Acacia, until it produced its flowers; which, by the account given of them by the late Dr. Boerhaave, were of the butterfly kind; but whether Dr. Linnæus has ſeen the flowers or not, I cannot ſay; however, he has removed it from that claſs of plants, and has added it to this genus; and as I have not yet ſeen the flowers, ſo I do not know if it is rightly placed. The plants retain their leaves all the year, and will live in a good green-houſe in winter, but in ſummer muſt be placed abroad with other green-houſe plants. It is of ſlow growth, and is with difficulty propagated by layers.

GUAJAVA. See Psidium.

GUANABANUS. See Annona.

GUAZUMA. See Theobroma.

GUIDONIA. See Samyda.

GUILANDINA. Lin. Gen. Plant. 464. Bonduc. Plum. Nov. Gen. 25. tab. 39. The Nickar-tree.

The Characters are,

The empalement of the flower is of one leaf, is bell-ſhaped, and cut at the top into five equal ſegments: the flower has five concave ſpear-ſhaped petals which are equal, and ſit cloſe to the empalement, into which they are inſerted. It hath ten awl-ſhaped ſtamina which are erect, and inſerted in the empalement, being alternately ſhorter than each other, and terminated by obtuſe ſummits. In the center is ſituated an oblong germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by a ſingle ſtigma. The germen afterward becomes a rhomboid pod, with a convex ſuture on the upper ſide; it is ſwelling and compreſſed, having one cell, including oval hard ſeeds, which are ſeparated by partitions.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, in which he includes the plants whoſe flowers have ten ſtamina and one ſtyle.

The Species are,

1. Guilandina (*Bonduc*) aculeata pinnis ovatis foliolis aculeis ſolitariis. Lin. Sp. 545. *Prickly Guilandina with oval-winged leaves, whoſe ſmall leaves are armed with ſingle ſpines.* Bonduc vulgare majus polyphyllum. Plum. Nov. Gen. 25. *Common greater Bonduc, having many leaves, called yellow Nickar.*
2. Guilandina (*Bonducella*) aculeata, pinnis oblongo-ovatis foliolis aculeis geminis. Lin. Sp. 545. *Prickly Guilandina with oblong oval leaves, having ſpines by pairs.* Bonduc vulgare minus polyphyllum. Plum. Nov. Gen. 25. *Smaller common Bonduc, or Nickar-tree having many leaves, called gray Nickar.*
3. Guilandina (*Glabra*) inermis foliis bipinnatis, foliolis ovatis acutis alternis. *Smooth Guilandina with double winged leaves, whoſe ſmall leaves are oval-pointed and alternate.*
4. Guilandina (*Moringa*) inermis, foliis ſubpinnatis, foliolis inferioribus ternatis. Flor. Zeyl. 155. *Smooth Guilandina with winged leaves, whoſe under ſmall leaves are trifoliate.* Moringa Zeylanica, foliorum pinnis pinnatis, flore majore, fructu anguloſo. Burm. Zeyl. 162. tab. 75. *Morunga of Ceylon, with double-winged leaves, a larger flower, and an angular fruit.*
5. Guilandina (*Dioica*) inermis foliis bipinnatis baſi apiceque ſimpliciter pinnatis. Lin. Sp. 546. *Guilandina with ſmooth branches, doubly winged leaves, whoſe baſe and tops are ſingle winged.* Bonduc Canadenſe polyphyllum, non ſpinoſum, mas & fœmina. Du Hamel. *Canada Nickar-tree having many leaves, which have no ſpines, and are male and female in different plants.*

The firſt and ſecond ſorts grow naturally in moſt of the iſlands in the Weſt-Indies, where they twine their ſtalks about any neighbouring ſupport, and riſe to the height of twelve or fourteen feet. The leaves of the firſt ſort are near a foot and a half long, and are compoſed of ſix or ſeven pair of pinnæ, or wings, each of which has as many pair of lobes, or ſmall leaves ſet along the midrib; theſe are oval and entire; the foot-ſtalk or principal midrib of the leaf, is armed with ſhort, crooked, ſingle thorns, which are placed irregularly; the ſtalks are cloſely armed with the like thorns, which are larger. The ſtalks at firſt grow erect, but afterward they twine about the neighbouring trees or ſhrubs, being too weak to ſtand without ſupport: the flowers come out in long ſpikes from the wings of the ſtalk; they are compoſed of five concave yellow petals, which are equal; in the center is ſituated the oblong germen, ſurrounded by ten ſtamina. After the flower is paſt, the germen becomes a broad thick pod, about three inches long and two broad, cloſely armed with ſlender ſpines, opening with two valves, each incloſing two hard ſeeds about the ſize of children's marbles, of a yellowiſh colour,

The ſecond ſort differs from the firſt, in having much ſmaller leaves, which are ſet cloſe together; and below each pair of lobes are ſituated two ſhort ſtiff crooked ſpines, which are placed oppoſite; the flowers are of a deeper yellow colour than thoſe of the firſt ſort, and the ſeeds are of an Aſh-colour.

The third ſort was diſcovered by the late Dr. Houſtoun at Campeachy, from whence he ſent the dried ſamples to England, but there was no fruit on the trees at the time when he was there; but he mentions that this ſort had an upright ſtem, which was of a large ſize, dividing into many branches; theſe are garniſhed with double winged leaves, which are ſmooth; the wings come out altenrnate, each leaf being compoſed of four pair, but the lobes are placed oppoſite upon the middle rib; they are oval, but end in a point, and are of a light green colour.

The fourth ſort grows naturally in the iſland of Ceylon, and in ſeveral places on the Malabar coaſt, from whence the ſeeds were brought to England. This in its native country riſes to the height of twenty-five or thirty feet, with a ſtrong ſtem, covered with a ſmooth bark, which in the young branches is green, but on the older it is of an Aſh-colour; the root grows knobbed, and very thick. This, when young, is ſcraped and uſed by the inhabitants as Horſe-radiſh is in Europe, having much the ſame ſharp taſte; the branches are garniſhed with decompounded winged leaves; thoſe which are ſituated at the baſe have but three leaves, but above, the leaves are branched out into ſeveral diviſions, which are again divided into ſmaller, having each five or ſix pair of oval lobes, terminated by an odd one; they are of a light green, and a little hoary on their under ſide. The flowers are produced in looſe bunches from the ſide of the branches; they are compoſed of an unequal number of petals, from five to ten; they have ten ſhort ſtamina ſurrounding the germen, which afterward turns to a long taper pod, including ſeveral angular ſeeds, covered with a thin membrane. Theſe have a flavour like the root.

Theſe four ſorts are natives of warm countries, ſo will not live through the winter in England, unleſs they are placed in a warm ſtove, and the pots plunged into the tan-bed. They are propagated by ſeeds, but thoſe of the two firſt ſorts are ſo hard, that unleſs they are ſoaked two or three days in water before they are put into the ground, or placed under the pots in the tan-bed to ſoften their covers, they will remain years in the ground without vegetating: when the plants come up, they will be fit to tranſplant in a ſhort time; then they ſhould be each tranſplanted into a ſmall pot filled with light freſh earth, and plunged into a moderate hot-bed of tanners bark, ſhading them till they have taken freſh root; then they muſt be treated in the ſame manner as other tender exotic plants, giving them a large ſhare of air in warm weather, and but little water; and when the plants have advanced to be too tall to remain in the frames, they muſt be removed into the bark-ſtove and plunged into the hot-bed, where they will make great progreſs, provided they have not too much water, eſpecially during the winter ſeaſon, for theſe plants are very impatient of moiſture in cold weather.

The fourth ſort requires the ſame treatment as thoſe before-mentioned, but the ſeeds will grow without being ſteeped in water; and the plants are with difficulty ſhifted from one pot to another, for their roots are large, fleſhy, and have but few fibres; ſo that unleſs great care is taken, all the earth will fall away from them, which often cauſes their ſtalks to decay almoſt to the root, and ſometimes occaſions the loſs of the plants. This plant muſt be ſparingly watered at all times, but particularly in cold weather, when moiſture will cauſe them to rot in a ſhort time.

The fifth ſort grows naturally in Canada, from whence the plants were brought to Paris, where it has been ſome years cultivated; but about fourteen years paſt, it was firſt brought to England. This, in the country where it naturally grows, riſes with an erect ſtem to the height of thirty feet or more, dividing into many branches, which are covered with a bluiſh Aſh-coloured bark very ſmooth, and garniſhed with large decompounded winged leaves which are of the oval ſhape, very ſmooth and entire, but are ranged alternate on the midrib; theſe fall off in the autumn, and new ones come out late in the ſpring.

There are male and female of this ſort in different plants; as theſe have not as yet flowered in any of the Engliſh gardens, ſo I can give no farther account of them nor of the fruit, having never ſeen any of them. This ſort lives abroad in the open air, and is never hurt by froſt. It is propagated by cutting off ſome of the horizontal roots, which will cauſe them to ſhoot upward, ſo it may be taken from the old root, and planted in pots, whereby the plant may be multiplied, or by ſuckers from the root. It requires a light ſoil, not too moiſt.

GUNDELIA. Tourn. Cor. 51. tab. 586. Lin. Gen. Plant. 828. Hacub. Vaill. Ac. Reg. Scien. 1718.

This plant was ſo named by Dr. Tournefort, in honour of Dr. Gundelſcheimer, who found it in his travels in company with Dr. Tournefort in the Levant.

The CHARACTERS are,

It hath an uniform tubulous flower, compoſed of many hermaphrodite florets, which are incircled by leaves. They have but one petal which is cloſed at the bottom, but ſwells at the top, where it is ſlightly cut into five ſegments: they have five ſhort hairy ſtamina, terminated by long cylindrical ſummits. The oval germen is ſituated at the bottom of the flower, crowned by ſmall ſcales, ſupporting a ſlender ſtyle which is longer than the petal, terminated by two revolving ſtigmas. The germen afterward becomes a roundiſh ſingle ſeed incloſed in the common receptacle, which is conical, and the ſeeds are ſeparated by a chaffy down.

This genus of plants is by Tournefort referred to his twelfth claſs, which contains the herbs with floſculous flowers. Dr. Linnæus ranges it in the fifth ſection of his nineteenth claſs, intitled Syngeneſia Polygamia ſegregata, which includes thoſe plants whoſe flowers have a common empalement, and each of the florets are included in another.

We have but one diſtinct SPECIES of this genus at preſent in England, viz.

GUNDELIA. Lin. Sp. Plant. 814. There is no Engliſh title to this plant, but there are two varieties of it mentioned by Tournefort, which are ſuppoſed to ariſe from the ſame ſeeds, as they were found growing promiſcuouſly together. Theſe are,

1. GUNDELIA (*Tournefortii*) Orientalis acanthi aculeati foliis, floribus intenſè purpureis, capite araneoſâ lanugine obſito. Tourn. Cor. 51. *Eaſtern Gundelia with prickly Bear's-breech leaves, deep purple flowers, and a head covered with a down like a cobweb.*
2. GUNDELIA (*Glabro*) Orientalis, acanthi aculeati folio, capite glabro. Tourn. Cor. 51. *Eaſtern Gundelia with a prickly Bear's-breech leaf, and a ſmooth head.*

This plant was diſcovered by Dr. Gundelſcheimer, in company with Tournefort, near Baibout in Armenia, but has ſince been foundgrowing naturally in ſeveral places in the Levant, where it is generally found in dry ſtrong land. The ſtalks of this plant ſeldom riſe more than a foot and a half high; the under leaves are long, narrow, and ſawed on their edges, their teeth ending in a ſpine; the other leaves are broader, which are irregularly ſlaſhed to the midrib, and armed at the points with ſharp prickles; the ſtalks divide upward into ſeveral branches, which are armed with leaves of the ſame form, but are narrower; and each is terminated by a conical head of flowers, reſembling thoſe of Fuller's Thiſtle, being ſurrounded at the baſe by a circle of long, narrow, prickly leaves: theſe heads are compoſed of many hermaphrodite florets, which are ſhut up in the ſcales, each having an empalement, and a germen with five ſtamina ſurrounding it; but there are few of the ſeeds which ripen perfectly in each head, in the natural places of its growth. If rain happens at the time when the plants are in flower, the germen periſhes, which is the caſe with ſeveral other of thoſe plants whoſe flowers are collected into heads.

Theſe plants are propagated by ſeed, which ſhould be ſown the beginning of March, in a warm dry border of freſh, but lean earth, in the place where the plants are deſigned to remain. When the plants come up, they muſt be carefully cleared from weeds; as they grow large, they ſhould be thinned, leaving the plants which are deſigned to remain, about two feet aſunder, that they may have room to ſpread. After this there is no other culture required, but to keep them clear from weeds; and if the froſt ſhould prove ſevere in winter, the plants ſhould be covered with ſtraw or Peas-haulm to protect them, but this covering muſt be taken off in mild weather; in two years they will produce their flowers, when they will make a fine appearance amongſt other hardy plants in the pleaſure-garden. They flower in May, and the plants loſe their ſtalks and leaves in autumn, but their roots will abide many years.

GYPSOPHYLA. Lin. Gen. Plant. 498. We have no Engliſh title for this genus.

The Characters are,

The flower hath a permanent, angular, bell-ſhaped empalement, cut into five parts at the top. It hath five oval blunt petals, which ſpread open, and ten awl-ſhaped ſtamina, terminated by roundiſh ſummits. In the center is ſituated a globular germen, ſupporting two ſlender ſtyles, crowned by ſingle ſtigmas. The germen afterward becomes a globular capſule with one cell, opening with five valves, filled with ſmall roundiſh ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's tenth claſs, which includes thoſe plants whoſe flowers have ten ſtamina and two ſtyles.

The Species are,

1. Gypsophyla (*Aggregata*) foliis mucronatis recurvatis, floribus aggregatis. Lin. Sp. Plant. 406. *Gypſophyla with pointed recurved leaves, and flowers gathered in a head.* Lychnis Hiſpanica kali folio multiflora. Tourn. Inſt. R. H. 338. *Spaniſh Lychnis with a Glaſſwort leaf and many flowers.*
2. Gypsophyla (*Faſtigiata*) foliis lanceolato-linearibus, obſoletè triquetris lævibus obtuſis ſecundis. Lin. Sp. Plant. 407. *Gypſophyla with narrow ſpear-ſhaped leaves, having three blunt angles, and ſmooth obtuſe leaves in cluſters.* Saponaria caule ſimplici, foliis linearibus ex alis foliorum confertis teretibus. Hort. Cliff. 166. *Sopewort with a ſingle ſtalk, very narrow leaves, coming out in cluſters from the wings of the ſtalks.*
3. Gypsophyla (*Proſtrata*) foliis lanceolatis lævibus, caulibus diffuſis, piſtillis corollâ campanulatâ longioribus. Lin. Sp. Plant. App. 1195. *Gypſophyla with ſmooth ſpear-ſhaped leaves, diffuſed ſtalks, and the pointal longer than the petal, which is bell-ſhaped.*
4. Gypsophyla (*Perfoliata*) foliis ovato-lanceolatis, ſemiamplexicaulibus. Lin. Sp. Plant. 408. *Gypſophyla with oval ſpear-ſhaped leaves, half embracing the ſtalks.* Lychnis Orientalis, ſaponariæ folio & facie, flore parvo & multiplici. Tourn. Cor. 24. *Eaſtern Lychnis with the leaf and appearance of Sopewort, having many ſmall flowers.*
5. Gypsophyla (*Paniculata*) foliis lanceolatis ſcabris, floribus dioicis corollis revolutis. Lin. Sp. Plant. 407. *Gypſophyla with rough, ſpear-ſhaped leaves, male and female in different plants, and the petals of the flowers recurved.* Alſine fruteſcens caryophylli folio, flore parvo albo. Gerb. *Shrubby Chickweed with a Clove Gilliflower leaf, and a ſmall white flower.*

The firſt ſort grows naturally in the ſouth of France, Spain, and Italy, upon the mountains. This hath a perennial root, from which ariſe many narrow leaves ending in acute points, which are recurved; the ſtalks riſe about a foot high, garniſhed with narrower leaves placed oppoſite, and at ſome of the joints there are ſmaller leaves growing from the ſtalks in cluſters; the upper part of the ſtalk divides into ſmaller branches, each being terminated by a cloſe bunch of ſmall white flowers. Theſe appear in July, and are ſucceeded by ſmall oval capſules, filled with ſmall ſeeds.

The ſecond ſort is ſomewhat like the firſt, but the leaves are much narrower, and almoſt three-cornered; they are placed in cluſters, which come out from the ſide of the ſtalk; the bunches of the flowers are ſmaller, and not ſo cloſely joined. This hath a perennial root, and grows naturally upon the Helvetian mountains.

The third ſort hath a perennial root, from which ariſe ſmooth ſpear-ſhaped leaves in cluſters; the ſtalks are near a foot long, but are proſtrate on the ground; the flowers have a purpliſh caſt, and the ſtamina are much longer than the petals of the flowers. This flowers in June and July, and the ſeeds ripen in autumn.

The fourth ſort grows naturally in the Levant, and alſo in Spain. It hath a ſtrong, fleſhy, fibrous root, which ſtrikes deep in the ground, ſending up ſeveral thick, fleſhy ſtalks, which riſe near two feet high, garniſhed with oval ſpear-ſhaped leaves, which half embrace the ſtalks with their baſe; the upper part of the ſtalk divides into many ſmaller branches, which are terminated with looſe bunches of ſmall white flowers. Theſe open in July, and the ſeeds ripen in autumn.

The fifth ſort grows naturally in Siberia and Tartary, the ſeeds of it were ſent me from Peterſburgh. This hath a perennial root, from which ariſe many branching ſtalks a foot and a half high, garniſhed with narrow ſmooth-pointed leaves, ſhaped like thoſe of Gilliflowers; at the top of the ſtalks are produced looſe cluſters of very ſmall white flowers, which appear at the ſame time with the former ſorts, and the ſeeds ripen in the autumn.

Theſe plants have no great beauty, ſo are rarely cultivated but in botanic gardens for the ſake of variety.

They are propagated by ſeeds, which ſhould be ſown in a bed of light earth, and when the plants are fit to remove, they may be tranſplanted into the places where they are deſigned to remain, and will require no other culture but to keep them clean from weeds; for the roots will continue ſeveral years, and annually produce flowers and ſeeds.

H.

HÆMANTHUS. Tourn. Inſt. R. H. 657. tab. 433. Lin. Gen. Plant. 394. Dracunculoides. Boerh. Ind. alt. 2. 226. [Αἵμανθος, of Αἷμα, blood, and Ἄνθος, flos, a flower, i. e. Blood-flower.]

The Characters are,

The flower has a permanent empalement of ſix leaves, which is large, and ſhaped like an umbel. It hath one erect petal, which is cut into ſix parts, having a ſhort angular tube, and ſix awl-ſhaped ſtamina, which are inſerted in the petal, but are longer, terminated by oblong proſtrate ſummits. The germen is ſituated under the flower, ſupporting a ſingle ſtyle the length of the ſtamina, crowned by a ſingle ſtigma. The germen afterward becomes a roundiſh berry with three cells, each containing one triangular ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, which includes the plants whoſe flowers have ſix ſtamina and one ſtyle.

The Species are,

1. Hæmanthus (*Coccineus*) foliis linguiformibus planis lævibus. Prod. Leyd. 42. *Blood-flower with plain, tongue-ſhaped, ſmooth leaves.* Hæmanthus Africanus. H. L. Bat. *African Blood-flower, or Cape Tulip.*
2. Hæmanthus (*Carinatus*) foliis longioribus carinatis. *Blood-flower with longer keel-ſhaped leaves.*
3. Hæmanthus (*Puniceus*) foliis lanceolato ovatis undulatis erectis. Hort. Cliff. 127. *Blood-flower with ſpear-ſhaped, waved, erect leaves.* Hæmanthus colchici foliis perianthio herbaceo. Hort. Elth. 167. *Blood-flower with Meadow Saffron leaves, and an herbaceous involucrum.* Dracunculoides. Boerh. Ind. alt. 2. 226. *Baſtard Dragon.*

The firſt ſort has been many years in ſeveral curious gardens in Europe, where it hath ſeldom flowered. This hath a large bulbous root, from which in the autumn comes out two broad flat leaves, of a fleſhy conſiſtence, ſhaped like a tongue, which turn backward on each ſide, and ſpread flat on the ground, ſo have a ſingular appearance all the winter; and in the ſpring theſe leaves decay, ſo that from the end of May to the beginning of Auguſt, they are deſtitute of leaves: when theſe produce their flowers, it is always in the autumn, juſt before the new leaves come out. In the books where this plant is figured, the flowers are repreſented growing upon a ſtrong upright foot-ſtalk; but all thoſe which I have ſeen in flower, never have riſen more than two or three inches from the bulb, with a large cluſter of bright red flowers, incloſed in a common leafy-coloured empalement; theſe were tubulous, with one petal cut into ſix parts, each having ſix long ſtamina, ſtanding out beyond the petal, and in the center appears the germen ſitting under the flower, ſupporting a ſingle ſtyle, crowned with a ſtigma. The germen never ripens to a ſeed in England, but decays with the flower, and then the green leaves grow and ſpread on the ground.

The ſecond ſort hath a large bulbous root like the firſt, which ſends out three or four leaves, that grow a foot long or more; theſe are not flat like thoſe of the other, but are hollowed like the keel of a boat, and ſtand more erect than thoſe of the former ſort, but are not quite ſo broad; the flowers of this are like thoſe of the firſt, but are of a paler red; this is certainly different from the other. I received the roots of this from Dr. Van Royen, profeſſor of botany at Leyden.

The third ſort hath roots compoſed of many thick fleſhy tubers, which join at the top, where they form a head, out of which ariſes a fleſhy ſpotted ſtalk, like that of the dragon, which ſpreads out at the top into ſeveral ſpear-ſhaped leaves, which are waved on their edges. The ſtalks grow about a foot high, and the leaves are ſix or eight inches long, and two broad in the middle; from the ſide of this ſtalk near the ground, breaks out a ſtrong fleſhy foot-ſtalk, about ſix or eight inches long, ſuſtaining at the top a large cluſter of flowers, included in one common empalement or covering, which is permanent; the flowers are ſhaped like thoſe of the other ſorts, but are of a yellowiſh red colour. Theſe appear in May, June, or July, and are ſucceeded by berries which are of a beautiful red colour when ripe.

The two firſt ſorts are with difficulty propagated in Europe, for their roots put out offſets but ſparingly, ſo the gardens in Holland are ſupplied with them from the Cape of Good Hope, where they naturally grow, and produce ſeeds; the plants are too tender to thrive in this country in winter in the open air, therefore the roots muſt be planted in pots filled with light loamy earth, and, in the winter, placed in a dry glaſs-caſe, where, during that ſeaſon, the leaves will be in full vigour, ſo will make a pretty appearance, when intermixed with other plants in the ſtove; and though they ſeldom flower here, yet are they worthy of a place in every garden where there is conveniency of keeping them. The roots may be taken up when their leaves are decayed, and kept out of the ground till Auguſt, when they ſhould be new potted, and may remain abroad till the end of September, at which time they may be removed into the glaſs-caſe; and during the time they are growing, will require to have frequent waterings, but it muſt not be given to them in large quantities.

If a border is made either againſt the front of the green-houſe or ſtoves, which may be contrived ſo as to be covered with glaſſes in winter, in which theſe roots, with the African Gladiolus's, Ixia's, Perſian Cyclamens, &c. are planted in the full ground, they will flower more conſtantly, and the foot-ſtalks will riſe much higher than thoſe kept in pots.

The third ſort is alſo a native of the Cape of Good Hope, from whence it was firſt brought to Holland, where it has been propagated and diſperſed over Europe; this may be propagated by parting of the roots; the beſt time for this is in the ſpring, before the plants put out new ſtalks, which is alſo a right time to ſhift and new-pot them; but as the roots do not multiply very faſt in offſets, the beſt way is to propagate them from ſeeds, which they ripen plentifully in England; theſe ſhould be ſown ſoon after they are ripe, in pots filled with light earth, and kept in the ſtove all the winter; if theſe pots are plunged into the tan-bed in the bark-ſtove, in the vacancies between the plants, the earth will be kept warm, and will not dry ſo faſt, as when they are placed in a dry ſtove, ſo the ſeeds will be ſooner prepared to vegetate; in the ſpring the pots may be taken out of the ſtove, and plunged into a hot-bed, which will bring up the plants; theſe muſt have air admitted to them every day in mild weather, to prevent their drawing up weak; and when they are fit to remove, they may be each planted in a ſeparate ſmall pot filled with light earth, and plunged into the hot-bed again, to promote their taking new root; then they muſt be gradually hardened, and afterward may be removed into the dry ſtove, where they ſhould conſtantly remain, otherwiſe the plants will not thrive and flower in this country. In the winter ſeaſon they muſt not have too much wet, for as their roots are fleſhy and ſucculent, ſo they are apt to rot with moiſture. In the ſummer they muſt have a large ſhare of air in warm weather, and require to be frequently watered, eſpecially during the time of their flowering.

HÆMATOXYLUM. Lin. Gen. Plant. 417. Bloodwood, Logwood, or Campeachy Wood.

The Characters are,

The flower hath a permanent empalement, which is cut into five oval ſegments. It hath five oval petals which are equal, and larger than the empalement, and ten awl-ſhaped ſtamina, which are longer than the petals, terminated by ſmall ſummits. In the center is ſituated an oblong oval germen, ſupporting a ſingle ſtyle, crowned by a thick indented ſtigma. The germen afterward becomes a compreſſed obtuſe capſule, with one cell, opening with two valves, containing two or three oblong kidney-ſhaped ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, which includes thoſe plants whoſe flowers have ten ſtamina and one ſtyle.

We have but one Species of this genus, viz.

Hæmatoxylum (*Campechianum*). Hort. Cliff. 161. *Logwood*, Lignum Campechianum, ſpecies quædam. Sloan. Cat. Jam 213. *Campeachy Wood.*

This tree grows naturally in the Bay of Campeachy, at Honduras, and other parts of the Spaniſh West-Indies, where it riſes from ſixteen to twenty-four feet high. The ſtems are generally crooked, and very deformed, and are ſeldom thicker than a man's thigh. The branches come out on every ſide; they are crooked, irregular, and armed with ſtrong thorns, garniſhed with winged leaves, compoſed of three or four pair of lobes, which are obtuſe, and indented at the top. The flowers come out in a racemus from the wings of the leaves, ſtanding erect; they are of a pale yellowiſh colour, with a purple empalement, and are ſucceeded by flat oblong pods, each containing two or three kidney-ſhaped ſeeds.

The wood of this tree is brought to Europe, where it is uſed for dyeing purples, and for the fineſt blacks, ſo is a valuable commodity; but the Spaniards, who claim a right to the poſſeſſion of thoſe places where it naturally grows, are for excluding all other countries from cuting of the wood, which has occaſioned many diſputes with their neighbours, but particularly with the Engliſh; this it is to be hoped will ſoon be over, as there are ſome of the planters in Jamaica, and the other iſlands in America, belonging to the crown of Great-Britain, who have propagated this tree in ſo great plenty, as to have hopes of ſupplying the demand for this wood in Britain in a very few years; for the trees grow ſo faſt there, as to be fit for uſe in ten or twelve years years from ſeed; and as they produce great plenty of ſeeds in the Britiſh colonies, ſo thoſe ſeeds ſcattering about, the plants come up in all the neighbouring lands, therefore will ſoon be like an indigenous plant of the country.

Some of the planters in Jamaica have incloſed their eſtates with hedges formed of theſe trees, which are very ſtrong and durable; but where the hedges are cut, it will greatly retard the growth of the trees, ſo that thoſe who propoſe to make an advantage by the propagation of the wood, ſhould ſow the ſeeds upon ſwampy lands, which may be unfit for growing of ſugar, and permit all their branches to remain, which will be of great uſe in augmenting the bulk of their ſtems; and if, while the plants are young, they are kept clean from weeds, &c. it will be of great advantage in promoting of their growth. I have been credibly informed by ſome of the planters in Jamaica, that they have had ſome plants of this ſort upward of ten feet high in three years, ſo that it requires but few years to raiſe a ſupply of this wood, ſufficient to anſwer all the demands for it.

This plant is preſerved in ſome curious gardens in England, for the ſake of variety. The ſeeds are frequently brought from America, which, if freſh, readily grow when ſown upon a good hot-bed; and if the plants are kept in a moderate hot-bed, they will grow to be upward of a foot high the ſame year, and, while the plants are young, they are generally well furniſhed with leaves; but afterward they make but little progreſs, and are frequently but thinly clothed with leaves. Theſe plants are very tender, ſo ſhould be conſtantly kept in the bark-ſtove, where, if they are duly watered, and the ſtove kept in a good degree of heat, the plants may be preſerved very well. There are ſome of theſe plants now in England, which are upward of ſix feet high, and as thriving as thoſe in their native ſoil.

HALESIA. Lin. Gen. Plant. 596.

The CHARACTERS are,

The flower hath a ſmall permanent empalement of one leaf, indented in four parts; it hath a bell-ſhaped ſwelling flower of one petal, divided at the brim into four lobes, and from twelve to ſixteen ſtamina, ſhorter than the petal, terminated by oblong erect ſummits; the germen is ſituated below, is oblong, ſupporting a ſlender ſtyle longer than the petal, crowned by a ſimple ſtigma; the germen afterward becomes an oblong nut, narrowed at both ends, having four angles, with two cells, incloſing a ſingle ſeed in each.

This genus of plants is ranged in the firſt ſection of Linnæus's eleventh claſs, intitled Dodecandria Monogynia, the flower having twelve ſtamina and one ſtyle.

The SPECIES are,

1. HALESIA (*Tetraptera*) foliis lanceolato-ovatis, petiolis glanduloſis. Lin. Sp. 636. *Haleſia with oval ſpear-ſhaped leaves, whoſe foot-ſtalks are glandulous.* Frutex padi foliis ſerratis, floribus monopetalus albis campaniformibus, fructu craſſo tetragono. Cateſb. Hiſt. Carol. 1. p. 64.
2. HALESIA (*Diptera*), foliis ovatis, petiolis lævibus. Lin. Sp. 636. *Haleſia with oval leaves having ſmooth foot-ſtalks.*

This genus of plants received its title from the late learned and reverend Doctor Hales, miniſter of Teddington, near Hampton-Court.

Both the ſorts grow naturally in South-Carolina; the firſt on the banks of Santee river, where it frequently comes up with two or three ſtems from the ſame root, which riſe from fifteen to twenty feet high, ſending out branches toward their tops, garniſhed with oval ſpear-ſhaped leaves, ſawed on their edges: the flowers are produced on the ſide of the branches in cluſters, from two or three to ſix or ſeven in each; they are bell-ſhaped, hanging downward, of one petal, white, which is indented in four parts at the brim; theſe are ſucceeded by oblong nuts, having four wings and four cells, each containing one oblong ſeed.

The ſecond ſort hath much reſemblance to the firſt, the leaves are oval, and the foot-ſtalks are ſmooth; the fruit has but two angles.

Theſe plants are propagated by ſeeds, when they can be procured freſh from the places of their natural growth. Theſe ſhould be ſown in pots as ſoon as the ſeeds arrive, plunging the pots into the ground, in a ſituation where they may have only the morning ſun. The ſeeds often remain a year in the ground, therefore the earth in the pots ſhould not be diſturbed, until there is no probability of the ſeed growing. When the plants appear, they ſhould be ſcreened from the ſun, and frequently, but not too plentifully watered; for while the plants are young, much moiſture will rot their ſhanks. The following autumn, the pots ſhould be placed in a common frame, where the plants may enjoy the free air in mild weather, and be ſcreened from froſt. The ſpring following, before the plants begin to ſhoot, they ſhould be each put into a ſeparate ſmall pot, plunging them in a frame, where they ſhould be ſhaded from ſun; and in the ſummer placed in a ſhady ſituation, ſcreening them in winter; and the ſpring following they may be turned out of the pots, and planted in the full ground where they are deſigned to remain.

HALICACABUM. See PHYSALIS.

HALICACABUS PEREGRINA. See CARDIOSPERMUM.

HALIMUS. See ATRIPLEX.

HALLERIA. Lin. Gent. Plant. 679. Caprifolium. Boerh. Ind. alt. 2. p. 226. *African Fly Honeyſuckle.*

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, which is cut into three parts at the top, the upper ſegment being much broader than the other. It hath one petal of the grining kind. The bottom of the tube is roundiſh. The chaps are ſwollen and inflexed, the brim is erect and oblique, cut into four ſegments, the upper being longer than the others, and is blunt, with an indenture at the top; the two ſide ones are ſhorter, and pointed, the lower is very ſhort and acute. It hath four ſtamina, which are briſtly, two being longer than the other, terminated by twin ſummits. In the bottom of the tube is ſituated an oval germen, with a ſtyle longer than the ſtamina, crowned by a ſingle ſtigma. The germen afterward becomes a roundiſh berry with two cells, each containing one hard ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, which includes the plants with a ringent flower, which have two long and two ſhorter ſtamina, and the ſeeds are included in a capſule.

We have but one SPECIES of this genus, viz.

HALLERIA (*Lucida*). Hort. Cliff. 323. This plant has its title from Dr. Haller, who was profeſſor of botany at Gottingen, in Germany. Caprifolium Africanum folio pruni leviter ſerrato, flore ruberrimo, baccâ nigrâ. Boerh. Ind. alt. 2. 226. *African Fly Honeyſuckle, with a Plumb leaf lightly ſawed, a very red flower, and a black berry.*

The Engliſh name which I have here added, has been given to this plant by ſome gardeners, who obſerved that the ſhape of the flower had ſome reſemblance to that of the Upright, or Fly Honeyſuckle, and for want of an Engliſh name gave this to it; or they might take it from the Latin name, by which it was called by Dr. Boerhaave, who made it a ſpecies of Honeyſuckle.

This plant grows to the height of ſix or eight feet, having a woody ſtem, which is well furniſhed with branches; theſe have oval ſawed leaves, which are placed oppoſite, and continue green through the year; the flowers come out ſingly, and are of a red colour, but, being intermixed with the leaves, are not ſeen unleſs they are looked after, for they grow ſcatteringly on the branches; theſe come out in June, and the ſeeds ripen in September; the leaves are green in winter, ſo the plants make a variety in the green-houſe during that ſeaſon.

It may be propagated by cuttings, which, if planted in pots filled with light earth in June, and plunged into a gentle hot-bed, will ſoon take root; theſe plants may be expoſed in ſummer, and will require plenty of water in that ſeaſon; in winter they muſt be houſed with Myrtles, and other hardy exotic plants, which require a large ſhare of air in mild weather.

HAMAMELIS. Lin. Gen. Plant. 155. Trilopus. Mitch. Gen. 22. *The Witch Hazel.*

The Characters are,

It is male and female in different plants; the male flowers have a four-leaved empalement, and four narrow petals, which are reflexed; they have four narrow ſtamina, which are ſhorter than the petals, terminated by horned reflexed ſummits. The female flowers have a four-leaved involucrum, in which are four flowers; theſe have a four-leaved empalement, which is coloured; they have four narrow petals, which are reflexed, and four nectariums adhering to the petals. In the center is ſituated an oval hairy germen, ſupporting two ſtyles, crowned by headed ſtigmas. The germen afterward becomes an oval capſule ſitting in the involucrum, having two cells, each containing one hard, oblong, ſmooth ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourth claſs, but properly belongs to the ſecond ſection of his twenty-ſecond claſs, which includes thoſe plants which have male and female flowers in different plants, whoſe female flowers have two ſtyles.

We have but one Species of this genus in the Engliſh gardens at preſent, viz.

Hamamelis (*Virginiana*). Flor. Virg. 139. *The Witch Hazel.* Piſtachia Virginiana nigra, coryli foliis. Pluk. Alm. 296. *Black Virginia Piſtachia with Hazel leaves.*

This plant grows naturally in North America, from whence the ſeeds have been brought to Europe, and many of the plants have been raiſed in the Engliſh gardens, where they are propagated for ſale by the nurſery gardeners. It hath a woody ſtem, from two to three feet high, ſending out many ſlender branches, garniſhed with oval leaves, indented on their edges, having great reſemblance to thoſe of the Hazel Nut, placed alternately on the branches; theſe fall away in autumn, and when the plants are deſtitute of leaves, the flowers come out in cluſters from the joints of the branches; theſe ſometimes appear the latter end of October, and often not till December, but are not ſucceeded by ſeeds in this country.

As the flowers of this ſhrub make very little appearance, ſo it is only preſerved in the gardens of the curious, more for the ſake of variety than its beauty.

This is propagated by laying down the young branches in autumn, which will take root in one year, provided they are duly watered in dry weather; but many of the plants which are in the gardens, have been produced from ſeeds which came from America; theſe ſeeds always remain a whole year in the ground, ſo they ſhould be ſown in pots, which may be plunged into the ground in a ſhady part of the garden, where they may remain all the ſummer, and require no other care but to keep the pots clean from weeds, and in very dry weather to water them now and then; in autumn the pots may be removed to a warmer ſituation, and plunged into the ground under a warm hedge; and if the winter ſhould prove very ſevere, they ſhould have ſome light covering thrown over the pots, which will ſecure the ſeeds from being deſtroyed.

In the ſpring the plants will come up, therefore as the ſeaſon grows warm, the pots may be removed where they may have the morning ſun till eleven o'clock; and if they are duly watered in dry weather, the plants will have made good progreſs by autumn, when they ſhould be tranſplanted, either into ſmall pots, or in a nurſery-bed, where in one, or at moſt two years time, they will be ſtrong enough to plant where they are deſigned to remain; they love a moiſt ſoil, and a ſhady ſituation.

HAMELLIA. Lin. Gen. 232.

The Characters are,

The empalement of the flower is ſmall, permanent, and cut into five acute ſegments; the flower is of one petal, having a long tube, whoſe brim is cut into five acute points; it hath five awl-ſhaped ſtamina inſerted to the middle of the petal, terminated by linear ſummits the length of the petal; and an oval germen, whoſe lower point is conical, ſupporting a ſlender ſtyle the length of the corolla, crowned by an obtuſe linear ſtigma: the germen afterward becomes an oval furrowed berry, with five cells, filled with ſmall compreſſed ſeeds.

This genus of plants is ranged in the firſt order of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle: it is named in honour of Monſieur du Hamel des Monceaux, member of the Academy of Sciences at Paris, and fellow of the Royal Society of London; a gentleman well known to the learned, by the many uſeful books he has publiſhed.

We know but one Species of this genus, viz.

1. Hamellia (*Patens*) racemis erectos. Jacq. Amer. 71. *Hamellia with erect ſpikes of flowers.*

This plant grows naturally in Africa, and alſo in the warm parts of America: I received the ſeeds from Paris, which were brought from Senegal by Mr. Adanſon, with the title of Mortura on the paper; and before that, received a drawing of the plant in flower, from the late Dr. Houſtoun, who found it growing naturally in America, where it has ſince been found growing by Mr. Jacquin, who has figured it.

It riſes with a ligneous ſtalk five or ſix feet high, ſending out ſeveral erect branches toward the top, garniſhed with oval woolly leaves, placed by threes round the branches, having red foot-ſtalks; the flowers terminate the branches in ſlender ſpikes; they are tubulous, and cut at their brims into five ſharp ſegments, ſtanding erect, of a bright red colour: theſe are not ſucceeded by ſeeds in England.

This plant is propagated by ſeeds, when they can be procured freſh from the countries where it grows naturally: theſe ſhould be ſown in ſmall pots, and plunged into a moderate hot-bed: the plants generally appear in about five or ſix weeks after, and ſhould then be treated in the ſame way as other plants from the ſame countries; giving them proper air in warm weather, and gently refreſhing them with water; and when they are fit to tranſplant, they ſhould be each planted in a ſmall pot, plunging them into the hot-bed again, where they ſhould be ſhaded from the ſun until they have taken new root, when they ſhould have air and moiſture according to the warmth of the ſeaſon. In the autumn the plants muſt be removed into the tan-ſtove, plunging the pots into the bed, where they ſhould be always continued: this flowers in July and Auguſt, when it makes a pretty appearance.

As the ſeeds of this plant are ſeldom brought to England, ſo the plant may be propagated by cuttings, which if planted in ſmall pots, plunged into a moderate hot-bed, and cloſely covered with either bell or hand-glaſſes, will put out roots in about ſix weeks, and may then be treated in the ſame way as the ſeedling plants.

HARMALA. See Peganum.

HASSELQUISTIA. Lin. Gen. 341.

The Characters are,

It is an umbelliferous plant, whoſe univerſal umbel is compoſed of ſix ſpreading rays; theſe are for the moſt part double; the greater involucrum has many ſhort briſtly *leaves; the proper empalement is very ſmall, and hath five indentures; the general umbel is half radiated; the outer flowers are fruitful, but thoſe in the diſk are barren; they have five petals, and five ſlender ſtamina longer than the petals, terminated by roundiſh ſummits: the turbinated germen is ſituated under the flower, ſupporting two ſlender recurved ſtyles, crowned by obtuſe ſtigmas; the germen afterward becomes an orbicular fruit, compoſed of two ſeeds having borders.*

This genus of plants is ranged in the ſecond order of Linnæus's fifth claſs, intitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

It it named after Mr. Haſſelquiſt, who was a pupil of Dr. Linnæus.

1. Hasselquistia (*Ægyptiaca*). Amœn. Acad. 4. p. 370. *Egyptian Haſſelquiſtia.* Paſtinaca Orientalis, foliis eleganter inciſis. Buxb. Cent. 3. p. 16.

This plant is bennial, and being a native of warm countries, is with difficulty preſerved in England; for when the plants come up early in the ſpring, they do not perfect their ſeeds the ſame year: and thoſe plants which ariſe in the autumn, ſeldom live through the winter; therefore the ſureſt method to procure good ſeeds in this country, is to ſow the ſeeds in pots about the middle of Auguſt, placing the pots where they may have the morning ſun only, being careful to water them duly; and as weeds will come up in the pots to take them out, and where the plants are too cloſe, thin them; in October remove the pots into a common frame, where they may enjoy the free air in mild weather, but be ſcreened from froſt: in the ſpring following, if the plants are carefully turned out of the pots, and planted in the full ground, they will flower in June, and the ſeeds will ripen in Auguſt.

HAWTHORN. See Mespilus.

HAZEL. See Corylus.

HEDERA. Lin. Gen. Plant. 249. Tourn. Inſt. R. H. 612. tab. 384. *The Ivy-tree.*

The Characters are,

The flowers are diſpoſed in form of an umbel, having a ſmall involucrum indented in many parts. The empalement is cut into five parts, and ſits upon a germen. The flower hath five oblong petals, which ſpread open, whoſe points are incurved; they have five awl-ſhaped ſtamina, terminated by proſtrate ſummits, which are cut into two at their baſe. The germen, which is ſituated below the flower, ſupports a ſhort ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes a globular berry with one cell, incloſing four or five large ſeeds, convex on one ſide, and angular on the other.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and but one ſtyle.

The Species are,

1. Hedera (*Helix*) foliis ovatis lobatiſque. Flor. Lapp. 91. *Ivy with oval lobed leaves.* Hedera arborea. C. B. P. 305. *Tree Ivy*; and the Hedera communis major. J. B. 2. 111. *Great common Ivy.*
2. Hedera (*Quinquefolia*) foliis quinatis, ovatis, ſerratis. Hort. Cliff. 74. *Ivy with leaves compoſed of five lobes, which are ſawed.* Vitis quinquefolia Canadenſis ſcandens. Tourn. Inſt. 613. *Climbing Canada Vine with five leaves, commonly called Virginia Creeper.*

The firſt ſort grows naturally in moſt parts of England, where it meets with any neighbouring ſupport. The ſtalks will faſten to it, and riſe to a very great height, ſending out roots on every ſide, which get into the joints of walls, or the bark of trees, and thereby are ſupported; or if there is no ſupport near, the ſtalks trail upon the ground, and take root all their length, ſo that they cloſely cover the ſurface, and are difficult to eradicate; for where any ſmall parts of the ſtalks are left, they will ſoon ſpread and multiply. While theſe are fixed to any ſupport, or trail upon the ground, their ſtalks are ſlender and flexible; but when they have reached to the top of their ſupport, they ſhorten and become woody, forming themſelves into large buſhy heads, and their leaves are larger, more of an oval ſhape, and not divided into lobes like the lower leaves, that it hath a different appearance, which has occaſioned ſome to take them for diſtinct ſpecies.

In the latter part of the laſt century, when it was the faſhion to fill gardens with all ſorts of ſheered Ever-greens, there were many of theſe plants trained into round heads, which were clipped into balls, or in form of a cone; and as theſe were ſo hardy as not to be injured by weather, and would grow in any ſoil, ſo they were then much eſteemed; but ſince that unnatural taſte has been exploded, theſe plants are ſeldom admitted into gardens, unleſs to cover walls, or run over grottos, &c. for which purpoſe there is no plant ſo well adapted.

There are two varieties of this, one with ſilver-ſtriped leaves, and the other with yellowiſh leaves on the top of the branches; theſe are preſerved in ſome gardens for the ſake of variety.

Theſe plants are eaſily propagated by their trailing branches, which ſend forth roots their whole length; which branches being cut off, and planted, will grow in almoſt any ſoil or ſituation, and may be trained up to ſtems, or ſuffered to remain as climbers, to cover walls, pales, &c.

They may alſo be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, which is in the beginning of April: if theſe are kept moiſt and ſhaded, they will grow the ſame ſpring, otherwiſe they will remain a year in the ground; therefore few perſons trouble themſelves to propagate the plants in this way, the other being much more expeditious.

While the ſtalks of this plant trail, either on the ground or upon walls, or other ſupport, they do not produce any flowers, which has occaſioned its being called ſterile, or barren Ivy; but when the branches get above their ſupport, they produce flowers at the end of every ſhoot; theſe appear in September, and are ſucceeded by berries, which turn black before they are ripe, and are formed into round bunches, which are called corymbi, and from theſe the epithet of corymbus, ſo frequently uſed by botaniſts, is taken.

The leaves of this plant are frequently applied to iſſues to keep them cool, and free from inflammations; they are alſo uſed for curing of ſcabs, ſores, and ſcald heads. Mr. Boyle, in his Uſefulneſs of Experimental Philoſophy, commends a large doſe of the full ripe berries, as a remedy againſt the plague; but Schroder ſays, they purge upward and downward. The gum of Ivy is cauſtic, but is recommended by ſome to take ſpots and freckles out of the face.

There is mention made of another ſpecies of Ivy, which is titled Hedera Poetica, by Caſpar Bauhin; this grows in many of the iſlands of the Archipelago, and produces yellow berries; but as I have not ſeen this plant, I cannot determine if it is a diſtinct ſpecies. Dr. Linnæus ſuppoſes it to be only a variety, though he has not ſeen the plant; but Tournefort, who gathered it in the Levant, puts it down as a different ſort.

The ſecond ſort grows naturally in all the northern parts of America; it was firſt brought to Europe from Canada, and has been long cultivated in the Engliſh gardens, chiefly to plant againſt walls, or high buildings to cover them, which theſe plants will do in a ſhort time, for they will ſhoot almoſt twenty feet high in one year, and will mount up to the top of the higheſt building; but as the leaves fall off in autumn, the plants make but an indifferent appearance in winter; and as it is late before they come out in the ſpring, they are not much eſteemed, unleſs it is for ſuch ſituations, where better things will not thrive; for this plant will thrive in the midſt of London, and is not injured by ſmoke, or the cloſeneſs of the air, ſo are very proper for ſuch ſituations. The ſtalks of theſe plants put out roots, which faſten themſelves into the joints of the walls, whereby they are ſupported.

This may be propagated by cuttings, which if planted in autumn on a ſhady border, will take root, and by the following autumn will be fit to plant where they are deſigned to remain.

HEDERA TERRESTRIS. See Glechoma.

HEDGES. Hedges are either planted to make fences round incloſures, or to part off and divide the ſeveral parts of a garden: when they are deſigned as outward fences, they are planted either with Hawthorn, Crabs, or Black Thorn, which is the Sloe; but thoſe Hedges which are planted in gardens, either to ſurround wilderneſs quarters, or to ſcreen the other parts of a garden from ſight, are planted with various ſorts of plants, according to the fancy of the owner; ſome preferring ever-green Hedges, in which caſe the Holly is beſt, next the Yew, then Laurel, Lauruſtinus, Phillyrea, &c. others, who make choice of the deciduous plants, prefer the Beach and Hornbeam, Engliſh Elm, or the Alder, to any other; I ſhall firſt treat of thoſe Hedges which are planted for outſide fences, and afterward briefly touch on the other.

Theſe Hedges are moſt commonly made of Quick, yet it will be proper, before planting, to conſider the nature of the land, and what ſorts of plants will thrive beſt in that ſoil, whether it be clay, gravel, ſand, &c. likewiſe what the ſoil is from whence the plants are to be taken; for if the land they are taken from is much better than that in which they are to be planted, it will be more difficult to get them to grow. As for the ſize, the ſets ought to be about the bigneſs of a gooſe quill, and cut within about four or five inches of the ground; they ſhould be freſh taken up, ſtrait, ſmooth, and well rooted. Thoſe plants which are raiſed in the nurſery, are to be preferred to all others, and if raiſed on a ſpot near the place, it will be beſt.

Secondly, If the Hedge has a ditch, it ſhould be made ſix feet wide at top, and one foot and a half at bottom, and three feet deep, that each ſide may have a proper ſlope; for when the banks are made too upright, they are very ſubject to fall down after every froſt or hard rain; beſides, if the ditches are made narrower, they are ſoon choked up in autumn by the falling leaves, and the growth of weeds, nor are they a ſufficient fence to the Hedge againſt cattle, where they are narrower.

Thirdly, If the bank be without a ditch, the ſets ſhould be ſet in two rows, almoſt perpendicular, at the diſtance of a foot from each other, in the quincunx order, ſo that in effect they will be but ſix inches aſunder.

Fourthly, The turf is to be laid with the Graſs ſide downwards, on that ſide of the ditch the bank is deſigned to be made, and ſome of the beſt mould ſhould be laid upon it, to bed the Quick; then the Quick is to be planted upon it a foot aſunder, ſo that the ends of the Quick may ſtand upright.

Fifthly, When the firſt row of Quick is planted, it muſt be covered with mould, and the turf laid upon it as before; ſo that when the bank is a foot high, you may plant another row of ſets againſt the ſpaces of the lower Quick, and cover them as the former was done; and the bank is to be topped with the bottom of the ditch, and a dry, or dead Hedge laid on the other ſide, to defend the under plantation from the cattle.

In making of theſe dead Hedges, there ſhould be ſtakes driven into the looſe earth, at about two feet and a half diſtance, ſo low as to reach the firm ground.

Oak ſtakes are accounted the beſt, and Black Thorn and Sallow the next; then let the ſmall buſhes be laid at bottom, but not too thick, for that will cauſe the buſhes to rot; but the upper part of the Hedge ſhould be laid with long buſhes to bind the ſtakes in with, by interweaving them.

And, in order to render the Hedge yet ſtronger, you may edder it (as it is called,) i. e. bind the top of the ſtakes in with ſome ſmall long poles, or ſticks on each ſide; and when the eddering is finiſhed, drive the ſtakes anew, becauſe the waving of the Hedge and eddering is apt to looſen the ſtakes.

The Quick muſt be conſtantly kept weeded, and ſecured from being cropped by the cattle, and in February it will be proper to cut it within an inch of the ground, if it was not done before; which will cauſe it to ſhoot ſtrong, and help it much in the growth.

When a Hedge is of about eight or nine years growth, it will be proper to plaſh it; the beſt time for this work is either in October or February.

When a Hedge is grown old, i. e. of about twenty or thirty years growth, and there are in it old ſtubs as well as new ſhoots, the old ſtubs ſhould be cut ſloping off within two or three inches of the ground, and the beſt and longeſt of the middle ſize ſhould be left to lay down; and ſome of the ſtrongeſt, at the height of five or ſix feet, according as you deſign the height of the Hedge to be, may be left to ſerve inſtead of ſtakes, and freſh ſtakes ſhould be put in thoſe places where they are wanting; the Hedge ſhould be then thinned, ſo as to leave on the ſtubs only ſuch ſhoots as are deſigned to be of uſe, that there may be room left to put a ſpade in between them; the ditch alſo ſhould be cleanſed, and each ſide of the ſlopes kept as in a new ditch; and where the earth is waſhed from the roots of the Quick, or is hollow, face it anew with ſo much of the firſt ſpit of earth that is dug out of the ditch, as there is occaſion for, and lay what is dug out at the ſecond ſpit, on the top of the bank; for if it be laid on the ſide, or face of the bank, it will ſlip into the ditch again when wet comes, and alſo take a great deal of the bank along with it.

In plaſhing Quicks, there are two extremes to be avoided; the firſt is, laying it too low and too thick; becauſe it makes the ſap run all into the ſhoots, and leaves the plaſhes without nouriſhment, which, with the thickneſs of the Hedge, kills them.

Secondly, It muſt not be laid too high, becauſe this draws all the ſap into the plaſhes, and ſo cauſes but ſmall ſhoots at the bottom, and makes the Hedge ſo thin, that it will neither hinder the cattle from going through, nor from cropping of it.

When the ſhoot that is deſigned to be plaſhed is bent, give it a ſmall cut with a bill, half through, ſloping a little downwards, and then weave it about the ſtakes; and when the whole is finiſhed, trim off the ſmall ſuperfluous branches that ſtraggle too far out on both ſides of the Hedge.

If the ſtubs are very old, cut them quite down, and ſecure them with good dead Hedges on both ſides, till the young ſhoots are got up tall enough to plaſh, and plant new ſets in the void ſpaces.

In making a Hedge, if it be ſet with Crab Stocks, it will be proper to leave one ſtanding uncut up at every thirty or forty feet, if the ground on both ſides of the Hedge be your own; which being done, they may be ſo ordered, by pruning or ſtaking, that one may lean into one ground, and the other into another, &c.

Theſe ſtocks ſhould be pruned up every year, till they are brought out of the reach of the cattle, and then they may be grafted with the Red Streak, Gennetmoil, or what other kind of cyder Apple you pleaſe.

If the ſtocks be of Apple kernels, they may ſtand ungrafted, for many of them will yield very good cyder fruit; but then ſuch ſtocks as are not grafted, will be longer before they bear; and alſo when you do graft, you may be certain of your kind; but if you find a very natural ſtock, which by leaf, ſhoot, and bud, appears likely, you may try it, and ſo you may have a new fine fruit; and if you do not like it, you may graft it when you pleaſe.

As for the reſt of the Hedge, when it has ſhot four or five years, you may lay it to make a fence for the doing of which, take the following directions:

Firſt, At every laying to lay down ſome old plaſhes; or, if the Hedge be thin, young ones; but they muſt be ſo laid, as to point with their ends to the ditch ſide of the bank, the ends being kept low on the bank; by being ſo ordered, they will the better thicken the bottom of the Hedge, and keep up the earth of the bank.

Secondly, To heighten the bank every time you lay earth on it, ſo as to cover the layers, all but the ends, this earth will very much help the Quick; and by heightening the banks, and deepening the ditch, you will render the fence the better.

Thirdly, Not to cut the plaſhes too much, but juſt ſo as they may bend down well; nor to lay them too upright, as ſome do, but to lay them near to a level; for by ſo doing, the ſap will the better break out at ſeveral places, and not run ſo much to the ends, as it will when they lie too much upon the ſlope.

If you have much wood to ſpare, you may cut up great part of thoſe that grow near the ditch, but then you ought to hang the bank with buſhes, to prevent cattle from cropping them the firſt year; theſe will ſhoot ſtrong, ſecure the Hedge, keep up the bank, and thicken the bottom of the Hedge.

Fourthly, Take care to lay the Hedge pretty thick, and turn the beard on the ditch ſide; but you muſt not let the beard hang uncut (though it makes a good ſhew at the firſt making), but you muſt cut off all the ſtraggling boughs within half a foot of the Hedge on both ſides, which will cauſe it to ſhoot ſtrong at theſe places, and make the Hedge much the thicker.

Fifthly, If the bank be high, make the Hedge ſo low, that it may juſt ſerve for a fence the firſt year, for it will ſoon grow higher; and the lower the Hedge is made, the faſter the Quick will grow, and alſo will be the thicker at the bottom; but care muſt be taken to preſerve it from cattle on the field ſide for the two firſt years that it is made.

Sixthly, If you would have a good Hedge, or fence, you ſhould new lay it once in fourteen or fifteen years, and conſtantly root out Elder, Travellers Joy (which ſome call Bull-bine), Briony, &c. and do not leave too many high ſtandards, or pollards in it, though the Elm is one of the beſt; alſo no dead wood is to be left in the bottom of the Hedges, for that will choke the Quick; but if there be a gap, the dead Hedge ſhould be made at a diſtance.

The Crab is alſo frequently planted for Hedges, and if the plants are raiſed from the kernels of the ſmall wild Crab, they are much to be preferred to thoſe which are raiſed from kernels of all ſorts of Apples without diſtinction; becauſe the plants of the true ſmall Crab never ſhoot ſo ſtrong as thoſe of the Apples, ſo may be better kept within the proper compaſs of a Hedge; and as they have generally more thorns upon them, they are better guarded againſt cattle, &c. than the other; beſides, the plants of the Crab will grow more equal than thoſe which are raiſed from the kernels of various kinds of Apples, for theſe always produce a variety of plants, which differ from each other in their manner of growth, as much as in the ſize and flavour of their fruits; ſo that Hedges made of theſe will not appear ſo well, nor can be ſo well managed as the other.

Some perſons intermix Crab with the White Thorn in their Hedges, but this is not a good method; for the plants of the Crab will grow much ſtronger than thoſe of the White Thorn, ſo that the Hedge will not be of equal growth; which is not near ſo beautiful or uſeful, as when the plants of a Hedge keep pace in their growth.

The Black Thorn, or Sloe, is alſo frequently planted for Hedges, and is a ſtrong durable plant for that purpoſe, eſpecially as it is ſo ſtrongly armed with thorns, that cattle ſeldom care to brouze upon it; but where this is planted, the beſt way is to raiſe the plants from the ſtones of the fruit; for all thoſe which are taken from the roots of old trees, ſpawn, and put out ſuckers in ſuch plenty from their roots, as to ſpread over, and fill the neighbouring ground to a conſiderable diſtance on each ſide of the Hedge; and this plenty of ſuckers drawing away the nouriſhment from the old plants of the Hedge, they never grow ſo well as where there are few or no ſuckers produced, which thoſe plants which are propagated from the ſtones ſend not forth, or at leaſt but ſparingly, therefore may with little trouble be kept clear of them. The beſt method of raiſing theſe Hedges is, to ſow the ſtones in the place where the Hedge is intended (where it can be conveniently done), for then the plants will make a much greater progreſs than thoſe which are tranſplanted; but the objection to this method will ariſe from the difficulty of ſecuring the young plants from the cattle; but this can have little force, when it muſt be conſidered, that if the Hedge is planted, it muſt be fenced for ſome years, to prevent the cattle from deſtroying it; therefore the ſame fence will do for it when ſown, nor will this require a fence much longer than the other. For the plants which ſtand unremoved, will make a better fence in ſeven years, than that which is planted, though the plants ſhould be of three or four years growth when planted; which is what I have ſeen two or three times, where the experiment has been tried. The ſtones of this fruit ſhould be ſown early in January, if the weather will permit; but when they are kept out of the ground longer, it will be proper to mix them with ſand, and keep them in a cool place. The buſhes of the Black Thorn are by much the beſt of any for making of dead Hedges, being of longer duration, and having many thorns, neither the cattle nor the Hedge-breakers, will care to meddle with them; theſe buſhes are alſo the beſt to be uſed for under ground drains, for the draining of land, for they will remain ſound a long time when the air is excluded from them.

The Holly is ſometimes planted for Hedges, and is a very durable ſtrong fence; but where it is expoſed, there will be great difficulty to prevent its being deſtroyed, otherwiſe it is by far the moſt beautiful plant, and being an Evergreen, will afford much better ſhelter to cattle in winter, than any other ſort of Hedge; and the leaves being armed with thorns, the cattle will not care to brouze upon it. Another objection to this plant is the ſlow growth, ſo that Hedges planted with this plant, require to be fenced a much longer time than moſt others. This is a reaſon which muſt be admitted, to prevent this being generally practiſed; but in ſuch grounds as lie contiguous to, or in ſight of gentlemen's houſes, theſe ſort of Hedges will have an exceeding good effect, eſpecially when they are well kept, as they will appear beautiful at all ſeaſons of the year; and in the ſpring of the year, when the ſharp winds render it unpleaſant to walk abroad in expoſed places, theſe Hedges will afford good ſhelter, as they will effectually keep off the cold winds, if they are kept cloſe and thick. The ſureſt method of raiſing theſe Hedges is, by ſowing the berries in the place where they are to ſtand; but theſe berries ſhould be buried in the ground one year before they are ſown, by which method they will be prepared to grow the following ſpring. The way of doing this is, to gather the berries about Chriſtmas (which is the time they are uſually ripe,) and put them into large flower-pots, mixing ſome ſand with them; then dig holes in the ground, into which the pots muſt be ſunk, covering them over with earth about ten inches thick; in this place they may remain till the following October, when they ſhould be taken up, and ſown in the place where the Hedge is intended. The ground for this Hedge ſhould be well trenched, and cleared from the roots of all bad weeds, buſhes, trees, &c. Then two drills ſhould be made at about a foot diſtance from each other, and about two inches deep, into which the ſeeds ſhould be ſcattered pretty cloſe, leſt ſome ſhould fail; for it is better to have too many plants come up, than to want. The reaſon of my adviſing two drills is, that the Hedge may be thick to the bottom, which in a ſingle row rarely happens, eſpecially if there is not great care taken of them in the beginning. When the plants come up, they muſt be carefully weeded; for if the weeds are permitted to grow among them, they will ſoon deſtroy them, or weaken them ſo much, that they will not recover their ſtrength in a long time. This ſhould be conſtantly obſerved, by every perſon who is deſirous to have good Hedges of either ſort; for when the weeds are ſuffered to grow near the plants, they will not only rob them of a great part of their nouriſhment, but alſo prevent their putting out ſhoots near the ground, which will occaſion the bottom of the Hedge to be thin and naked.

When theſe Holly Hedges are deſigned to be kept very neat, they ſhould be ſheered twice a year, in May and Auguſt; but if they are only deſigned as fences, they need not be ſheered oftener than once a year, which ſhould be about the latter end of June, or the beginning of July; and if this is well performed, the Hedges may be kept very beautiful.

The fences which are made to ſecure theſe Hedges from cattle while they are young, ſhould be contrived ſo as to admit as much free air as poſſible, which is abſolutely neceſſary for the growth of the plants; for when they are crowded on each ſide with dead Hedges, the plants ſeldom thrive well. The beſt ſort of fences for this purpoſe, are thoſe which are made with poſts and rails; or inſtead of rails, three ropes drawn from poſt to poſt, and holes made in the poſts to draw the ropes through; this is the cheapeſt fence of this kind, and will appear very handſome; but if ſheep are not admitted into the fields, there will be occaſion for two ropes only, which will be enough to keep off larger cattle; and if the ropes are painted over with a compoſition of melted pitch, brown Spaniſh colour, and oil, mixed well together, they will laſt ſound ſeveral years; and theſe ſort of fences never obſtruct the air, and the place, at the ſame time being open to view, the weeds will be better diſcovered than when the fences are cloſe. In the latter caſe, the Hedges are ſometimes ſuffered to be over-run with weeds, by their being excluded from the ſight, ſo are frequently forgotten, eſpecially in moiſt weather, when the weeds grow more luxuriant.

There are ſome perſons who intermix Holly with the White Thorn in making their Hedges, which if rightly managed, will have a good effect, eſpecially when young; but when this is practiſed, the Holly ſhould be planted ſo near, as that the Hedge may be entirely formed of it as it grows up, when the White Thorn ſhould be quite rooted out; for as theſe advance, they will not keep pace in their growth, ſo will not appear beautiful when intermixed.

When a Hedge of Holly is intended to be made by plants, the ground ſhould be well trenched, as was before adviſed for the ſeeds; and (unleſs the ground be very wet) the plants ſhould be ſet in October, but, in wet ground, March is preferable. The plants ſhould not be taken from a better ſoil than that in which they are to be planted; for when it ſo happens, the plants are much longer before they recover this change, than thoſe are which are taken from a leaner ſoil. If the plants have been before removed two or three times, they will have better roots, and will be in leſs danger of miſcarrying; beſides, they may be removed with balls of earth to their roots. When the froſt comes on, if mulch be laid upon the ground near the roots of the plants, it will prevent the tender fibres, which may then have been put out, from being deſtroyed by the cold. I would never adviſe the planting of Hedges with Holly plants, of above five or ſix years growth from the berries; for when the plants are older, if they take to grow, they are longer before they form a good Hedge, than plants which are much younger; and if the plants have been twice before tranſplanted, they will more certainly grow.

I ſhall next treat of Hedges for ornaments in gardens: theſe are ſometimes planted with Evergreens, eſpecially if they are not intended to grow very high; in which caſe, they are planted with deciduous trees. Evergreen Hedges are planted with Holly, Yew, Laurel, Lauruſtinus, Phillyrea, Alaternus, evergreen Oak, and ſome others of leſs note. The Holly is preferable to any other, for the reaſons before given. Next to this, moſt people prefer the Yew, on account of its growing very cloſe; for when theſe Hedges are well kept, they will be ſo thick as that a bird cannot get through them; but the dead colour of the Yew, renders theſe Hedges leſs agreeable. The Laurel is one of the moſt beautiful greens of any of the evergreen trees, but then it ſhoots ſo luxuriant, as to render it difficult to keep the Hedges which are planted with it, in tolerable ſhape; beſides, the leaves being very large, if the Hedge is clipped with ſheers, the leaves will be cut through, which gives them a bad appearance; therefore where there are Hedges of this kind, it will be the beſt way to prune them with a knife, cutting the ſhoots juſt down to a leaf. And although by this method the Hedge cannot be rendered ſo even as when cut with ſheers, yet it will have a much better appearance than that of moſt of the leaves being cut through and ſtubbed, in the manner they muſt be when ſheered.

The Lauruſtinus is alſo a very fine plant for this purpoſe, but the ſame objection is to be made to this as hath been to the Laurel; and as one of the great beauties of this plant is in its flowers, which are produced in the winter and ſpring, ſo when theſe are ſheered, the flowers are generally cut off, by which their beauty is loſt. Nor can this be avoided, where the Hedge is to be kept in cloſe order, therefore this plant is not ſo proper for the purpoſe; but in ſuch places where walls or other fences are deſigned to be hid, there is not any plant better adapted than this, provided it is rightly managed; for the branches of this plant are ſlender and pliable, ſo may be trained up cloſe to the fence, whereby it may be entirely covered; and if, inſtead of clipping theſe with ſheers, they are pruned with a knife, they may be ſo managed, as to have them full of flowers from the ground upward. This may be effected by pruning them in April, when the flowers are going off, cutting out thoſe ſhoots that have flowered, or project too far from the fence; always cutting cloſe to the leaf, that no ſtubs may be left: but thoſe new ſhoots of the ſame ſpring muſt by no means be ſhortened, becauſe the flowers are always produced at the extremity of the ſhoots of the ſame year; therefore when theſe are topped, as they muſt be by ſheering, there can be few or no flowers upon theſe plants, except toward the top, where the ſheers have not paſſed. By this method of knife pruning, the leaves will alſo be preſerved entire, and the Hedge may always be kept enough within compaſs; and ſo thick, as fully to anſwer the purpoſe of covering the fence; and by the ſhoots growing a little irregular, it will make a much better appearance than any ſhorn Hedge whatever.

The ſmall leaved and the rough leaved Lauruſtinus are the beſt ſorts for this purpoſe, becauſe their branches grow cloſer together than thoſe of the ſhining leaved; they are alſo more hardy, and flower much better than the other, when growing in the open air.

The True Phillyrea is the next beſt plant for Hedges; it is by the gardeners called the True Phillyrea, to diſtinguiſh it from the Alaternus, which they ſimply call the Phillyrea. The branches of this are ſtrong, the leaves pretty large, and of a ſtrong green colour. And as this is a plant of middling growth, the Hedges planted with this may be led up to the height of ten or twelve feet; and if theſe Hedges are kept narrow at the top, that there may not be too much width for the ſnow to lodge upon them, they may be rendered very cloſe and thick, and being a very good green, will make a fine appearance.

The Alaternus was formerly much more cultivated in the Engliſh gardens than at preſent. This was often planted to form Hedges, but the branches of this plant are too pliant for this purpoſe, being frequently diſplaced by ſtrong winds, which render theſe Hedges unſightly; they alſo ſhoot very irregular and thin, ſo that the middle of the Hedge is frequently open and wide, and only the ſides of them can be kept tolerably cloſe, and that muſt be by often clipping them. If we add to this, their being frequently laid or broken down by ſnow in the winter, it muſt be deemed an improper plant for this purpoſe.

The Ilex, or evergreen Oak, is alſo planted for Hedges, and where theſe are deſigned to grow pretty tall, it is a fit plant for the purpoſe; becauſe it is a plant of large growth, eſpecially the ſort which is moſt common in England; for there are two ſorts of them which grow in the ſouth of France and Italy, that are of much humbler growth, ſo are better adopted to this purpoſe, eſpecially where the Hedge is not intended to be high, but theſe are not at preſent common here. When theſe Hedges are planted very young, and kept cloſe trained from the beginning, they may be very cloſe from the ground to the height of twenty feet or more; but theſe muſt always be kept narrower at the top than below, that there may not too much ſnow lodge upon them in the winter, which is apt to break and diſplace the branches, whereby the Hedges will be rendered unſightly.

There are alſo ſome perſons who have planted the Pyracantha, or evergreen Thorn, Juniper, Box, Cedar of Virginia, Bay, &c. as alſo the Halimus, or Sea Purſlane, and the Furz, Roſemary, and ſeveral other plants for Hedges; but the five ſorts firſt mentioned having very pliant branches, which will require to be ſupported, and the three laſt being often deſtroyed by ſevere froſt, renders them unfit for this purpoſe; nor are there other ſorts of evergreen plants in the Engliſh gardens, which are ſo well adapted for Hedges, as thoſe before-mentioned,

The deciduous trees, which are uſually planted to form Hedges in gardens, are the following ſorts.

The Hornbeam is much eſteemed for this purpoſe, eſpecially in ſuch places where they are not required to be very high, or not wanted to grow very faſt; for this plant, while young, doth not make ſo great progreſs as many others; but as it is of ſlower growth, the Hedges may be kept neat with leſs trouble than moſt other plants will require; and the branches naturally growing very cloſe, they will make one of the cloſeſt Hedges of all the deciduous trees; but as the leaves of this tree continue upon the branches all the winter, and until the buds in the ſpring force them off, they have a bad appearance during the winter ſeaſon.

The Beech is alſo a very proper tree for this purpoſe, having the ſame good qualities as the Hornbeam; but the leaves of this continue late in winter upon the branches, when they will have a bad appearance; beſides, the litter which is occaſioned by their leaves gradually falling moſt part of the winter, prevents the garden from being made clean a great while longer than if there are none of theſe trees planted.

The ſmall-leaved Engliſh Elm, is alſo a proper tree for tall Hedges; if theſe are planted young, and kept cloſely clipped from their firſt ſetting out, the Hedges may be trained up to the height of thirty or forty feet, and be very cloſe and thick the whole height. But when theſe trees are planted for this purpoſe, they ſhould not be crowded ſo cloſe together as they uſually are by moſt people; by which method, when the trees have ſtood ſome years, if they have thriven well, their ſtems will approach ſo near each other, as that few branches can be maintained below, whereby the bottom of the Hedge will be naked; therefore they ſhould not be planted cloſer together than ſeven or eight feet, or if they are ten feet it will be ſtill better. And although at this diſtance they will not form a cloſe Hedge ſo ſoon as when the trees are planted cloſer together, yet they will in a few years recompenſe for that, by their growing much cloſer and better from the ground upward.

The Dutch Elm was formerly in great eſteem for Hedges, being quick of growth, and thriving in ſuch ſoils as the Engliſh Elm would not grow; but the wretched appearance which theſe Hedges made, after they had been growing a few years, very juſtly occaſioned their being almoſt univerſally rooted out of gardens, for a more abominable plant was never introduced into gardens than this.

The Lime-tree hath alſo been recommended for Hedges, and in ſome of the old gardens there were many planted with this tree, which, for a few years after planting, made a tolerable appearance, eſpecially when they grow upon a moiſt ſoil; but after they had ſtood ſome years, they grew very thin at bottom, and by being ſheered at the top, they were rendered very ſtubby and unſightly, their leaves growing very thinly upon the branches, and theſe frequently turning of a black diſagreeable colour, and falling off very ſoon in the autumn, and ſometimes in the ſummer in dry ſeaſons, has brought theſe trees ſo much into diſrepute, as that few perſons make uſe of them at preſent for this purpoſe: nor ſhould any of the very ſtrong ſhooting trees be applied to this uſe; for the more they are cut, the ſtronger they will ſhoot, and of courſe will appear very unſightly; beſides, the often cutting of theſe Hedges occaſions great trouble and expence, and frequent litters in gardens.

The Alder is frequently planted for Hedges, and where the ſoil is moiſt, there is not any of the deciduous trees equal to it for this purpoſe; for the leaves are of a lively green, continuing freſh till late in the autumn; and when they decay, their litter is ſoon over, for they all drop in a ſhort time.

There are, beſides the trees before-mentioned, many of the flowering ſhrubs which have been planted to form Hedges; ſuch as Roſes, Honeyſuckles, Sweetbriar, &c. but theſe make a bad appearance, being more difficult to train; and if they are cut to keep them within compaſs, their flowers, which are their greateſt beauty, will be entirely deſtroyed. But as theſe are but of low growth, they are not proper to plant where the Hedges are to be of any height.

Although I have given theſe full directions for planting and ordering of theſe Hedges for the pleaſure-garden, yet I am far from recommending them as ornamental or uſeful. But as there are numbers of perſons who may differ from me in their opinion, and therefore might think it a deficiency in my book, had I not given theſe inſtructions; to avoid their reproach, I have inſerted as much as I think will be neceſſary for the obtaining theſe Hedges wherever they are deſired, and at a leſs expence than the late method of planting them hath been generally attended with; where it is not uncommon to ſee four times the number of trees planted in theſe Hedges as would have been neceſſary, or that can remain long cloſe together with any beauty. But moſt people who plant, are in too great a hurry to have their garden filled; and therefore frequently plant ſo cloſe, as that in three or four years (if their trees thrive) three-fourths of them will require to be taken away again, to make room for thoſe which are left to grow; and there are not wanting perſons, who are ready enough to encourage this practice, ſince their own intereſt is thereby promoted.

The taſte in gardening having been greatly altered of late years for the better, theſe clipped Hedges have been almoſt excluded; and it is to be hoped, that a little time will entirely baniſh them out of the Engliſh gardens, as it has already been done by the ſhorn Evergreens, which, a few years ſince, were eſteemed the greateſt beauties of gardens. The latter was introduced by the Dutch gardeners, and that of tall Hedges with treillage-work, was in imitation of the French gardens; in ſome of which, the expence of the iron treillage, to ſupport the trees which compoſe their cabinets, pavillions, bowers, porticoes, and other pieces of rural architecture, amounted to a very great ſum. I have been informed this work, in one garden, has coſt above twenty thouſand crowns; and this only to train up trees in the diſtorted ſhape of pilaſters, niches, cornices, pediments, &c. when at the ſame time, theſe can no longer retain the forms intended, than they are kept cloſely ſhorn into them; for no ſooner do the trees begin to make freſh ſhoots, but the whole frame is altered; and inſtead of carrying the fine finiſhed appearance of a regular piece of architecture, it is grown into a rude unpoliſhed form. This expenſive ſort of work never has made much progreſs in England, but that part of the French taſte, in ſurrounding all the ſeveral diviſions of gardens with tall clipped Hedges, making great alleys, forming the walks into ſtars, and the like ſtiff performances, have too much obtained for ſome years paſt in England: and the taller theſe clipped Hedges were, the more they were admired; though many times they ſhut out from the view the ſight of ſome of the nobleſt Oaks, and other timber trees, growing in the quarters, which are infinitely more pleaſing to a perſon of true taſte, than all the ridiculous forms it is poſſible for trees to be framed in by art. Beſides, when the expence of keeping theſe Hedges, together with the great litter they occaſion when clipped, is conſidered, theſe, added to many other reaſons which might be given, are ſufficient to exclude them out of gardens; where they can never be eſteemed neceſſary, but to ſhut out from the view the ſight of worſe objects.

HEDYPNOIS. See HYOSERIS.

HEDYSARUM. Lin. Gen. Plant. 793. Tourn. Inſt. R. H. 401. tab. 225. French *Honeyſuckle.*

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, cut into five ſegments at the top. It is of the butterfly kind, having an oblong compreſſed ſtandard, which is indented at the point and reflexed; the wings are oblong and narrow; the keel is compreſſed, broader at the end, but convex at the baſe. It hath nine ſtamina joined, and one ſtanding ſeparate, which are terminated by roundiſh compreſſed ſummits; the ſtamina are reflexed, having an angle or knee. In the center is ſituated a long narrow germen, ſupporting an awl-ſhaped inflexed ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes a jointed pod which is compreſſed, each joint being roundiſh, and incloſes a ſingle kidney-ſhaped ſeed.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, which includes thoſe plants whoſe flowers have ten ſtamina joined in two bodies.

The SPECIES are,

1. HEDYSARUM (*Coronarium*) foliis pinnatis, leguminibus articulatis aculeatis, nudis, rectis, caule diffuſo. Hort. Cliff. 365. *French Honeyſuckle with winged leaves, naked, prickly, jointed pods, and a diffuſed ſtalk.* Hedyſarum clypeatum, flore ſuaviter rubente. H. Eyſt. *French Honeyſuckle, with a delicate red flower.*
2. HEDYSARUM (*Spinoſiſſimum*) foliis pinnatis, leguminibus articulatis, aculeatis tomentoſis, caule diffuſo. Hort. Upſal. 231. *French Honeyſuckle with winged leaves, jointed, prickly, woolly pods, and a diffuſed ſtalk.* Hedyſarum clypeatum minus, flore purpureo. Raii Hiſt. *Smaller French Honeyſuckle with a purple flower.*
3. HEDYSARUM (*Canadenſe*) foliis ſimplicibus ternatiſque, floribus racemoſis. Hort. Cliff. 232. *French Honeyſuckle with ſingle and trifoliate leaves, and flowers in bunches.* Hedyſarum triphyllum Canadenſe. Cornut. *Three-leaved French Honeyſuckle of Canada.*
4. HEDYSARUM (*flexuoſum*) foliis pinnatis, leguminibus articulatis, aculeatis, flexuoſis, caule diffuſo. Lin. Sp. Plant. 750. *French Honeyſuckle with winged leaves, jointed prickly pods which are waved, and a diffuſed ſtalk.* Hedyſarum annuum, ſiliquâ aſperâ undulatâ intortâ. Tourn. *Annual French Honeyſuckle, with a rough, waved, writhed pod.*
5. HEDYSARUM (*Diphyllum*) foliis binatis petiolatis, floralibus ſeſſilibus. Flor. Zeyl. 291. *French Honeyſuckle with two leaves upon a foot-ſtalk, ſitting cloſe to the ſtalks.* Hedyſarum minus diphyllum, flore luteo. Sloan. Cat. 73. *Smaller two-leaved French Honeyſuckle, with a yellow flower.*
6. HEDYSARUM (*Purpureum*) foliis ternatis, foliolis obovatis floribus paniculatis terminalibus, leguminibus intortis. *French Honeyſuckle with trifoliate oval leaves, flowers growing in panicles at the ends of the ſtalks, and intorted pods.* Hedyſarum triphyllum fruticoſum, flore purpureo, ſiliquâ varie diſtortâ. Sloan. Cat. 73. *Three-leaved ſhrubby French Honeyſuckle, with a purple flower and a variouſly diſtorted pod.*
7. HEDYSARUM (*Caneſcens*) foliis ternatis ſubtus nervoſis, caule glabro fruticoſo floribus ſpicatis terminalibus. *Three-leaved ſhrubby dwarf Honeyſuckle, with veins on the under ſide, a ſmooth ſhrubby ſtalk, with flowers growing in ſpikes at the ends.* Hedyſarum triphyllum fruticoſum ſupinum, flore purpureo. Sloan. Cat. *Three-leaved ſhrubby dwarf French Honeyſuckle, with a purple flower.*
8. HEDYSARUM (*Sericeum*) foliis ternatis, foliolis ovatis ſubtus ſericeis, floribus ſpicatis alaribus terminalibuſque. *Three-leaved French Honeyſuckle, with oval leaves ſitting on their under ſide, and flowers in ſpikes from the ſide and the end of the ſtalks.* Hedyſarum triphyllum fruteſcens, foliis ſubrotundis & ſubtus ſericeis, flore purpureo. Houſt. *Three-leaved ſhrubby French Honeyſuckle with roundiſh leaves, which are ſilky underneath, and a purple flower.*
9. HEDYSARUM. (*Villoſum*) foliis ternatis, caulibus diffuſis villoſis, floribus ſpicatis terminalibus, calycibus, villoſiſſimis. *Three-leaved French Honeyſuckle, with diffuſed ſtalks which are hairy, flowers growing in ſpikes at the ends of the branches, and very hairy empalements.* Hedyſarum triphyllum humile, flore conglomerato calyce villoſo. Houſt. *Dwarf three-leaved French Honeyſuckle, with flowers growing in cluſters, and a hairy cup.*
10. HEDYSARUM (*Procumbens*) foliis ternatis caulibus procumbentibus racemoſis, floribus laxè ſpicatis terminalibus, leguminibus contortis articulis quadrangularibus. *Three-leaved French Honeyſuckle, with branching trailing ſtalks, flowers growing in looſe ſpikes at the ends of the branches, and twiſted pods with ſquare joints.* Hedyſarum triphyllum procumbens, foliis rotundioribus & minoribus, ſiliquis tenuibus & intortis. Houſt. *Trailing three-leaved French Honeyſuckle, with ſmaller and rounder leaves, and narrow contorted pods.*
11. HEDYSARUM (*Intortum*) foliis ternatis, foliolis obcordatis, caule erecto triangulo villoſo, racemis terminalibus, leguminibus articulatis incurvis. *French Honeyſuckle, with trifoliate leaves whoſe lobes are heart-ſhaped, a triangular upright hairy ſtalk, flowers growing in long bunches at the ends of the branches, and and jointed incurved pods.* Hedyſarum triphyllum, caule triangulari, foliis mucronatis, ſiliquis tenuibus intortis. Houſt. *Three-leaved French Honeyſuckle, with a triangular ſtalk, pointed leaves, and a narrow contorted pod.*
12. HEDYSARUM (*Glabrum*) foliis ternatis obcordatis, caule paniculato, leguminibus monoſpermis glabris. *French Honeyſuckle with trifoliate heart-ſhaped leaves, a paniculated ſtalk, and ſmooth pods containing one ſeed.* Hedyſarum triphyllum, annuum, erectum, ſiliquis intortis, & ad extremitatem amplioribus. Houſt. *Three-leaved, annual, upright French Honeyſuckle, with contorted pods, which are broad at their extremity.*
13. HEDYSARUM (*Scandens*) foliis ternatis, foliolis obversè-ovatis, caule volubili, ſpicâ longiſſimâ reflexâ. *Three-leaved French Honeyſuckle, with obverſe oval lobes, a twining ſtalk, and a very long reflexed ſpike of flowers.* Hedyſarum triphyllum Americanum ſcandens, flore purpureo. *Three-leaved, climbing, American French Honeyſuckle, with a purple flower.*
14. HEDYSARUM (*Repens*) foliis ternatis obcordatis, caulibus procumbentibus racemis lateralibus. Lin. Sp. 1056. *Three-leaved French Honeyſuckle, with oval heart-ſhaped leaves, trailing hairy ſtalks, and flowers on the ſide of the ſtalks.* Hedyſarum procumbens, trifolii fragiferi folio. Hort. Elth. 172. *Trailing French Honeyſuckle, with leaves like the Strawberry Trefoil.*
15. HEDYSARUM (*Maculatum*) foliis ſimplicibus ovatis obtuſis. Hort. Cliff. 449. *French Honeyſuckle, with oval, obtuſe, ſingle leaves.* Hedyſarum humile, capparidis folio maculato. Hort. Elth. 170. *Low French Honeyſuckle, with a ſpotted Caper leaf.*
16. HEDYSARUM (*Fruteſcens*) foliis ternatis ovato-lanceolatis, ſubtus villoſis, caule fruteſcente villoſo.

Trifoliate French Honeyſuckle, with oval ſpear-ſhaped leaves, hairy on their under ſide, and a ſhrubby hairy ſtalk. Quere, Whether this be not the Hedyſarum foliis ternatis ſub-ovatis ſubtus villoſis caule fruteſcente. Flor. Virg. 174. *Three-leaved French Honeyſuckle, with oval leaves and a ſhrubby ſtalk.*

17. HEDYSARUM (*Pedunculatum*) foliis ternatis, foliolo intermedio pediculo longiore, racemis alaribus erectis longiſſimis. *French Honeyſuckle with trifoliate leaves, the middle lobe ſtanding on a longer foot-ſtalk, and very long bunches of flowers coming from the ſides of the ſtalks.*

18. HEDYSARUM (*Alhagi*) foliis ſimplicibus lanceolatis obtuſis, caule fruticoſo ſpinoſo. Lin. Sp. Plant. 745. *French Honeyſuckle with ſingle, ſpear-ſhaped, obtuſe leaves, and a prickly ſhrubby ſtalk.* Alhagi Maurorum. Rauwolf. 94. *The Albagi of the Moors.*

19. HEDYSARUM (*Triquetrum*) foliis ſimplicibus cordato-oblongis integerrimis glabris. *French Honeyſuckle with ſingle, oblong, heart-ſhaped leaves, which are ſmooth and entire.* Onobrychis Zeylanica aurantii folio. Pet. Hort. Scic. 247. *Cockſhead of Ceylon with an Orange-leaf.*

20. HEDYSARUM (*Echaſtaphyllum*) foliis ſimplicibus ovatis ſubtus ſericeis, petiolis muticis. Amœn. Acad. 5. p. 403. *French Honeyſuckle with oval ſingle leaves, ſilky on their under ſide, and a ſpiked foot-ſtalk.* Spartium ſcandens, citri foliis, floribus albis ad nodos conſertim naſcentibus. Plum. Sp. 19.

21. HEDYSARUM (*Gangeticum*) foliis ſimplicibus ovatis acuminatis, ſpicis longiſſimis nudis terminalibus. *French Honeyſuckle with oval-pointed ſingle leaves, and very long naked ſpikes of flowers terminating the ſtalks.* An Hedyſarum foliis ſimplicibus ovatis acutis baſi ſtipulatis. Lin. Sp. 1052.

The firſt ſort has been long cultivated in the Engliſh gardens for ornament. This grows naturally in Italy; there are two varieties of this, one with a bright red, and the other a white flower, which very rarely vary from one to the other; but as there is no other difference but in the colour of their flowers, ſo they are ſuppoſed to be the ſame ſpecies.

It is a biennial plant, which flowers the ſecond year, and ſoon after the ſeeds are ripe, the roots generally periſh: this ſends up ſeveral hollow ſmooth ſtalks two or three foot long, which branch out on each ſide, garniſhed with winged leaves, compoſed of five or ſix pair of oval lobes, terminated by an odd one; the leaves are placed alternate, and from their baſe comes out foot-ſtalks which are five or ſix inches long, ſuſtaining ſpikes of beautiful red flowers; theſe are ſucceeded by compreſſed jointed pods, which are very rough, ſtanding erect; in each of the joints is lodged one kidney-ſhaped ſeed. This ſort flowers in June and July, and the ſeeds ripen in September. The white is only a variety of this, and as ſuch, is ſometimes preſerved in gardens.

They are propagated by ſowing their ſeeds in April, in a bed of light freſh earth; and when the plants come up, they ſhould be tranſplanted into other beds of the like earth, and in an open ſituation, at about ſix or eight inches diſtance from each other, leaving a path between every four rows, to go between them to hoe, and clear them from weeds. In theſe beds they may remain until Michaelmas, then may be tranſplanted into the large borders of a parterre or pleaſure-garden, allowing them at leaſt three feet diſtance from other plants, amongſt which they ſhould be interſperſed, to continue the ſucceſſion of flowers; where they will make a fine appearance when blown, eſpecially the red ſort, which produces very beautiful flowers.

As theſe plants decay after they have perfected their ſeeds, ſo there ſhould annually be a freſh ſupply of plants raiſed, where they are deſired, for the old roots ſeldom continue longer. They are very proper ornaments for large borders, or to fill up vacancies among ſhrubs, but they grow too large for ſmall borders, unleſs their ſtalks are pruned off, leaving only two or three on each plant; which, if kept upright with ſticks, will prevent their hainging over other flowers. They are propagated for ſupplying the markets with plants to adorn the London gardens and balconies, by the gardeners in the neighbourhood of London.

The ſecond ſort is an annual plant, which grows naturally in Spain and Portugal; the leaves of this are narrow and oblong, four or five pair being placed along the midrib, with an odd one at the end; the ſtalks are terminated by ſmall ſpikes of purple flowers, which are ſucceeded by ſmall rough pods, ſhaped like thoſe of the former ſort. This plant is preſerved in botanic gardens for the ſake of variety; it is propagated by ſeeds, which ſhould be ſown the beginning of April, in the place where the plants are to remain, and will require no other culture but to thin them where they are too near, and keep them clean from weeds. This flowers in July, and the ſeeds ripen in autumn.

The third ſort hath a perennial root, which will abide many years if planted in a dry ſoil. This is propagated by ſowing the ſeeds in the manner directed for the former; but when the plants are come up two inches high, they ſhould be tranſplanted where they are to remain for good; but if they are not too thick in the ſeed-bed, they may be ſuffered to remain there until the following autumn; at which time they ſhould be carefully taken up, and tranſplanted into the borders where they are deſigned to ſtand; for their roots generally run down very deep, ſo that it is not ſafe to remove them often. This plant produces its flowers about the ſame time of the year as the former, and if the ſeaſon proves favourable, perfects its ſeeds in autumn; and the roots will abide in the open air very well, reſiſting the ſevereſt cold, provided they are planted in a dry ſoil.

The fourth ſort is an annual plant, which grows naturally in the Levant. This hath ſome reſemblance of the firſt, but is much ſmaller; the ſtalks ariſe near a foot high, and are garniſhed with winged leaves, compoſed of two or three pair of oval lobes, terminated by an odd one; the flowers come out in ſpikes at the top of the ſtalks, which are of a pale red intermixed, with a little blue. Theſe appear in July, and are ſucceeded by jointed pods which are waved on both ſides, forming an obtuſe angle at each joint; the ſeeds ripen in the autumn. This is propagated in the ſame way as the ſecond ſort, and is equally hardy.

The fifth ſort grows naturally in both Indies; the ſeeds of this were ſent me from La Vera Cruz, by the late Dr. Houſtoun. This is an annual plant, with a long tap root which runs deep in the ground, ſending out one or two ſtalks, which riſe about nine inches high, the lower part being garniſhed with oval leaves by pairs on each foot-ſtalk; but the upper part of the ſtalk where the flowers come out, is garniſhed with ſmall leaves, ending in acute points, ſitting cloſe to the ſtalks, and at each of theſe is ſituated a ſingle, ſmall, yellow flower, incloſed by the two leaves. Theſe make but little appearance, and are ſucceeded by oblong pods, containing one kidney-ſhaped ſeed.

The ſixth ſort was ſent me by the the late Dr. Houſtoun from La Vera Cruz, where he found it growing naturally, as it alſo does in Jamaica. This is an annual plant, which riſes with a ſhrubby ſtalk upward of four feet high, dividing into ſeveral branches, which are garniſhed with oblong oval leaves that are trifoliate, ſtanding upon pretty long foot-ſtalks, the middle lobe ſtanding an inch beyond the other two; the branches are terminated by long looſe panicles of purple flowers, which are ſucceeded by narrow jointed pods which are twiſted. Theſe plants flower in July, and their ſeeds ripen in autumn.

The two laſt mentioned are tender plants, ſo their ſeeds muſt be ſown in the ſpring upon a hot-bed; and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, filled with light earth, and plunged into a hot-bed, keeping them ſhaded from the ſun till they have taken new root;

then they muſt be treated in the ſame way as other tender plants from hot countries, always keeping them in the ſtove or glaſs-caſe, otherwiſe they will not flower or produce ſeeds in England.

The ſeventh ſort grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. Houſtoun. This is a ſhrubby plant, which riſes about five feet high, and divides into ſeveral branches, which are garniſhed with trifoliate leaves which are oval, the middle lobe being much larger than the other two; the ſtalks are terminated by long ſpikes of ſmall purple flowers, which are ſucceeded by narrow pods, ſtrait on one ſide, but jointed on the other.

The eighth ſort was ſent me from La Vera Cruz by the late Dr. Houſtoun, who found it growing there naturally. This riſes with a ſhrubby ſtalk ſix or ſeven feet high, dividing into ſeveral branches, which are garniſhed with trifoliate oval leaves, ſilky and white on their under ſide, but of a pale green on their upper ſide; the flowers come out in long narrow ſpikes from the wings, and at the end of the branches, ſitting cloſe to the ſtalks; they are ſmall, of a bright purple colour, and are ſucceeded by flat, ſmooth, jointed pods, about one inch long, each joint having one kidney-ſhaped ſeed.

The two laſt ſorts will continue two or three years, if the plants are placed in the bark-ſtove. They are propagated by ſeeds, which muſt be ſown upon a hot-bed, and the plants treated in the ſame manner as thoſe juſt before-mentioned; and when they have obtained height, they ſhould be removed into the bark-ſtove, where they ſhould conſtantly remain, allowing them a large ſhare of air in warm weather. Theſe plants ſeldom flower till the ſecond year, when they will produce ſeeds which ripen in the autumn.

The ninth ſort is an annual plant, which grows naturally at La Vera Cruz, from whence it was ſent me by the late Dr. Houſtoun. This ſeldom riſes more than eight or nine inches high, ſending out ſeveral branches from the root, which are diffuſed and hairy; they are cloſely garniſhed with ſmall, oval, trifoliate leaves, a little hoary. The flowers grow in cloſe ſhort ſpikes; they are purple, and have very hairy empalements.

The tenth ſort grows naturally in Jamaica. This hath ligneous trailing ſtalks a foot and a half long, ſending out ſeveral branches on each ſide, which are garniſhed with ſmall, round, trifoliate leaves, of a pale green colour; the flowers are produced in very looſe ſpikes at the ends of the branches; they are ſmall, and of a pale purpliſh colour, ſucceeded by narrow twiſted pods which are jointed, each joint being four cornered, containing a ſingle, ſmall, compreſſed ſeed.

The two laſt ſorts being annual, require the ſame treatment as the fifth and ſixth ſorts before-mentioned, with which management they will flower and ripen their ſeeds in this country.

The eleventh ſort is a ſhrubby plant, which riſes with triangular ſtalks five or ſix feet high, dividing into ſeveral branches, garniſhed with heart-ſhaped trifoliate leaves, ending in acute points; the flowers are produced in very long ſpikes at the end of the branches, which are of a pale purple colour, and are ſucceeded by narrow jointed pods which are variouſly twiſted; the ſeeds are ſmall and compreſſed.

This plant grows naturally in Jamaica, from whence the ſeeds were ſent me by the late Dr. Houſtoun. It will continue three or four years, if the plants are treated in the ſame manner directed for the ſeventh and eighth ſorts, and will perfect ſeeds in this country.

The twelfth ſort is annual, the ſeeds of it were ſent me by the late Dr. Houſtoun from Campeachy. This hath a paniculated ſtalk, which riſes about two feet high, garniſhed with heart-ſhaped trifoliate leaves; the upper part of the ſtalk branches out into panicles of flowers, which are of a pale purple colour; theſe are ſucceeded by lunulated compreſſed pods, which ſtand oblique to the ſtalk, each containing one compreſſed kidney-ſhaped ſeed. This ſort is propagated by ſeeds, and requires the ſame treatment as the fifth and ſixth ſorts.

The thirteenth ſort was ſent me from La Vera Cruz, by the late Dr. Houſtoun. This hath a twining ſtalk, which gets round the trees and ſhrubs which grow near it, and climbs to the height of ten or twelve feet, garniſhed with obverſe, oval, trifoliate leaves, ſtanding upon pretty long foot-ſtalks; the flowers are produced in very long ſpikes, which are reflexed; they are of a dark purple colour, and ſit cloſe to the ſtalk. This is an abiding plant, which requires a ſtove to preſerve it in this country, ſo the plants ſhould be treated in the ſame manner as the ſeventh and eighth ſorts.

The fourteenth ſort is an annual plant, which grows naturally in both Indies. The ſeeds of this were ſent me from the Havannah by the late Dr. Houſtoun; it hath trailing branches near a foot long, which are garniſhed with round trifoliate leaves, a little indented at the top, very like in ſhape to thoſe of the Strawberry Trefoil; the ſtalks and under ſide of the leaves are hairy; the flowers are produced toward the end of the branches, ſometimes ſingle, and at other times two at a joint; they are of a purple colour and ſmall; theſe are ſucceeded by pods about an inch long, which are ſtrait on one ſide, and jointed on the other. This flowers the end of July, and ſometimes perfects ſeeds here.

The fifteenth ſort is a low annual plant, having ſlender ſtalks near a foot long, their lower part being garniſhed with ſingle oval leaves, ſtanding upon ſlender foot-ſtalks; their upper part is adorned with flowers, which come out by pairs above each other, to the end of the ſtalk; they are but ſmall, and of a reddiſh yellow colour; theſe are ſucceeded by jointed narrow pods, which ſit cloſe to the ſtalk, and are ſickle-ſhaped. The two laſt mentioned are annual plants, which require the ſame culture as the fifth and ſixth ſorts.

The ſixteenth ſort was ſent me by the late Dr. Dale, from South Carolina. This hath a perennial root, from which ariſe two or three ſhrubby hairy ſtalks near two feet high, branching out on every ſide near the top, garniſhed with oval, ſpear-ſhaped, trifoliate leaves, which are hairy on their under ſide, and ſtand upon ſhort foot-ſtalks; the flowers are produced at the end of the branches in ſhort ſpikes; they are of a purpliſh yellow colour, and ſmall; the ſtalks of this ſort decay every autumn, and new ones ariſe in the ſpring. It is propagated by ſeeds, which ſhould be ſown upon a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be planted in ſeparate ſmall pots filled with light earth, and plunged into a moderate hot-bed, obſerving to ſhade them until they have taken new root; then they ſhould have a large ſhare of air admitted to them in warm weather, and in ſummer they may be expoſed to the open air, but in the autumn they muſt be placed under a frame to ſcreen them from froſt; the following ſpring ſome of theſe plants muſt be ſhaken out of the pots and planted in a warm border, where, if the ſummer proves warm, they will flower, but theſe ſeldom perfect their ſeeds; therefore two or three plants ſhould be put into larger pots, and plunged into a moderate hot-bed, which will bring them early into flower; ſo that if the glaſſes are kept over them in bad weather, theſe will ripen their ſeeds in autumn, and the roots will continue ſome years, if they are ſcreened from froſt in winter.

The ſeventeenth ſort was ſent me with the laſt, by the ſame gentleman, from South Carolina. This hath a perennial root and an annual ſtalk, which grows erect about two feet high, garniſhed with long trifoliate leaves, which are rounded at their baſe where they are broadeſt, and narrowed all the way to a point; they are near three inches and a half long, and half an inch broad at their baſe, of a light green colour, and ſmooth; the two ſide lobes ſit pretty cloſe to the ſtalk, but the middle one ſits upon a foot-ſtalk an inch long; the flowers are produced in long ſpikes from the wings of the ſtalk, growing erect; the lower part of the ſpike is but thinly ſet with flowers, but on the upper part they are diſpoſed very cloſe; theſe are ſmall, and of a bright yellow colour, ſitting very cloſe to the ſtalks, and are ſucceeded by jointed pods ſtrait on one ſide.

This plant is propagated by ſeeds, and requires the ſame treatment as the laſt mentioned, with which it will flower and produce ripe ſeeds.

The eighteenth ſort grows naturally in Syria, where it is one of the beauties of the country. It riſes with ſhrubby ſtalks about three feet high, which branch out on every ſide, and are garniſhed with ſingle leaves, ſhaped like thoſe of the broad-leaved Knot-graſs; they are very ſmooth, of a pale green colour, and ſtand on ſhort foot-ſtalks; under theſe leaves come out thorns, which are near an inch long, of a reddiſh brown colour; the flowers come out from the ſide of the branches in ſmall cluſters; they are of a purple colour in the middle, and reddiſh about the rims; theſe are ſucceeded by pods, which are ſtrait on one ſide, and jointed on the other, bending a little in ſhape of a ſickle. This plant is at preſent pretty rare in the Engliſh gardens; it is propagated by ſeeds, which will frequently lie a year in the ground before they vegetate, therefore ſhould be ſown in pots filled with light earth, and plunged into a moderate hot-bed; and if the plants do not appear by the beginning of June, the pots ſhould be taken out of the bed, and placed where they may have only the morning ſun, keeping them clean from weeds; and in the autumn, they ſhould be plunged into an old bed of tanners bark under a frame, where they may be ſcreened from the froſt and hard rains in the winter, and in ſpring plunged into a freſh hot-bed, which will bring up the plants: when theſe are fit to remove, they ſhould be each planted into a ſeparate ſmall pot, filled with light earth, and plunged into a very moderate hot-bed, ſhading them from the ſun till they have taken new root; then they ſhould be gradually hardened to bear the open air, into which they ſhould be removed in June, placing them in a ſheltered ſituation, where they may remain till the autumn; when, if they are plunged into an old tan-bed under a frame, where, in mild weather they may enjoy the free air, and be protected from froſt, they will ſucceed better than if placed in a greenhouſe, or more tenderly treated. I have ſeen this plant growing in the full ground, in a very warm border, where, by covering it in froſty weather, it had endured two winters, but a ſevere froſt happening the third winter entirely killed it.

From this ſhrub the Perſian Manna is collected, which is an exſudation of the nutritious juice of the plant. This drug is chiefly gathered about Tauris, a town in Perſia, where the ſhrub grows plentifully. Sir George Wheeler found it growing in Tinos, and ſuppoſed it was an undeſcribed plant. Tournefort found it in plenty in many of the plains in Armenia and Georgia, and made a particular genus of it under the title of Alhagi.

The nineteenth ſort grows naturally in India, from whence the ſeeds have been lately brought to Europe, and ſeveral plants have been raiſed in the Engliſh gardens; theſe have leaves ſo like thoſe of the Orange-tree, as ſcarcely to be diſtinguiſhed while young; but as there are not any plants here of a large ſize, ſo I can give no further account of this ſort at preſent.

The twentieth ſort was ſent me from Carthagena in New Spain, by the late Dr. Houſtoun: this is a perennial plant with a twining ſtalk, which twiſts round any neighbouring ſupport, riſing to the height of ten or twelve feet, ſending out a few ſmall branches from the ſide, garniſhed with oval leaves four or five inches long, and an inch and a half broad in the middle; the under ſide of the leaves are like ſattin; the flowers are white, coming out from the ſide of the ſtalk in cloſe bunches; they are of the ſame form with the other ſpecies of this genus, and are ſucceeded by ſhort pods, containing one or two kidney-ſhaped ſeeds.

The ſeeds of the twenty-firſt ſort I received from the Eaſt-Indies; this is an annual plant, which riſes about three feet high, having a ſlender ſtalk inclining to be ſhrubby, garniſhed with oval leaves placed ſingle on very ſhort foot-ſtalks; ſome of the plants ſend out one or two ſlender branches from the main ſtalk, the lower part of which are garniſhed with leaves of the ſame form with thoſe on the principal ſtalk, but are ſmaller: the upper part of the principal ſtalk and the branches are garniſhed with flowers near a foot in length, which are of a worn-out purple colour, ſtanding ſingle at each joint: theſe are ſucceeded by jointed pods an inch and a half long, containing three or four kidney-ſhaped ſeeds in each.

Theſe two ſorts are too tender to thrive in the open air in England; they are both propagated by ſeeds, which muſt be ſown on a hot-bed early in the ſpring; and when the plants are come up, and fit to remove, they ſhould be parted, and each planted in a ſeparate ſmall pot, plunging them into a freſh hot-bed, where they ſhould be ſcreened from the ſun till they have taken new root; after which, they ſhould be treated in the ſame manner as other tender plants. The twenty-firſt ſort muſt be placed in the bark-ſtove in autumn, but the other will ripen ſeeds the ſame year the beginning of October.

HEDYSARUM Zeylanicum majus & minus. See ÆSCHYNOMENE.

HEDYSARUM mimoſæ foliis. See ÆSCHYNOMENE.

HELENIUM. Lin. Gen. Plant. 863. Heleniaſtrum. Vaill. Act. R. Par. 1720. Baſtard Sun-flower.

The Characters are,

It hath a flower compoſed of ſeveral hermaphrodite florets, which form the diſk, and female half florets which compoſe the rays. The hermaphrodite florets are tubulous, and cut into five parts at the brim; theſe have each five ſhort hairy ſtamina, terminated by cylindrical ſummits, with an oblong germen ſupporting a ſlender ſtyle, crowned by a bifid ſtigma. The germen afterward becomes an angular ſingle ſeed, crowned by a ſmall five-pointed empalement. The female florets in the border have ſhort tubes, and are ſtretched out on one ſide like a tongue to form the ray; theſe are cut into five ſegments at their points, where they are broad. The female flowers have no ſtamina, but have an oblong germen, which turns to a ſingle ſeed like thoſe of the hermaphrodite flowers; theſe are all included in one common ſingle empalement, which ſpreads open, and is cut into ſeveral ſegments.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, which includes thoſe plants which have compound flowers, the hermaphrodite florets in the center, and the female half florets on the border, being both fruitful.

The Species are,

1. Helenium (*Autumnale*) foliis lanceolatis-linearibus integerrimis glabris, pedunculis nudis unifloris. *Helenium with ſpear-ſhaped narrow leaves, which are ſmooth, entire, and naked foot-ſtalks with ſingle flowers.* Heleniaſtrum folio longiore & anguſtiore. Vaill. Act. R. Par. 1720. *Baſtard Sun-flower with a longer and narrower leaf.*
2. Helenium (*Latifolium*) foliis lanceolatis acutis ſerratis, pedunculis brevioribus, calycibus multifidis. *Helenium with pointed, ſpear-ſhaped, ſawed leaves, ſhorter foot-ſtalks, and a many-pointed empalement.* Heleniaſtrum folio breviore & latiore. Vaill. Act. R. S. 1720. *Baſtard Sun-flower with a broader and ſhorter leaf.*

Theſe plants riſe to the height of ſix or ſeven feet in good ground; the roots, when large, ſend up a great number of ſtalks, which branch toward the top; thoſe of the firſt ſort are garniſhed with ſmooth leaves, which are three inches and a half long, and half an inch broad in the middle, with entire edges ſitting cloſe to the ſtalks, and from their baſe is extended a leafy border along the ſtalk, ſo as to form what was generally termed a winged ſtalk, but Linnæus calls it a running leaf; the upper part of the ſtalk divides, and from each diviſion ariſes a naked foot-ſtalk about three inches long, ſuſtaining one yellow flower at the top, ſhaped like a Sun-flower, but much ſmaller, having long rays, which are jagged pretty deep into four or five ſegments; theſe appear in Auguſt, and there is a ſucceſſion of flowers on the plants till the froſt puts a ſtop to them.

The ſecond ſort hath the appearance of the firſt, but the leaves are not three inches long, and are more than an inch broad in the middle, ending in acute points, and are ſharply ſawed on their edges. The flowers ſtand upon ſhorter foot-ſtalks, growing cloſer together, for the ſtalks of this do not branch near ſo much as thoſe of the other; they both flower at the ſame ſeaſon.

There is alſo another ſort with leaves as narrow as the firſt, which are acutely indented on the edges. The ſtalks branch at the top ſomewhat like thoſe of the firſt, but the middle flowers have much ſhorter foot-ſtalks than thoſe which branch on the ſide, and are garniſhed with ſmall leaves, almoſt to the top; but I am not certain if this is a diſtinct ſpecies, or only a variety which has accidentally riſen from the ſeeds of the other.

Theſe plants are both of them natives of America; the ſeeds of both ſorts I have received from Virginia and New England, where they grow wild in great plenty in the woods, and other ſhady places where the ground is moiſt. They may be propagated by ſeeds, or by parting their roots; but the latter is generally practiſed in this country, becauſe they ſeldom perfect their ſeeds here; but if the ſeeds are procured from abroad, they ſhould be ſown the beginning of March on a border of light earth; and if the ſeeds ſhould not come up the firſt year, the ground ſhould not be diſturbed, becauſe they often remain a whole year in the ground before the plants come up; in which caſe there is nothing more to be done, but to keep the ground clear from weeds, and wait until the plants riſe. When they appear, if the ſeaſon proves dry, they muſt be often watered, which will greatly forward their growth; and where the plants come up too cloſe to each other, they ſhould be thinned, and tranſplanted out into beds a foot aſunder every way, being careful to ſhade them until they have taken root, as alſo to water them in dry weather. In autumn they may be tranſplanted where they are to remain, and the following ſummer they will produce their flowers, which will continue till the froſt prevents them; and their roots will abide many years, and afford many offsets, by which they may be increaſed.

The beſt ſeaſon to tranſplant the old roots, and to part them for increaſe, is in the end of October, when their flowers are paſt, or the beginning of March, juſt before they begin to ſhoot; but if the ſpring ſhould prove dry, they muſt be duly watered, otherwiſe they will not produce many flowers the ſame year; theſe plants ſhould not be removed oftener than every other year, if they are expected to flower ſtrong; they delight in a ſoil rather moiſt than dry, provided it be not too ſtrong, or holds the wet in winter; but if they are planted in a dry ſoil, they muſt be often and plentifully watered in dry weather, to make them produce plenty of flowers.

HELENIUM, Elecampane. See Inula.

HELIANTHEMUM. Tourn. Inſt. R. H. 248. tab. 128. Ciſtus. Lin. Gen. Plant. 598. *Dwarf Ciſtus, or Sun-flower.*

The Characters are,

The flower has a three-leaved empalement, which is permanent, which afterward covers the ſeed-veſſel. It hath five roundiſh petals which ſpread open, with a great number of erect ſtamina, which are terminated by ſmall roundiſh ſummits. In the center is ſituated an oval germen, ſupporting a ſingle ſtyle the length of the ſtamina, crowned by an obtuſe ſtigma. The germen afterward becomes a roundiſh, or oval capſule, with three cells, opening in three parts, filled with ſmall roundiſh ſeeds.

This genus of plants is joined by Dr. Linnæus to that of Ciſtus, and is ranged in the firſt ſection of his thirteenth claſs, which includes thoſe plants whoſe flowers have many ſtamina and one ſtyle. As the empalement of the flower has but three leaves, and thoſe of Ciſtus five, and the capſule of the Helianthemum has but three cells, and that of Ciſtus five, ſo theſe characters are ſufficient to admit of their being ſeparated into different genera; and as there are a great number of ſpecies of both ſorts, ſo by this ſeparation they may be better aſcertained.

The Species are,

1. Helianthemum (*Chamæciſtus*) caulibus procumbentibus ſuffruticoſis, foliis oblongis ſubpiloſis, ſtipulis lanceolatis. *Dwarf Ciſtus with trailing ſhrubby ſtalks, oblong hairy leaves, and ſpear-ſhaped ſtipulæ.* Helianthemum vulgare flore luteo. J. B. 2. 15. *Common Dwarf Ciſtus with a yellow flower.*
2. Helianthemum (*Germanicum*) caulibus procumbentibus ſuffruticoſis, ramoſiſſimis, ſpicis florum longioribus. *Dwarf Ciſtus with trailing ſhrubby ſtalks full of branches, and longer ſpikes to the flowers.* Helianthemum album Germanicum. Tab. Icon. 1062. *White German Dwarf Ciſtus.*
3. Helianthemum (*Piloſus*) caulibus ſuffruticoſis piloſis foliis lanceolatis obtuſis, ſpicis reflexis. *Dwarf Ciſtus with hairy ſhrubby ſtalks, blunt ſpear-ſhaped leaves, and reflexed ſpikes of flowers.* Helianthemum foliis majoribus, flore albo. J. B. 2. 16. *Dwarf Ciſtus with larger leaves and a white flower.*
4. Helianthemum (*Apenninum*) incanum, caulibus ſuffruticoſis erectis, foliis lanceolatis hirſutis. *Hoary Dwarf Ciſtus with erect ſhrubby ſtalks, and hairy ſpear-ſhaped leaves.* Helianthemum ſaxatile, foliis & caulibus incanis, floribus albis, Appenini montis. Mentz. Pug. tab. 8. *Rock Dwarf Ciſtus of the Apennines, with hoary ſtalks and leaves, and white flowers.*
5. Helianthemum (*Umbellatum*) caule procumbente non ramoſo, foliis linearibus incanis oppoſitis. *Dwarf Ciſtus with an unbranched trailing ſtalk, and narrow hoary leaves placed oppoſite.* Helianthemum folio thymi incano. J. B. 2. 19. *Dwarf Ciſtus with a hairy Thyme leaf.*
6. Helianthemum (*Fumana*) caule ſuffruticoſo procumbente, foliis linearibus alternis, floribus auriculatis. *Dwarf Ciſtus with a ſhrubby trailing ſtalk, very narrow leaves placed alternate, and auriculated flowers.* Helianthemum tenuifolium glabrum luteo flore, per humum ſparſum. J. B. 2. 18. *Smooth narrow-leaved Dwarf Ciſtus, with a yellow flower and trailing ſtalks.*
7. Helianthemum (*Sampſuchifolium*) caule ſuffruticoſo procumbente, foliis lanceolatis oppoſitis, pedunculis longioribus, calycibus hirſutis. *Dwarf Ciſtus with a ſhrubby trailing ſtalk, ſpear-ſhaped leaves placed oppoſite, longer foot-ſtalks to the flowers, and hairy empalements.* Helianthemum ſive Ciſtus humilis, folio ſampſuchi, capitulis valde hirſutis. J. B. 2. 20. *Dwarf Ciſtus with a Marjoram leaf, and very hairy heads.*
8. Helianthemum (*Serpillifolium*) caule ſuffruticoſo procumbente, foliis linearibus oppoſitis, floribus umbellatis. *Dwarf Ciſtus with a ſhrubby trailing ſtalk, very narrow leaves placed oppoſite, and flowers growing in an umbel.* Helianthemum folio thymi floribus umbellatis. Tourn. Inſt. 250. *Dwarf Ciſtus with a Thyme leaf and umbellated flowers.*
9. Helianthemum (*Ciſtifolium*) caulibus procumbentibus ſuffruticoſis glabris, foliis ovato lanceolatis oppoſitis, pedunculis longioribus. *Dwarf Ciſtus with ſhrubby trailing ſtalks which are ſmooth, oval ſpear-ſhaped leaves placed oppoſite, and longer foot-ſtalks to the flowers.* Helianthemum Germanicum luteum Ciſti folio. Boerh. *Yellow German Dwarf Ciſtus with a Rock Roſe leaf.*
10. Helianthemum (*Tuberaria*) caule lignoſo perenne, foliis radicalibus ovatis trinerviis tomentoſis caulinis glabris lanceolatis alternis. *Perennial Dwarf Ciſtus with a woody ſtalk, whoſe lower leaves are oval, woolly, with three veins, thoſe on the ſtalks ſmooth, ſpear-ſhaped, and placed alternate.* Helianthemum plantaginis folio perenne. Tourn. Inſt. 250. *Perennial Dwarf Ciſtus with a Plantain leaf.*
11. Helianthemum (*Polifolium*) caulibus ſeſſilibus ſuffruticoſis, foliis lanceolatis oppoſitis tomentoſis caule florali racemoſo. *Dwarf Ciſtus with very ſhort ſhrubby ſtalks, woolly ſpear-ſhaped leaves placed oppoſite, and a*

branching flower-ſtalk. Helianthemum foliis polii montani. Tourn. Inſt. 249. *Dwarf Ciſtus with leaves like Poley Mountain.*

12. Helianthemum (*Nummularium*) caule ſuffruticoſo procumbente, foliis ovatis nervoſis, ſubtus incanis. *Dwarf Ciſtus with a ſhrubby trailing ſtalk, and oval veined leaves, white on their under ſide.* Helianthemum ad nummulariam accedens. J. B. 2. 20. *Dwarf Ciſtus reſembling Moneywort.*

13. Helianthemum (*Lavendulæfoliam*) caule ſuffruticoſo, foliis lineari-lanceolatis oppoſitis ſubtus tomentoſis. *Dwarf Ciſtus with a ſhrubby ſtalk, and narrow ſpear-ſhaped leaves placed oppoſite, which are woolly on their under ſide.* Helianthemum lavendulæ folio. Tourn. Inſt. 249. *Dwarf Ciſtus with a Lavender leaf.*

14. Helianthemum (*Hirtum*) caule ſuffruticoſo erecto, foliis linearibus margines revolutis ſubtus incanis. *Dwarf Ciſtus with a ſhrubby erect ſtalk, and narrow leaves reflexed on their edges, with their under ſide hoary.* Helianthemum foliis Roriſmarini ſplendentibus, ſubtus incanis. Tourn. Inſt. 250. *Dwarf Ciſtus with ſhining Roſemary leaves, which are hoary on their under ſide.*

15. Helianthemum (*Surrejanum*) caulibus ſuffruticoſis procumbentibus, foliis oblongo-ovatis ſubhirſutis, petalis acuminatis reflexis. *Dwarf Ciſtus with trailing ſhrubby ſtalks, oblong oval hairy leaves, and acute-pointed reflexed petals to the flowers.* Helianthemum vulgare petalis florum peranguſtis. Hort. Elth. 177. tab. 145. *Common Dwarf Ciſtus with narrow petals to the flowers.*

16. Helianthemum (*Luſitanicum*) caule ſuffruticoſo erecto, foliis lanceolatis incanis glabris caule florali ramoſo. *Dwarf Ciſtus with a ſhrubby upright ſtalk, hoary ſpear-ſhaped leaves, which are ſmooth, and branching flower-ſtalks.* Helianthemum Luſitanicum, mari folio incano, flore luteo. Tourn. Inſt. 250. *Portugal Dwarf Ciſtus with a hoary Marum leaf, and a yellow flower.*

17. Helianthemum (*Roſeum*) caule ſuffruticoſo, foliis oblongo-ovatis oppoſitis, ſummis linearibus alternis. *Dwarf Ciſtus with a ſhrubby ſtalk, oblong oval leaves placed oppoſite, thoſe toward the top being narrow and alternate.* Helianthemum ampliore folio, flore roſeo. Sherard. Act. Phil. N°. 383. *Dwarf Ciſtus with a larger leaf, and Roſe-coloured flower.*

18. Helianthemum (*Guttatum*) caule herbaceo hirſuto, foliis lanceolato-linearibus piloſis, pedunculis longioribus. *Dwarf Ciſtus with an herbaceous ſtalk which is hairy, narrow ſpear-ſhaped hairy leaves, and longer foot-ſtalks to the flowers.* Helianthemum flore maculoſo. Col. Cephr. 2. p. 78. *Dwarf Ciſtus with a ſpotted flower.*

19. Helianthemum (*Fugacium*) caule herbaceo, foliis ſubovatis piloſis, flore fugaci. *Dwarf Ciſtus with an herbaceous ſtalk, hairy oval leaves, and a fugacious flower.* Helianthemum annuum humile, foliis ſubovatis, flore fugaci. Allion. *Annual Dwarf Ciſtus with oval leaves, and a fugacious flower.*

20. Helianthemum (*Ledifolium*) caule herbaceo erecto, foliis lanceolatis oppoſitis, floribus ſolitariis, capſulis maximis. *Dwarf Ciſtus with an erect herbaceous ſtalk, ſpear-ſhaped leaves placed oppoſite, flowers growing ſingly, and very large capſules.* Helianthemum Ledi folio. Tourn. Inſt. 249. *Dwarf Ciſtus with a Ledon leaf.*

21. Helianthemum (*Salicifolium*) caule herbaceo ramoſo, foliis oblongo-ovatis oppoſitis, ſummis alternis, floribus ſolitariis. *Dwarf Ciſtus with a branching herbaceous ſtalk, oblong oval leaves placed oppoſite, thoſe toward the top growing alternate, and ſolitary flowers.* Helianthemum ſalicis folio. Tourn. Inſt. 249. *Dwarf Ciſtus with a Willow leaf.*

22. Helianthemum (*Faſciculatum*) foliis faſciculatis. Royen. *Dwarf Ciſtus with leaves growing in bunches.*

23. Helianthemum (*Ægyptiacum*) herbaceum erectum, foliis lineari-lanceolatis petiolatis, calycibus inflatis corolla majoribus. *Dwarf Ciſtus with erect herbaceous ſtalks, linear ſpear-ſhaped leaves, and ſwelling empalements larger than the petals.*

24. Helianthemum (*Mariſolium*) caule herbaceo procumbente, foliis ovatis tomentoſis ſeſſilibus. *Dwarf Ciſtus with an herbaceous trailing ſtalk, and oval woolly leaves ſitting cloſe to the branches.* Helianthemum Alpinum, folio piloſellæ minoris Fuchſii. J. B. 2. 18. *Hoary Dwarf Ciſtus of the Alps, with leſſer Cat's-foot leaves.*

The firſt ſort grows naturally on the chalky hills and banks in many parts of England; the ſtalks of this plant are ligneous and ſlender, trailing upon the ground, extending themſelves near a foot each way; theſe are garniſhed with ſmall oblong leaves, of a dark green on their upper ſide, but of a grayiſh colour on their under. The flowers are produced at the end of the ſtalks in looſe ſpikes; they are compoſed of five deep yellow petals, which ſpread open in the day, but ſhut cloſe in the evening; theſe appear in June and July, and are ſucceeded by roundiſh capſules, incloſing many angular ſeeds, which ripen in Auguſt and September, and the roots laſt ſeveral years.

The ſecond ſort grows naturally in Germany; the ſtalks of this are much larger, and extend farther than thoſe of the firſt; the leaves are longer, and are hoary; there are three accuminated ſtipula at each of the lower joints, which are erect. The ſpikes of flowers are much longer than thoſe of the former, and the flowers are white and larger. The empalement of the flowers are hairy and whitiſh; theſe differences are laſting from ſeeds.

The third ſort grows naturally in the ſouth of France, in Italy, and Germany. The ſtalks of this grow more erect than either of the former, and are more ligneous. The joints are farther aſunder; the leaves are longer and hairy; the ſpikes of flowers are generally reflexed; they are white, and the ſize of thoſe of the ſecond; the ſtipula of this are very narrow.

The fourth ſort grows naturally on the Apennine mountains; the ſtalks of this are more erect than thoſe of the third. The leaves are not ſo long, the ſtipula are very ſmall, and the whole plant is very hoary. The flowers are white, and the ſpikes are ſhorter and more compact than either of the former.

The fifth ſort grows naturally in the ſouth of France, in Spain, and Iſtria, from the laſt country I have received the ſeeds; this hath low trailing ſtalks, which are ligneous, but ſeldom branch, and are not more than four or five inches long. The leaves are narrow and hoary, and have no ſtipula at their baſe. The flowers are white, and are in ſmall cluſters at the end of the ſtalks; this ſort ſeldom continues longer than two years.

The ſixth ſort hath trailing ſhrubby ſtalks, which extend a foot in length, and are garniſhed with very narrow ſmooth leaves placed alternate; but thoſe ſhort ſtalks near the root, which do not flower, have ſhorter and finer leaves growing in cluſters; theſe have no ſtipula at their baſe. The flowers are placed thinly toward the end of the branches, they are yellow and auriculated; this ſort grows in the ſouth of France and Italy.

The ſeventh ſort hath very long, trailing, ligneous ſtalks, which are garniſhed with ſpear-ſhaped leaves placed oppoſite, which are very hairy, and gray on their under ſide, having at their baſe three long narrow ſtipula. The ſpikes of flowers are near a foot in length, but grow thinly; they are large, and of a deep yellow colour, with very hairy empalements; this grows naturally in the ſouth of France and Spain.

The eighth ſort hath very ſhrubby crooked ſtalks, covered with a purpliſh brown bark like the common heath. The branches are ſlender, and garniſhed with narrow ſtiff leaves like thoſe of Thyme, which ſtand oppoſite, having no ſtipula at their baſe. The flowers are produced on naked foot-ſtalks, which terminate the branches in a ſort of umbel; they are of a pale yellow colour, and a little ſmaller than thoſe of the common ſort; this grows naturally on the ſands near Fontainbleau, in France.

The ninth ſort grows naturally in Germany, from whence the ſeeds were ſent to the late Dr. Boerhaave, in whoſe curious garden near Leyden I gathered the ſeeds; this ſends out from a ligneous root a great number of trailing ſtalks, which are ſmooth, and extend more than a foot each way, garniſhed with oval, ſpear-ſhaped, ſmooth leaves, placed oppoſite, having at their baſe three ſpear-ſhaped ſtipula. The flowers are large, yellow, and grow in ſhort cluſters at the end of the branches; this always continues the ſame from ſeeds.

The tenth ſort grows naturally in Spain, from whence I received it; this hath a ſhort, thick, woody ſtalk, from which come out ſeveral ſhort ſide-branches, which are garniſhed with oval woolly leaves, having three longitudinal veins. The flower-ſtalk which ariſes from the main ſtem grows about nine inches high, having two or three narrow leaves placed alternate. The flowers are produced in pretty long pedicles toward the top of the ſtalk, and have very ſmooth empalements.

The eleventh ſort was ſent me from Verona, where it grows naturally; this hath a low ſhrubby ſtalk, from which come out a few ſhort branches, garniſhed with ſmall woolly ſpear-ſhaped leaves, placed oppoſite. The flower-ſtalk riſes about ſix inches high, and branches toward the top, where the flowers are produced on pretty long foot-ſtalks; they are white, and ſmaller than thoſe of the common ſort.

The twelfth ſort hath long ſhrubby ſtalks which trail on the ground, and divide into many branches, which are garniſhed with oval veined leaves of a light green on their upper ſide, but of a grayiſh colour below, with three narrow erect ſtipula at their baſe. The flowers are pretty large, white, and grow in cluſters at the end of the branches.

The thirteenth ſort hath ſhrubby ſtalks which grow pretty upright, garniſhed with narrow ſpear-ſhaped leaves, placed oppoſite, woolly on their under ſide, with three very narrow ſtipula growing at their baſe. The flowers are white, growing in long ſpikes at the end of the branches; this grows naturally in the ſouth of France.

The fourteenth ſort hath an erect ſhrubby ſtalk, which ſends out many ſide branches, whoſe joints are pretty cloſe, and are garniſhed with very narrow leaves, placed oppoſite, whoſe borders are reflexed; their upper ſide is of a lucid green, and their under ſide hoary. The flowers are pretty large, white, and grow in ſmall cluſters at the end of the branches; this grows naturally in Spain, from whence the roots were ſent me.

The fifteenth ſort was found by Mr. Edmund Du Bois, near Croydon, in Surry, and was at firſt ſuppoſed to be only an accidental variety of the common ſort, but the ſeeds of this always produce the ſame. I have cultivated this above thirty years, and never have found it vary from ſeeds; this is very like the common ſort, but the leaves are hairy. The petals of the flowers are ſtar-pointed, and ſmaller than thoſe of the common ſort.

The ſixteenth ſort hath upright ſhrubby ſtalks, which riſe a foot and a half high, ſending out branches the whole length; theſe are garniſhed with ſmall ſpear-ſhaped ſilvery leaves, placed oppoſite, which are ſmooth. The flower-ſtalks branch, and the flowers, which are white, are produced in ſhort ſpikes at the end of the branches.

The ſeventeenth ſort was found growing naturally by the late Dr. William Sherrard, near Smyrna, who ſent the ſeeds to England; this hath ſhrubby ſtalks which do not trail on the ground, garniſhed with oblong oval leaves placed oppoſite, but thoſe toward the top are narrow and placed alternate. The flowers are produced at the end of the branches in long looſe ſpikes; they are of a Roſe colour, and the ſize of thoſe of the common ſort.

The eighteenth ſort is annual; this grows naturally in France, Spain, Italy, and in Jerſey, where the late Dr. William Sherrard found it, and ſent the ſeeds to England; this hath a branching herbaceous ſtalk, which riſes four or five inches high, garniſhed with narrow ſpear-ſhaped leaves, placed oppoſite, which are covered with hairs; thoſe on the upper part of the ſtalks are placed alternate, and are narrower. The flowers are produced in looſe ſpikes at the end of the branches, ſtanding upon long foot-ſtalks; they are ſmall, and compoſed of five yellow petals, with a dark purple ſpot at the baſe of each; theſe flowers are very fugacious, for they open early in the morning, and their petals drop off in a few hours after, ſo that by ten of the clock the flowers are all fallen.

The nineteenth ſort grows naturally upon Mount Baldus, from whence the ſeeds were ſent me; this is an annual plant, which ſends out many herbaceous ſtalks from the root, garniſhed with oval leaves, which are hairy. The flowers are produced in looſe ſpikes at the end of the branches; they are of a pale yellow colour, and very fugacious, ſeldom laſting two hours before the petals fall off: there is another variety of this which grows about Verona, with upright ſtalks.

The twentieth ſort grows naturally in the ſouth of France and Italy, and was found by the late Dr. William Sherrard, growing near Smyrna, who ſent the ſeeds to England and Holland by a new title, ſuppoſing it to be a different plant; but when it was cultivated here, it proved to be the ſame with that growing in the ſouth of France; for this plant puts on different appearances, according to the ſoil and ſituation where it grows; for, in a good ſoil, where the plants ſtand ſingle, and are not injured by weeds, they will riſe near a foot and a half high, the leaves will be two inches and a half long, and near half an inch broad in the middle; but in a poor ſoil, or where the plants ſtand too cloſe, or are injured by weeds or neighbouring plants, they do not riſe more than half that height. The leaves are much narrower, and the ſeed-veſſels not half ſo large; ſo that any perſon finding theſe plants in two different ſituations may be deceived, and take them for different ſpecies; but when they are cultivated in a garden in the ſame ſoil and ſituation, they do not differ in any particular. This is an annual plant, which periſhes ſoon after the ſeeds are ripe.

The twenty-firſt ſort is an annual plant, which grows naturally in Spain and Portugal; this hath branching ſtalks, which riſe a foot high, garniſhed with oval oblong leaves placed oppoſite on the lower part of the ſtalk; but on the upper part they are alternate and narrow, a ſingle leaf being placed between each flower, which occaſions the title of Solitary Flowers, for they grow in looſe ſpikes at the end of the branches, in the ſame manner as the other ſpecies.

The twenty-ſecond ſort was ſent me by Dr. Adrian Van Royen, who received the ſeeds from the Cape of Good Hope. This riſes with a ſhrubby ſtalk about nine inches high, garniſhed with very narrow fine leaves, growing in cluſters; the flowers come out from the ſide and at the end of the branches, ſtanding upon ſlender foot-ſtalks; they are of a pale Straw colour, and very fugacious, ſeldom continuing longer than two hours before the petals fall off. This ſeldom continues longer than two years.

The twenty-third ſort grows naturally in Egypt; this is an annual plant having ſhrubby erect ſtalks, garniſhed with narrow ſpear-ſhaped leaves, ſtanding on foot-ſtalks; the upper part of the ſtalks are adorned with white flowers, whoſe petals are not ſo large as the empalement, and being very fugacious they make but little appearance: it flowers in July, and the ſeeds ripen in September, ſoon after which the plants decay.

The twenty-fourth ſort grows naturally about Kendal in Weſtmoreland, and in ſome parts of Lancaſhire, upon rocky ſituations. This hath trailing herbaceous ſtalks, which ſeldom extend more than three or four inches, garniſhed with oval leaves, which are very woolly, and ſit cloſe to the branches; the flowers are produced at the upper part of the branches; they are white and ſmall, ſo make no great appearance.

Moſt of the perennial ſorts of Dwarf Ciſtus are hardy, ſo will thrive in the open air in England; they are propagated by ſeeds, which may be ſown in places where the plants are to remain, and will require no other care but to keep them clean from weeds, and thin them where they are too cloſe, always obſerving to leave thoſe ſorts at a farther diſtance, whoſe ſtalks trail on the ground, and grow to the greateſt length. Theſe plants will continue ſeveral years, eſpecially in a poor dry ſoil; but in rich ground or moiſt ſituations, they ſeldom laſt long: but as they ripen ſeeds in plenty, ſo they may be eaſily repaired. They all flower about the ſame time as the common ſort, and their ſeeds ripen in the autumn.

The annual ſorts may be propagated with as great facility; for if their ſeeds are ſown upon a bed of common earth in April, the plants will come up in May, and require no other culture, but to thin them where they are too cloſe, and keep them clear from weeds. Theſe will flower in July, and the ſeeds ripen in the autumn. The twenty-ſecond ſort will thrive in the full ground in the ſame manner as the other; but unleſs the ſummer proves favourable, the ſeeds will not ripen: the roots have ſtood through the winter when the ſeaſon has proved mild, without any ſhelter, and have flowered the following ſummer.

The twenty-fourth ſort requires a ſhady ſituation, otherwiſe it will not thrive here.

HELIANTHUS. Lin. Gen. Plant. 877. Corona ſolis. Tourn. Inſt. R. H. 489. tab. 279. [of Ἥλιος, the ſun, and Ἄνθος, a flower,] i. e. Sun-flower; in French, *Soliel.*

This genus of plants was titled Corona ſolis, by moſt of the botanic writers; but this being a compound name, Dr. Linnæus has altered it to this of Helianthus: it has alſo by ſome been titled Heliotropium, which name is now applied to another genus of plants, very different from this.

The Characters are,

It hath a compound radiated flower, the border or rays being compoſed of female half-florets, which are barren, and the diſk of hermaphrodite florets, which are fruitful: theſe are contained in one common ſcaly empalement, whoſe ſcales are broad at their baſe, pointed at their ends, and expand. The hermaphrodite florets are cylindrical, ſwelling at their baſe, cut at the brim into five acute ſegments, which ſpread open; theſe have five ſtamina which are curved at bottom, as long as the tube, and terminated by tubulous ſummits. The germen, which is ſituated at the bottom of the tube, ſupports a ſlender ſtyle the length of the tube, crowned by a reflexed ſtigma, divided in two parts; the germen afterward becomes an oblong, blunt, four-cornered ſeed. The female half florets, which compoſe the border, are ſtretched out on one ſide like a tongue, which is long and entire; theſe have a germen in the bottom, but no ſtyle or ſtamina, and are not fruitful.

This genus of plants is ranged in the third ſection of Linnæus's nineteenth claſs, in which he includes thoſe plants whoſe flowers are compoſed of hermaphrodite fruitful flowers in the center, and female barren flowers in the circumference.

The Species are,

1. Helianthus (*Annuus*) foliis omnibus cordatis trinervatis, floribus cernuis. Lin. Sp. 1276. *Sun-flower, whoſe leaves are all heart-ſhaped, with three veins and a nodding flower.* Corona ſolis. Tabern. Icon. 763. and the Helenium Indicum maximum. C. B. P. 276. *Greateſt Indian Sun-flower, commonly called annual Sun-flower.*
2. Helianthus (*Multifloris*) foliis inferioribus cordatis trinervatis, ſuperioribus ovatis. Lin. Sp. Plant. 1277. *Sun-flower whoſe under leaves are heart-ſhaped, with three veins, and the upper leaves oval.* Corona ſolis minor fœmina. Tabern. Icon. 764. *Leſſer female Sun-flower, commonly called perennial Sun-flower.*
3. Helianthus (*Tuberoſus*) foliis ovato-cordatis triplinerviis. Lin. Sp. Plant. 1277. *Sun-flower with oval heart-ſhaped leaves with three nerves.* Corona ſolis parvo flore tuberoſâ radice. Tourn. Inſt. 489. *Sun-flower with a ſmall flower and a tuberous root, commonly called Jeruſalem Artichoke*; in French, *Taupinambours.*
4. Helianthus. (*Strumoſis*) radice fuſſi formi. Hort. Cliff. 420. *Sun-flower with a ſpindle-ſhaped root.* Corona ſolis latifolia altiſſima. Tourn. Inſt. 489. *Talleſt broad-leaved Sun-flower.*
5. Helianthus (*Giganteus*) foliis alternis lanceolatis ſcabris, baſi ciliatis, caule ſtricto ſcabro. Lin. Sp. Plant. 1278. *Sun-flower with ſpear-ſhaped leaves, and a ſlender rough ſtalk.* Chryſanthemum Virginianum altiſſimum anguſtifolium puniceis caulibus. Mor. Hiſt. 3. p. 24. *Talleſt Virginia Chryſanthemum, with a narrow leaf and purple ſtalks.*
6. Helianthus (*Divaricatus*) foliis oppoſitis ſeſſilibus ovato oblongis trinerviis, paniculâ dichotomâ. Lin. Sp. Plant. 1279. *Sun-flower with oblong, oppoſite, oval leaves, having three veins ſitting cloſe to the ſtalk, and a forked panicle.* Chryſanthemum, Virginianum repens, foliis aſperis binatim ſeſſilibus acuminatis. Mor. Hiſt. 3. p. 22. *Creeping Virginia Chrſyanthemum, with rough-pointed leaves, ſitting cloſe by pairs.*
7. Helianthus (*Trachelifolius*) foliis lanceolatis oppoſitis, ſuperne ſcabris, inferne trinerviis, caule dichotomo ramoſo. *Sun-flower with ſpear-ſhaped leaves placed oppoſite, whoſe upper ſurface is rough, the under having three veins and a divided ſtalk.* Corona ſolis trachelii folio, radice repente. Tourn. Inſt. 490. *Sun-flower with a Throatwort leaf, and a creeping root.*
8. Helianthus (*Ramoſiſſimus*) caule ramoſiſſimo, foliis lanceolatis ſcabris, inferioribus oppoſitis, ſummis alternis petiolatis, calycibus folioſis. *Sun-flower with a very branching ſtalk, rough ſpear-ſhaped leaves placed oppoſite at bottom, but alternate toward the top, having foot-ſtalks, and leafy empalements.* Corona ſolis trachelii folio tenuiore, calyce floris foliato. Act. Phil. N° 412. *Sun-flower with a narrow Throatwort leaf, and a leafy flower-cup.*
9. Helianthus (*Atrorubens*) foliis ovatis crenatis trinerviis ſcabris, ſquamis calycinis erectis longitudine diſci Flor. Virg. 103. *Sun-flower with oval, rough, crenated leaves, having three nerves, the ſcales of the empalement being erect, and as long as the diſk of the flower.* Corona ſolis Caroliniana, parvis floribus, folio trinervi amplo aſpero, pediculo alato. Martyn. Cent. 1. 20. *Carolina Sun-flower with ſmall flowers, large rough leaves having three veins, and a winged foot-ſtalk.*
10. Helianthus (*Decapetalus*) caule inferne lævi, folis lanceolato-cordatis, radiis decapetalis. Lin. Sp. Plant. 905. *Sun-flower with a ſmooth ſtalk, heart ſpear-ſhaped leaves, ſmooth on their upper ſide, and ten petals in the rays.*

All theſe ſpecies of Sun-flowers are natives of America, from whence we are often ſupplied with new kinds; and it is very remarkable, that there is not a ſingle ſpecies of this genus that is European; ſo that before America was diſcovered, we were wholly unacquainted with theſe plants. But although they are not originally of our own growth, yet they are become ſo familiar to our climate, as to thrive and increaſe full as well as if they were in their native country, (ſome of the very late flowering kinds excepted, which require a longer ſummer than we generally enjoy, to bring them to perfection;) and many of them are now ſo plentiful in England, that perſons unacquainted with the hiſtory of theſe plants, would imagine them at leaſt to have been inhabitants of this iſland many hundred years; particularly the Jeruſalem Artichoke, which, though it doth not produce ſeeds in our climate, yet doth ſo multiply by its knobbed roots, that, when once well fixed in a garden, it is not eaſily to be rooted out.

The firſt ſort is annual, and ſo well known as to require no deſcription. There are ſingle and double flowers of two different colours, one of a deep yellow, and the other of a ſulphur colour; but theſe vary, ſo are not worthy to be mentioned as different. They are eaſily propagated by ſeeds, which ſhould be ſown in March, upon a bed of common earth; and when the plants come up, they muſt be thinned where they are too cloſe, and kept clean from weeds; when the plants are grown ſix inches high, they may be taken up with balls of earth to their roots, and planted into the large borders of the pleaſure-garden, obſerving to water them till they have taken new root; after which they will require no other care, but to keep them clear from weeds.

In July the great flowers upon the tops of the ſtems will appear, amongſt which, the beſt and moſt double flowers of each kind ſhould be preſerved for ſeeds; for thoſe which flower later upon the ſide branches are neither ſo fair, nor do they perfect their ſeeds ſo well, as thoſe which are firſt in flower: when the flowers are quite faded and the ſeeds are formed, you ſhould carefully guard the heads from the ſparrows, which will otherwiſe devour moſt of the good ſeeds; and about the beginning of October, when the ſeeds are ripe, you ſhould cut off the heads with a ſmall part of the ſtem, and hang them up in a dry airy place for about a month, by which time the ſeeds will be perfectly dry and hard; when you may eaſily rub them out, and put them into bags or papers, preſerving them from vermin until the ſeaſon for ſowing them.

The ſeeds of this ſort of Sun-flower are excellent food for domeſtic poultry; therefore where a quantity of it can be ſaved, it will be of great uſe, where there are quantities of theſe fowls.

The other perennial ſorts rarely produce ſeeds in England, but moſt of them increaſe very faſt at their roots, eſpecially the creeping rooted kinds, which ſpread too far for ſmall gardens. The ſecond ſort, which is the moſt common in the Engliſh gardens, is the largeſt and moſt valuable flower, and is a very proper furniture for large borders in great gardens, as alſo for boſquets of large growing plants, or to intermix in ſmall quarters with ſhrubs, or in walks under trees, where few other plants will thrive; it is alſo a great ornament to gardens within the city, where it grows in defiance of the ſmoke, better than moſt other plants; and for its long continuance in flower, deſerves a place in moſt gardens, for the ſake of its flowers for baſons, &c. to adorn halls and chimneys, in a ſeaſon when we are at a loſs for other flowers. It begins flowering in July, and continues until October; there is a variety of this with very double flowers, which is now become ſo common in the Engliſh gardens, as to have almoſt baniſhed the ſingle ſort from hence.

The third, fourth, fifth, ſixth, and ſeventh ſorts may alſo have a place in ſome large borders of the garden, for the variety of their flowers; which, though not ſo fair as thoſe of the common ſort, yet will add to the diverſity; and as many of them are late flowerers, ſo we may continue the ſucceſſion of flowers longer in the ſeaſon.

Theſe ſorts are all of them very hardy, and will grow in almoſt any ſoil or ſituation; they are propagated by parting their roots into ſmall heads, which in one year's time will ſpread and increaſe greatly. The beſt ſeaſon for this work is in the middle of October, ſoon after the flowers are paſt, or very early in the ſpring, that they may be well rooted before the droughts come on; otherwiſe their flowers will be few in number, and not near ſo fair, and by this means their roots will be weak; but if they are planted in October, you will ſave the trouble of watering them; their roots being ſurely fixed before the dry weather, they will need no other trouble than to clear them from weeds.

The Jeruſalem Artichoke is propagated in many gardens for the roots, which are by ſome people as much eſteemed as Potatoes; but they are more watery and flaſhy, and are very ſubject to trouble the belly by their windy quality, which hath brought them almoſt into diſuſe.

Theſe are propagated by planting the ſmaller roots, or the larger ones cut in pieces, obſerving to preſerve a bud to each ſeparate piece, either in the ſpring or autumn, allowing them a good diſtance, for their roots will greatly multiply; the autumn following, when their ſtems decay, the roots may be taken up for uſe. Theſe ſhould be planted in ſome remote corner of the garden, for they are very unſightly while growing, and their roots are apt to over-run whatever grows near them, nor can they be eaſily deſtroyed when they are once well fixed in a garden.

The other ſpecies which have been ranged under this genus by Tournefort and others, are now removed to the following genera, under which titles they may be found.

Corona Solis. See
{ Coreopsis.
Helenium.
Rudbeckia.
Silphium.

HELICTERES. Lin. Gen. Plant. 913. Iſora. Plum. Nov. Gen. 34. tab. 37. Screw-tree.

The Characters are,

The flower has a coriaceous empalement of one leaf, which is narrow at bottom, but ſpreads open at the top, where it is indented in five parts. The flower hath five oblong equal petals, which are longer than the empalement to which they are fixed. It hath ten ſhort ſtamina at the baſe of the germen, terminated by oblong ſummits, and five nectariums ſurrounding the germen, which have the appearance of petals. The ſtyle is very long, ſlender, and ſupports the germen at the top, which is roundiſh, and crowned by an acute ſtigma. The germen afterward turns to a twiſted ſpiral fruit with one cell, incloſing many kidney-ſhaped ſeeds.

This genus of plants is ranged in the ſixth ſection of Linnæus's twentieth claſs, which includes thoſe plants whoſe flowers have ten ſtamina which are connected to the ſtyle.

The Species are,

1. Helicteres (*Iſora*) foliis cordato-ovatis ſerratis, ſubtus tomentoſis, fructu tereti contorto. *Helicteres with oval heart-ſhaped leaves which are ſawed, and woolly on their under ſide, and a taper twiſted fruit.* Iſora althææ foliis, fructu longiore & anguſtiore. Plum. Nov. Gen. 24. *Screw-tree with Marſhmallow leaves, and a longer narrower fruit.*
2. Helicteres (*Breviore*) foliis cordatis acuminatis ſerratis, ſubtus tomentoſis, fructu brevi contorto. *Helicteres with heart-ſhaped, pointed, ſawed leaves, woolly on their under ſide, and a ſhort twiſted fruit.* Iſora althææ foliis, fructu breviore & craſſiore. Plum. Nov. 34. *Screw-tree with a Marſhmallow leaf, and a ſhorter thicker fruit.*
3. Helicteres (*Arboreſcens*) caule arboreo villoſo, foliis cordatis crenatis nervoſis ſubtus tomentoſis fructu ovato contorto villoſiſſimo. *Helicteres with a tree-like hairy ſtalk, heart-ſhaped, nervous, crenated leaves, woolly on their under ſide, and an oval, twiſted, very hairy fruit.* Iſora althææ folio ampliſſimo, fructu craſiſſimo & villoſo. Edit. prior. *Screw-tree with a very large Marſhmallow leaf, and a very thick hairy fruit.*

The firſt ſort grows naturally in the Bahama Iſlands, from whence I received the ſeeds. This riſes with a ſhrubby ſtalk five or ſix feet high, ſending out ſeveral lateral branches, which are covered with a ſoft yellowiſh down, garniſhed with heart-ſhaped leaves four inches long, and two and a half broad, ſawed on their edges, woolly on their under ſide, ſtanding on long foot-ſtalks; at the upper part of the branches the flowers come out oppoſite to the leaves, upon ſlender foot-ſtalks which are jointed; theſe are compoſed of five oblong white petals, and in the center ariſes the ſtyle, which is curved, three inches long, upon the top of which is ſituated the germen, crowned by an acute ſtigma. The germen afterward turns to a taper fruit two inches and a half long, compoſed of five capſules, which are cloſely twiſted over each other like a ſcrew; theſe are hairy, and have each one cell, containing ſeveral kidney-ſhaped ſeeds.

The ſecond ſort grows naturally in Jamaica, from whence the late Dr. Houſtoun ſent me the ſeeds. This riſes with a ſhrubby ſtalk nine or ten feet high, ſending out many lateral branches, covered with a ſmooth brown bark, garniſhed with heart-ſhaped leaves, which end in acute points, ſawed on their edges, a little woolly on their under ſide; the flowers are produced on the ſide of the branches, on ſhorter foot-ſtalks than the former; they are compoſed of five petals, and the ſtyle in the center, which is ſtrait, upright, and not half ſo long as the other; the fruit is thicker, not an inch long, but twiſted in the ſame manner.

The third ſort riſes with a ſtrong woody ſtalk twelve or fourteen feet high, ſending out many ligneous branches, which are cloſely covered with hairy down, garniſhed with large heart-ſhaped leaves, which are crenated on their edges, having large veins running from the midrib to the ſides; they are of a light yellowiſh green, and woolly on their under ſide: the flowers are produced from the ſide of the branches, they are of a yellowiſh white colour, and larger than thoſe of the other ſorts. The ſtyle is near four inches long, curved like that of the firſt ſort; the fruit is oval, about one inch long, very thick at the bottom, and cloſely covered with hairy down. This ſort was ſent me by Mr. Robert Millar, from Carthagena.

Theſe plants are propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring, and when the plants are come up ſtrong enough to remove, they ſhould be each planted in a ſeparate ſmall pot, filled with light earth, and plunged into a moderate hot-bed of tan, obſerving to ſhade them from the ſun till they have taken new root; then they ſhould be treated in the ſame way as other tender plants from hot countries, raiſing the glaſſes every day in proportion to the weather, that the plants may enjoy freſh air, which will ſtrengthen them, and prevent their drawing up weak. In the ſummer the plants may remain under the frames, if there is ſufficient height for them to grow; but in autumn they muſt be plunged into the tan-bed in the ſtove, where they ſhould always remain, being careful to ſhift them into larger pots when they require it, and not give them too much wet in the winter; but in ſummer they ſhould have a large ſhare of air in warm weather, and require to be often refreſhed with water: the ſecond year from the ſeeds theſe plants have often flowered in the Chelſea garden, and the ſeeds have ſome years ripened there, but the plants will live ſeveral years with proper management.

HELIOCARPOS. Lin. Gen. Plant. 533. Montia. Houſt. Gen. We have no title in Engliſh for this plant.

The CHARACTERS are,

The flower hath one petal which is tubulous at the bottom, and cut into five ſegments which expand. It hath an empalement of one leaf, which is cut into five parts ſpreading open. In the center is ſituated a roundiſh germen, ſupporting two erect ſtyles, crowned by acute ſtigmas which ſtand apart; theſe are attended by twelve ſtamina, which are of the ſame length with the ſtyles, terminated by narrow twin ſummits which are proſtrate. The germen afterward becomes an oval compreſſed capſule, about three lines long and two broad, with a tranſverſe partition dividing it in two cells, each containing a ſingle roundiſh ſeed ending in a point; the borders of the capſule are ſet with hairs, reſembling rays.

This genus of plants is ranged in the ſecond ſection of Linnæus's eleventh claſs, intitled Dodecandria Digynia, which includes the plants whoſe flowers have twelve ſtamina and two ſtyles.

We have but one SPECIES of this plant, viz.

HELIOCARPOS (*Americana.*) Hort. Cliff. 211. tab. 16. Montia arboreſcens mori folio fructu racemoſo. Houſt. MSS. *Tree Montia with a Mulberry leaf and branching fruit.*

This plant was diſcovered by the late Dr. Houſtoun, growing naturally about Old La Vera Cruz in New Spain, from whence he ſent the ſeeds to England, which ſucceeded in the Chelſea garden, where the plants have produced flowers, and ripened ſeeds ſeveral years. It riſes with a thick, ſoft, woody ſtalk, from fifteen to eighteen feet high, ſending out ſeveral lateral branches toward the top, garniſhed with heart-ſhaped leaves full of veins, ſawed on their edges, and ending in acute points; they have foot-ſtalks three inches long, which ſtand oblique to the leaves, and are placed alternate; the flowers are produced at the end of the ſhoots, in branching cluſters; they are of a yellowiſh green, and are ſucceeded by flat compreſſed ſeed-veſſels of an oval ſhape, whoſe borders are cloſely ſet with threads repreſenting rays, of a browniſh colour when ripe; theſe capſules are divided into two cells by an intermediate partition, in each of theſe is lodged a ſingle roundiſh ſeed ending in a point.

This plant is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot filled with light kitchen-garden earth, andd plunged into a hot-bed, treating them in the ſame way as other tender plants, which will not bear the open air in this country at any ſeaſon of the year; and while the plants are young, they require to be plunged in the tan-bed, but after they have acquired ſtrength, they will thrive in the dry ſtove. In winter they ſhould have but little water, and muſt be kept warm; but in ſummer they ſhould have plenty of freſh air in mild weather, and muſt be frequently refreſhed with water. With this management the plants will flower the third year, and produce good ſeeds, but may be preſerved ſeveral years with proper care.

I have ſowed the ſeeds of this plant which had been kept ten years, and came up as well as if it had been ſaved the former year; though from the appearance of the ſeeds, it ſeems as unlike to grow after the firſt year as any which I know.

HELIOPHILA. Lin. Gen. 816.

The CHARACTERS are,

It hath a four-leaved empalement, whoſe boraers have membranes; the two outer have ſmall bladders at their baſe. The flower has four roundiſh plain petals, placed in form of a croſs, and two nectariums, which are recurved toward the bladders of the empalement. It hath ſix ſtamina, four of which are longer than the other, terminated by oblong erect ſummits; and a cylindrical germen ſupporting a ſhort ſtyle, crowned by an obtuſe ſtigma; the germen afterward becomes a taper pod, with two cells filled with ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa, the flower having four long and two ſhort ſtamina, and the ſeeds being included in long pods.

The SPECIES are,

1. HELIOPHILA (*Integrifolia*) foliis lanceolatis indiviſis. N. Burman. *Heliophila with ſpear-ſhaped undivided leaves.* Leucoium Africanum, cœruleo flore, latifolium. H. L. 364. *African Gilliflower with a broad leaf and a blue flower.*
2. HELIOPHILA (*Coronopi folia*) foliis linearibus pinnatifidis. Lin. Sp. Plant. 927. *Heliophila with linear wing-pointed leaves.* Leucoium Africanum, cœruleo flore, anguſto coronopi folio majus. H. L. 364. *African Gilliflower, with narrow Hartſhorn leaves and blue flowers.*

Theſe are both annual plants, which grow naturally at the Cape of Good Hope; the firſt riſes with an erect ſtalk about four or five inches high, ſending out two or three ſide branches, garniſhed with long, narrow, entire green leaves, and terminated by a looſe bunch of blue flowers without ſcent, which are ſucceeded by taper pods near three inches long, having a double row of flat ſeeds.

The ſecond ſort grows about the ſame height, but branches more; the leaves are cut into many wing-pointed diviſions, and the flowers are like thoſe of the other ſort.

The ſeeds of both ſorts may be ſown in the ſpring on a ſouth border, and when the plants come up, if they are thinned and kept clean from weeds, it is all the culture they require.

HELIOTROPIUM. Lin. Gen. Plant. 164. Tourn. Inſt. R. H. 138. tab. 57. [Ἡλιοτρόπιον, of Ἥλιος, the ſun, and τρέπω, to turn.] Turnſole.

The CHARACTERS are,

The empalement of the flower is of one leaf, tubulous at bottom, but cut into five ſegments at the brim. The flower hath one petal, with a tube the length of the empalement, ſpreading flat above, where it is cut into five ſegments, which are alternately larger than the other; the chaps of the tube is cloſed, and hath five prominent ſcales, joined in form of a ſtar. It hath five ſhort ſtamina within the tube, terminated by ſmall ſummits, and four germen at the bottom of the tube, with one ſlender ſtyle the length of the ſtamina, crowned by an indented ſtigma. The germen afterward becomes ſo many ſeeds, ſitting in the empalement. This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

The SPECIES are,

1. HELIOTROPIUM (*Europæum*) foliis ovatis integerrimis tomentoſis rugoſis ſpicis conjugatis. Hort. Upſal. 33. *Heliotrope with oval, entire, woolly, rough leaves, and conjugated ſpikes.* Heliotropium majus Dioſcoridis. C. B. P. 253. The greater Turnſole of Dioſcorides.

2. HELIOTRIPIUM (*Indicum*) foliis cordato-ovatis acutis ſcabriuſculis, ſpicis ſolitariis, fructibus bifidis. Flor. Zeyl. 70. *Heliotrope with heart-ſhaped oval leaves, which are pointed and rough, ſingle ſpikes of flowers and bifid ſeeds.* Heliotropium Americanum cœruleum, foliis hormini. Acad. Reg. Sc. *Blue American Turnſole with Clary leaves.*

3. HELIOTROPIUM (*Horminifolium*) foliis lanceolato-ovatis acuminatis rugoſis, ſpicis ſolitariis gracilioribus alaribus & terminalibus. *Heliotrope with ſpear-ſhaped oval leaves, which are rough, and end in acute points, having ſlender ſingle ſpikes of flowers proceeding from the ſides and tops of the ſtalks.* Heliotropium Americanum cœruleum, foliis hormini anguſtioribus. H. L. *Blue American Turnſole with narrower Clary leaves.*

4. HELITROPIUM (*Capitatum*) foliis oblongo-ovatis integerrimis glabris ſubtus incanis, floribus capitatis alaribus, caule arboreſcente. *Heliotrope with oblong, oval, entire, ſmooth leaves, which are hoary on their under ſide, flowers growing in heads from the wings of the ſtalks, and a tree-like ſtalk.* Heliotropium arboreſcens, folio teucrii, flore albo in capitula denſa congeſto. Boerh. Ind. *Tree-like Turnſole, with a Germander leaf, and white flowers growing in thick ſhort heads.*

5. HELIOTROPIUM (*Canarienſe*) foliis ovatis crenatis oppoſitis, floribus capitatis alaribus dichotomis, caule arboreſcente. *Heliotrope with oval crenated leaves placed oppoſite, flowers growing in heads from the wings of the ſtalks, which diverge, and a tree-like ſtalk.* Heliotropium Canarienſe arboreſcens, folio ſcorodonæ. Hort. Amſt. *Canary tree-like Turnſole, with a Wood Sage leaf.*

6. HELIOTROPIUM (*Peruvianum*) foliis lanceolato-ovatis, caule fruticoſo, ſpicis numeroſis aggregato-corymboſis. Lin. Sp. 187. *Peruvian Helitrope with oval ſpear-ſhaped leaves, a ſhrubby ſtalk, and many ſpikes of flowers joined in a corymbus.*

7. HELIOTROPIUM (*Curaſſavicum*) foliis lanceolato-linearibus glabris aveniis, ſpicis conjugatis. Hort. Cliff. 45. *Heliotrope with narrow, ſpear-ſhaped, ſmooth leaves without veins, and conjugated ſpikes of flowers.* Heliotropium Curaſſavicum, foliis lini umbilicati. Par. Bat. Prod. *Heliotrope of Curaſſao, with a Venus Navelwort leaf.*

8. HELIOTROPIUM (*Gnaphalodes*) foliis linearibus obtuſis tomentoſis, pedunculis dichotomis, ſpicarum floribus quaternis, caule fruteſcente. Lin. Sp. 188. *Heliotrope with linear, obtuſe, woolly leaves, forked foot-ſtalks, with four ſpikes of flowers and a ſhrubby ſtalk.* Heliotropium arboreum maritimum, tomentoſum, gnaphalii Americani foliis. Sloan. Cat. 93. *Tree maritime woolly Heliotrope, with a Sea Cudweed leaf.*

9. HELIOTROPIUM (*Fruticoſum*) foliis lineari-lanceolatis piloſis, ſpicis ſolitariis ſeſſilibus. Lin. Sp. 187. *Heliotrope with linear, ſpear-ſhaped, hairy leaves, and ſingle ſpikes of flowers ſitting cloſe to the ſtalk.* Heliotropium minus lithoſpermi foliis. *Smaller Heliotrope with leaves like Gromwell.*

10. HELIOTROPIUM (*Procumbens*) caule procumbente, foliis ovatiis tomentoſis integerrimis, ſpicis ſolitariis terminalibus. *Heliotrope with a trailing ſtalk, oval, woolly, entire leaves, and ſingle ſpikes of flowers terminating the branches.* Heliotropium Americanum ſupinum & tomentoſum, foliis ſubrotundis. Houſt. MSS. *Low American woolly Heliotrope with roundiſh leaves.*

11. HELIOTROPIUM (*Americanum*) foliis oblongo-ovatis tomentoſis, ſpicis conjugatis terminalibus, caule fruticoſo. *Heliotrope with oblong, oval, woolly leaves, and double ſpikes of flowers terminating the ſtalk, which is ſhrubby.* Heliotropium Americanum fruteſcens & tomentoſum, foliis oblongis, floribus albis. Houſt. MSS. *Shrubby and woolly American Heliotrope, with oblong leaves and white flowers.*

The firſt ſort grows naturally in the ſouth of France, in Spain, Italy, and moſt of the warmer countries in Europe. It is an annual plant, which ſucceds better from ſeeds which ſcatter in the autumn, or ſown at that ſeaſon, than in the ſpring; for when they are ſown in the ſpring, they ſeldom come up the ſame year; but if the plant is once obtained, and the ſeeds ſuffered to ſhed, it will maintain itſelf without any trouble, requiring no other culture but to keep it clean from weeds, and thin the plants where they are too cloſe.

This riſes about ſeven or eight inches high, dividing into two or three branches, garniſhed with oval rough leaves, two inches long and one broad in the middle, of a light green, ſtanding upon pretty long foot-ſtalks alternately; the flowers are produced at the end of the branches in double ſpikes, joined at the bottom, which are about an inch and a half long, turning backward like a ſcorpion's tail. The flowers are white, and appear in June and July; the ſeeds ripen in autumn, ſoon after which the plant decays.

The ſecond ſort grows naturally in the Weſt-Indies. This is annual; the ſtalk riſes a foot and a half, or two feet high, branching out toward the top: the leaves are rough and hairy, ſtanding upon pretty long foot-ſtalks; they are two inches and a half long, and one and a half broad in the middle, ending in acute points; the flowers are produced toward the end of the branches in ſingle ſpikes, which are ſix inches long, turning backward at the top like the other ſpecies. The flowers are blue, and appear in July and Auguſt, the ſeeds ripen in September and October.

The third ſort grows naturally in the Weſt-Indies. This is a ſmaller plant than the former, ſeldom growing above two feet high; the leaves are one inch and a half long, and about half an inch broad; the ſpikes of flowers are very ſlender, and not more than two inches long; the flowers are ſmall, and of a light blue colour. They appear at the ſame time with the former, and the ſeeds ripen in autumn.

The ſeeds of theſe two ſorts muſt be ſown on a hot-bed in the ſpring, and when the plants are fit to remove, they muſt be tranſplanted on another hot-bed to bring them forward, treating them in the ſame way as the Balſamine, and other tender annual plants; and in June they may be taken up with balls of earth, and planted in the borders of the flower-garden, where they will flower, and in warm ſeaſons produce ripe ſeeds.

The fourth ſort riſes with a ſhrubby ſtalk ſix or ſeven feet high; the young branches are cloſely covered with a white down, and the leaves on thoſe are very hoary and entire, but thoſe on the older branches are greener, and ſome of them are notched on their edges; at each joint of the ſtalks come out two ſhort branches oppoſite, which are garniſhed with ſmall hoary leaves placed oppoſite: theſe, when bruiſed, emit a ſtrong odour, which to ſome perſons is very diſagreeable, but others are pleaſed with it. The plants rarely flower in England, for in near forty years which I have cultivated them, I have but once ſeen them in flower. The flowers are white, collected in roundiſh heads, which turn backward, and ſit cloſe to the branches;

the leaves continue all the year, for which the plants are preſerved in green-houſes, to add to the variety in winter.

The fifth ſort grows naturally in the Canary Iſlands. This riſes with a woody ſtalk three or four feet high, dividing into many branches, which are garniſhed with oval leaves notched on their edges, growing oppoſite upon long foot-ſtalks; they are hairy, and of an Aſh colour on their under ſide; the flowers are produced from the ſide of the branches on pretty long foot-ſtalks, each ſuſtaining four ſhort roundiſh ſpikes or heads, which divide by pairs, and ſpread from each other. The flowers are white, and appear in June and July, but are not ſucceeded by ſeeds in England. The leaves of this plant, when bruiſed, emit an agreeable odour, for which it is by ſome perſons much eſteemed; the gardeners have given it the title of Madam Maintenon, but for what reaſon I know not.

The two laſt ſorts are too tender to live through the winter in the open air in this country, ſo muſt be kept in a green-houſe during that ſeaſon; but they only require to be ſcreened from froſt, ſo may be placed with Myrtles and the other hardy green-houſe plants, where they may have a large ſhare of air in mild weather, and be treated in the ſame way; they are eaſily propagated by cuttings during any of the ſummer months, which, if planted in a ſhady border and duly ſupplied with water, will take root in five or ſix weeks; then they may be potted, and placed in a ſhady ſituation till they have taken new root, after which they may be treated as the old plants.

The ſixth ſort grows naturally in Peru, from whence the ſeeds were ſent by the younger Juſſieu to the Royal Garden at Paris, where the plants produced flowers and ſeeds; and from the curious garden of the Duke D'Ayen, at St. Germains, I was ſupplied with ſome of the ſeeds, which have ſucceeded in the Chelſea garden, where the plants have flowered and perfected their ſeeds for ſome years.

This riſes with a ſhrubby ſtalk two or three feet high, dividing into many ſmall branches, garniſhed with oval, ſpear-ſhaped, rough leaves, ſet on without order; they are three inches long, and one inch and a half broad in the middle, ſtanding on ſhort foot-ſtalks; they are hairy, and greatly veined on their under ſide, which is of an Aſh colour. The flowers are produced at the end of the branches in ſhort reflexed ſpikes, growing in cluſters. The foot-ſtalks divide into two or three, and theſe divide again into leſs, each ſuſtaining a ſpike of pale blue flowers, which have a ſtrong ſweet odour. The plants continue in flower great part of the year, and thoſe flowers which come out in ſummer, are ſucceeded by ripe ſeeds in autumn.

It may be propagated either by ſeeds or cuttings. The ſeeds ſhould be ſown upon a moderate hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be tranſplanted into ſmall pots filled with light earth, and plunged into a hot-bed, where they ſhould be ſhaded till they have taken new root; then they ſhould be inured to the open air by degrees, into which they ſhould be removed in ſummer, placing them in a ſheltered ſituation; and in autumn they muſt be houſed with other exotic plants in a good green-houſe, where they will flower great part of winter, ſo will make a good appearance among the Orange-trees, and other green-houſe plants, with whoſe culture this plant will thrive. If the cuttings of this plant are put into pots filled with light earth, during any of the ſummer months, and plunged into a moderate hot-bed, they will take root very freely, but theſe do not make ſo good plants as thoſe raiſed from ſeeds.

The ſeventh ſort grows naturally on the ſea-ſhore in the Weſt-Indies; this is an annual plant, whoſe branches trail upon the ground, and grow a foot long; they are garniſhed with narrow grayiſh leaves, which are ſmooth. The flowers are produced in double ſpikes from the ſide of their branches; they are white and ſmall, ſo make no great appearance. It is propagated by ſeeds, and requires the ſame treatment as the ſecond and third ſorts.

The eighth ſort riſes with an upright woody ſtalk ſix or ſeven feet high, with a hoary bark, full of marks where the leaves have grown; the upper part of the ſtalk divides into two or three ſtrong woody branches, which grow erect, and are very cloſely garniſhed with long, narrow, woolly leaves, which ſtand on every ſide the branches without order. The flowers come out from the ſide of the ſtalks, to which they ſit cloſe; they are ſhort and reflexed, like thoſe of the other ſpecies. The flowers are purple, ſitting in very woolly empalements, which are divided into five ſegments, which ſpread open; the whole plant is very white and woolly, like the Sea Cudweed, ſo makes an odd appearance when intermixed with other exotic plants: this is propagated by ſeeds, which muſt be procured from the places where it naturally grows, for it never produces any in Europe; theſe ſeeds ſhould be ſown in a tub of earth in the country, for when the dried ſeeds come over they ſeldom grow; and if they do, it is not before the ſecond year: and from ſeveral parcels of the ſeeds which I have received from the Weſt-Indies, I have not raiſed more than two plants, and theſe came up from the ſeeds which had been ſown more than a year; ſo that if the ſeeds are ſown as ſoon as they are ripe in a tub of earth, when they arrive in England, the tub ſhould be plunged into a hot-bed of tanners bark, which will bring up the plants; and when theſe are fit to remove, they ſhould be each planted in a ſeparate ſmall pot filled with earth, compoſed of ſand and light undunged earth, with a little lime rubbiſh well mixed together, then plunged into a hot-bed of tanners bark, and ſhaded until they have taken new root; after which, they muſt be treated as other tender exotic plants, always keeping them in the tan-bed in the ſtove, giving them but little water, eſpecially during the winter ſeaſon.

The ninth ſort is a native of the Weſt-Indies, where it grows plentifully on the ſea-ſhore; it riſes with an upright ſhrubby ſtalk a foot and a half high, garniſhed with ſmall ſpear-ſhaped leaves, ſcarce one inch long, and one-third of an inch broad in the middle, ending in acute points, ſitting cloſe to the ſtalk; they are hoary on their under ſide, but ſmooth above. The flowers are produced in ſingle ſlender ſpikes, which come out from the ſide, and at the top of the ſtalks; they are but little recurved, eſpecially thoſe on the ſide, but thoſe at the top are more bent; they are white, ſo make but little appearance.

The tenth ſort was ſent me from Carthagena in New Spain, where it grows naturally on the ſandy ſhores. This is an annual plant, with trailing ſtalks which grow ſix or ſeven inches long, garniſhed with ſmall oval leaves, which are woolly and entire. The flowers are produced at the end of the branches, in ſingle ſhort ſpikes, which are reflexed; they are ſmall and white, ſo make little appearance.

The eleventh ſort was ſent me by the late Dr. Houſtoun from La Vera Cruz, where he found it growing in plenty; this riſes with a ſhrubby ſtalk three feet high, dividing into ſlender branches, which are cloſely garniſhed with oblong, oval, woolly leaves, placed without order. The flowers are produced at the end of the branches in double ſpikes, which are ſlender, ſhort, and ſtrait, not recurved as the other ſpecies. The flowers are ſmall and white, and the plant is perennial.

Theſe three laſt mentioned are propagated by ſeeds, but the difficulty of getting them freſh from America, and the uncertainty of their growing, unleſs they are ſown abroad, and brought over in earth, has rendered them rare in Europe; and as they are plants of little beauty, ſo few perſons have taken the trouble to procure them: beſides, as they require a ſtove to preſerve them in this country, and muſt have a peculiar ſoil and management like the eighth ſort, ſo, unleſs for the ſake of variety in botanic gardens, they are not worth cultivating here.

HELLEBORE. See Helleborus.

HELLEBORINE. See Serapias and Limadorum.

HELLEBOROIDES HYEMALIS. See Helleborus.

HELLEBORO RANUNCULUS. See Trollius.

HELLEBORUS. Lin. Gen. Plant. 622. Tourn. Inſt. R. H. 271. tab. 144. [Ἑλλέβορος.] Black Hellebore, or Chriſtmas flower; in French, *Ellebore-Noire.*

The Characters are,

The flowers hath no empalement; it hath five large roundiſh petals, which are permanent, and many ſmall nectarii placed circularly, each being of one piece, with a narrow tube at the bottom, divided at the brim into two lips, the under being ſhort and indented; it hath a great number of ſtamina, terminated by compreſſed erect ſummits, and ſeveral germen, which are compreſſed, ſupporting awl-ſhaped ſtyles, crowned by thick ſtigmas. The germen afterward turn to compreſſed capſules with two keels, the lower being ſhort, and the upper convex, which are filled with round ſeeds adhering to the ſeam.

This genus of plants is ranged in the ſeventh ſection of Linnæus's thirteenth claſs, intitled Polyandria Polygynia, which includes thoſe plants whoſe flowers have many ſtamina and ſtyles.

The Species are,

1. Helleborus (*Fœtidus*) caule multifloro folioſo, foliis pedatis. Lin. Sp. Plant. 784. *Hellebore with many flowers on a ſtalk, which are intermixed with leaves, and ramoſe leaves ſitting on the foot-ſtalk.* Helleborus niger fœtidus. C. B. P. *Stinking Black Hellebore, Bears-foot, or Setterwort.*
2. Helleborus (*Viridis*) caule multifloro folioſo, foliis digitatis. Lin. Sp. Plant. 558. *Hellebore with many flowers on a ſtalk, which are intermixed with leaves, and hand-ſhaped leaves.* Helleborus niger hortenſis, flore viridi. C. B. P. *Green flowered Black Hellebore, or Bears-foot.*
3. Helleborus (*Niger*) ſcapo ſub-unifloro ſub-nudo, foliis pedatis. Hort. Upſal. 157. *Hellebore with one flower on a ſtalk, which is naked, and hand-ſhaped leaves ſitting on the foot-ſtalk.* Helleborus niger, flore albo, etiam interdum valde rubente. J. B. *True Black Hellebore, or Chriſtmas Roſe.*
4. Helleborus (*Trifolius*) caule multifloro, foliis ternatis integerrimis. *Hellebore with many flowers on a ſtalk, and leaves compoſed of three entire lobes.* Helleborus niger trifoliatus. Hort. Farn. *Trifoliate Black Hellebore.*
5. Helleborus (*Hyemalis*) flore folio inſidente. Hort. Cliff. 227. *Hellebore with the flower ſitting on the leaf.* Aconitum Hyemale, *or Winter Aconite.*
6. Helleborus (*Latifolius*) caule multifloro folioſo, foliis digitatis ſerratis amplioribus. *Hellebore with many flowers upon a ſtalk, intermixed with leaves, and large fingered leaves which are ſawed.* Helleborus niger amplioribus foliis. Tourn. Inſt. R. H. 272. *Black Hellebore with larger leaves.*

The firſt ſort grows naturally in woods in ſeveral parts of England, but particularly in Suſſex, where I have ſeen it in great plenty; this hath a jointed herbaceous ſtalk, which riſes two feet high, dividing into two or three heads, garniſhed with leaves compoſed of eight or nine long narrow lobes, which join at their baſe; four of theſe on each ſide are joined together at their tails, and the middle one ſtands on the center of the foot-ſtalk; theſe are ſawed on their edges, and end in acute points; thoſe on the lower part of the ſtalk are much larger than the upper, which are ſmall and narrow. The flower-ſtalk ariſes from the center of the plant, dividing into many branches, each ſuſtaining ſeveral ſmaller foot-ſtalks, with one entire ſpear-ſhaped leaf upon each, and one large greeniſh flower at the top with purpliſh rims; theſe appear in winter, and the ſeeds ripen in the ſpring; which, if permitted to ſcatter, the plants will riſe without care, and may be tranſplanted into woods, or in wilderneſs quarters, where they will grow in great ſhade, and make a good appearance at a ſeaſon when there are but few plants in beauty.

The ſecond ſort grows naturally at Ditton, near Cambridge, and in the woods near Stoken Church, in Oxfordſhire. The ſtalks of this ſort grow more upright than thoſe of the firſt, and do not branch ſo much. The leaves are compoſed of nine long lobes, which unite to the foot-ſtalk at their baſe, and are ſharply ſawed on their edges; they are of a lighter green than thoſe of the firſt ſort. The flowers are produced at the top of the ſtalk, having one or two leaves ſet on the foot-ſtalk; they are compoſed of five oval green petals, with a great number of ſtamina ſurrounding the germen in the middle; theſe appear the beginning of February, and the ſeeds ripen the end of May, which if ſown ſoon after they are ripe, the plants will come up early the following ſpring; and, when they have obtained ſtrength, may be planted in ſhady places under trees, where they will thrive and flower very well. The leaves of this ſort decay in autumn, and new ones ariſe from the roots in the ſpring, but the firſt ſort is always green.

The third ſort is ſuppoſed to be the Hellebore of the antients; this grows naturally on the Alps and Apennine mountains. The root of this ſort is compoſed of many thick fleſhy fibres, which ſpread far into the ground, from which ariſe the flowers upon naked foot-ſtalks, immediately from the root, each ſupporting one large white flower, compoſed of five roundiſh petals, with a great number of ſtamina in the middle. The leaves of this are compoſed of ſeven or eight thick, fleſhy, obtuſe lobes, which are ſlightly ſawed on their edges, and unite with the foot-ſtalk at their baſe; this plant flowers in winter, from whence the title of Chriſtmas Roſe was applied to it: it is propagated by parting of the roots in autumn, for the ſeeds ſeldom ripen well in England; it ſhould have a more ſheltered ſituation than either of the former, otherwiſe it will not flower well.

The fourth ſort is like the ſecond, but differs from it in having trifoliate leaves, which are broader and entire, their ſurface is ſmoother; this flowers early in winter, and the ſtalks riſe higher than either of the former ſorts, but is at at preſent rare in England.

The fifth ſort is the common Winter Aconite, which is ſo well known as to need no deſcription. It flowers very early in the ſpring, which renders it worthy of a place in all curious gardens, eſpecially as it requires but little room; this is propagated by offſets, which the roots ſend out in plenty; theſe roots may be taken up and tranſplanted, any time after their leaves decay, which is generally by the beginning of June till October, when they will begin to put out new fibres; but as the roots are ſmall, and nearly of the colour of the ground, ſo, if care is not taken to ſearch them, many of the roots will be left in the ground; theſe roots ſhould be planted in ſmall cluſters, otherwiſe they will not make a good appearance; for ſingle flowers ſcattered about the borders of theſe ſmall kinds, are ſcarce ſeen at a diſtance; but when theſe and the Snowdrops are alternately planted in bunches, they will have a good effect, as they flower at the ſame time, and are much of a ſize.

The ſixth ſort is like the firſt, but the lobes of the leaves are broader, and the ſtalks grow taller; this grows naturally in Iſtria and Dalmatia, from whence I received ſome of the ſeeds; it has been ſuppoſed to be only a ſeminal variety of the firſt, and as ſuch I ſowed the ſeeds; but the plants had a very great difference, and the firſt winter proving ſevere, they were all deſtroyed; ſo that it is not ſo hardy as our common ſort, and depending on their being ſo, occaſioned the loſs of the plants.

HELLEBORUS flore globoſo. See TROLLIUS.

HELLEBORUS ALBUS. See VERATRUM.

HELMET FLOWER, or MONK's HOOD. See ACONITUM.

HEMEROCALLIS. Lin. Gen. Plant. 391. Lilio-Aſphodelus. Tourn. Inſt. R. H. 344. tab. 179. Liliaſtrum. Tourn. Inſt. R. H. 369. tab. 194. *Lily Aſphodel, or Day Lily*; in French, *Lis de Saint Bruno.*

The CHARACTERS are,

The flower has no empalement; in ſome ſpecies the flower is of one petal, cut into ſix parts; in others it hath ſix petals, with a ſhort tube, ſpreading open at the top, which is reflexed. There are ſix awl-ſhaped declining ſtamina ſurrounding the ſtyle, terminated by oblong proſtrate ſummits. The roundiſh furrowed germen is ſituated in the middle, ſupporting a ſlender ſtyle, crowned by an obtuſe three-cornered ſtigma. The germen afterward becomes an oval three-cornered capſule with three lobes, opening with two valves, filled with roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, which includes the plants whoſe flowers have ſix ſtamina and one ſtyle. Tournefort places the firſt in the firſt ſection of his ninth claſs, which includes the plants with a Lily-flower of one leaf, cut into ſix parts, whoſe pointal becomes the fruit; the ſecond he places in his fourth ſection of the ſame claſs, with the flowers of the ſame form which have ſix petals.

The SPECIES are,

1. HEMEROCALLIS (*Flava*) corollis flavis. Lin. Sp. 462. Hort. Upſal. 88. *Day Lily with a yellow flower.* Lilio-Aſphodelus luteus. Park. Par. 148. *Yellow Aſphodel Lily.*
2. HEMEROCALLIS (*Minor*) ſcapo compreſſo corollis monopetalis campanulatis. *Day Lily with a compreſſed ſtalk, and a bell-ſhaped flower of one petal.* Lilio-Aſphodelus luteus, minor. Tourn. Inſt. R. H. 344. *Smaller yellow Aſphodel Lily.*
3. HEMEROCALLIS (*Fulva*) corollis fulvis. *Day Lily with a copper-coloured flower.* Lilio-Aſphodelus phœnicius. Park. Par. 148: *Aſphodel Lily with a reddiſh flower.*
4. HEMEROCALLIS. (*Liliaſtrum*) ſcapo ſimplici, corollis hexapetalis campanulatis. Hort. Cliff. 128. *Day Lily with an unbranched ſingle ſtalk, and bell-ſhaped flowers with ſix petals.* Liliaſtrum Alpinum majus. Tourn. Inſt. R. H. 369. *Greater Alpine Baſtard Lily, called Savoy Spiderwort*; and in French, *Lis de Saint Bruno, i. e. St. Bruno's Lily.*

The firſt ſort grows naturally in Hungary, Dalmatia, and Iſtria, but has long been an inhabitant in the Engliſh gardens; this hath ſtrong fibrous roots, to which hang knobs, or tubers, like thoſe of the Aſphodel, from which come out keel-ſhaped leaves, which are two feet long, with a rigid midrib, the two ſides drawing inward, ſo as to form a ſort of gutter on the upper ſide. The flower-ſtalks riſe two feet and a half high, having two or three longitudinal furrows; theſe are naked, and at the top divide into three or four ſhort foot-ſtalks, each ſuſtaining one pretty large yellow flower ſhaped like a Lily, having but one petal, with a ſhort tube, ſpreading open at the brim, where it is divided into ſix parts; theſe have an agreeable ſcent, from which ſome have given it the title of yellow Tuberoſe. It flowers in June, and the ſeeds ripen in Auguſt; this plant is eaſily propagated by offſets, which the roots ſend out in plenty; theſe may be taken off in autumn, that being the beſt ſeaſon for tranſplanting the roots, and planted in any ſituation, for they are extremely hardy, and will require no other culture but to keep them clean from weeds, and to allow them room that their roots may ſpread; they may alſo be propagated by ſeeds, which, if ſown in autumn, the plants will come up the following ſpring, and theſe will flower in two years; but if the ſeeds are not ſown till ſpring, the plants will not come up till the year after.

The ſecond ſort grows naturally in Siberia; this hath roots like thoſe of the former ſort, but are ſmaller. The leaves are not near ſo long, nor more than half the breadth of the former, and of a dark green colour. The flower-ſtalk riſes a foot and a half high, is naked and compreſſed, but has no furrows; at the top is produced two or three yellow flowers, which are nearer the bell-ſhape than thoſe of the other ſpecies, and ſtand on ſhorter foot-ſtalks; theſe flower the beginning of June, and the ſeeds ripen early in Auguſt. It is propagated by offſets from the root, or by ſeeds, in the ſame manner as the former, but the roots do not increaſe ſo faſt; it ſhould have a moiſt ſoil and a ſhady ſituation, where it will thrive much better than in dry ground.

The third ſort is a much larger plant than either of the former, and the roots ſpread and increaſe much more, therefore is not proper furniture for ſmall gardens; the roots of this hath very ſtrong fleſhy fibres, to which hang large oblong tubers. The leaves are near three feet long, hollowed like thoſe of the former, turning back toward the top. The flower-ſtalks are as thick a man's finger, and riſe near four feet high; they are naked, without joints, and branching at the top, where are ſeveral large copper-coloured flowers, ſhaped like thoſe of the Red Lily, and as large. The ſtamina of this ſort are longer than thoſe of the other, and their ſummits are charged with a copper-coloured farina, which ſheds on being touched; or if a perſon ſmells to the flowers, it will fly off and ſpread over the face, dyeing it all over of a copper colour, which is a trick often played by ſome unlucky people to the ignorant: theſe flowers never continue longer than one day, but there is a ſucceſſion of flowers on the ſame plants for a fortnight or three weeks; this ſort flowers about the ſame time as the former, and the roots propagate too faſt for thoſe gardens where there is but little room. It will grow on any ſoil or in any ſituation; the beſt time to tranſplant the roots is in autumn.

The Savoy Spiderwort, or, as the French call it, St. Bruno's Lily, is a plant of humbler growth than either of the former: there are two varieties of this, one is titled Liliaſtrum Alpinum majus, and the other Liliaſtrum Alpinum minus by Tournefort; the firſt of theſe riſes with a flower-ſtalk more than a foot and a half high; the flowers are much larger, and there is a greater number upon each ſtalk than the ſecond; but as there is no other eſſential difference between them, I have not put them down as different ſpecies; but the firſt is by much the finer plant, though not common in England, for the ſecond ſort is what I have always obſerved in the gardens here. I received ſome roots of the ſecond ſort from Monſ. Richard, gardener to the King of France, which continue their difference in the ſame ſoil and ſituation with the firſt, which flowers earlier in the year; the leaves of this ſort are ſomewhat like thoſe of the Spiderwort, are pretty firm, and grow upright; the flower-ſtalks grow about a foot and a half high, and have ſeveral white flowers at the top, ſhaped like thoſe of the Lily, which hang on one ſide, and have an agreeable ſcent; theſe are but of ſhort duration, ſeldom continuing in beauty above three or four days; but when the plants are ſtrong, they will produce eight or ten flowers upon each ſtalk, ſo they make a good appearance while they laſt.

This ſort is uſually propagated by parting the roots; autumn is the beſt ſeaſon for doing this work, as it alſo is for tranſplanting the roots; for when they are removed in the ſpring, they ſeldom flower the ſame year, or if they do, it is but weakly: theſe plants ſhould not be tranſplanted oftener than every third year, when the roots may be parted to make an increaſe of the plants, but they ſhould not be divided too ſmall; for if they are, it will be two years before they flower: theſe plants delight in a light loamy ſoil and in an open expoſure, ſo muſt not be planted under the drip of trees; but if they are planted to an eaſt aſpect, where they may be protected from the ſun in the heat of the day, they will continue in beauty longer than when they are more expoſed.

HEMIONITIS [Ἡμιονῖτις, of Ἡμίονος, a Mule, q. d. Mulewort, becauſe this plant was believed to be as barren as a mule.] Moonfern.

This is a plant which is ſeldom propagated in gardens, therefore I ſhall not trouble the reader with any account of it more than this. That whoever hath a mind to cultivate any of the ſorts, muſt procure the plants from the countries where they naturally grow; there are two ſorts which are natives of the warmer parts of Europe, but in America there is a great number of very different kinds; theſe muſt be planted in pots filled with loamy undunged earth, and ſuch of them as are natives of hot countries, muſt be placed in the ſtove; the others may be ſheltered under a common frame in winter, and during the ſummer they muſt be frequently watered, but in winter they will require but little. In ſummer they ſhould alſo have plenty of free air admitted to them; with this management the plants will thrive.

HEPATICA. Boerh. Ind. Plant. Ranunculus. Tourn. Inſt. R. H. 286. Anemone. Lin. Gen. Plant. 614. [Ἡπατῖτις, of Ἧπαρ, the liver, ſo called, becauſe the leaves of this plant are divided into lobes, like the liver (but it does not at all take its name from its uſe, for it is of no virtue againſt the diſeaſes of the liver, as many have erroneouſly imagined;) and trifolia, from its ſimilitude thereto.] Hepatica, or Noble Liverwort.

The Characters are,

The flower hath a three-leaved empalement. It hath ſix petals, which are oval, and expand to the bottom, with a great number of ſlender ſtamina ſhorter than the petals, terminated by obtuſe ſummits; and ſeveral germen collected into a head, ſupporting acuminated ſtyles, crowned by obtuſe ſtigmas. The germen afterward turns to acuminated ſeeds ſitting round the ſtyles.

This genus of plants is by Tournefort ranged among the Crowfoots, and by Linnæus it is placed under Anemone; but as the flowers of Anemone have no empalement, and the Hepatica hath a three-leaved one, it may be ſeparated from that genus; and as it is well known in the gardens by this title, ſo ſhould we range it with the Anemone, it might occaſion confuſion. This is ranged in the ſeventh ſection of Linnæus's thirteenth claſs, which includes the herbs with flowers having many ſtamina and ſtyles.

The Varieties of this plant are,

1. Hepatica (*Nobilis*) trifolio, cœruleo flore. Cluſ. *The ſingle blue Hepatica, or Noble Liverwort.*
2. Hepatica (*Plena*) trifolia cœruleo pleno. Cluſ. *The double blue Hepatica, or Noble Liverwort.*
3. Hepatica (*Alba*) trifolia, flore alba ſimplici. Boerh. Ind. *The ſingle white Hepatica, or Noble Liverwort.*
4. Hepatica (*Vulgaris*) trifolia, rubro flore. Cluſ. *Single red Hepatica, or Noble Liverwort.*
5. Hepatica (*Rubra*) trifolia, flore rubro pleno. Boerh. Ind. *Double red, or Peach-coloured Hepatica.*

Theſe plants are ſome of the greateſt beauties of the ſpring; the flowers are produced in February and March in great plenty, before the green leaves appear, and make a very beautiful figure in the borders of the pleaſure-garden, eſpecially the double ſorts, which commonly continue a fortnight long in flower than the ſingle kinds, and the flowers are much fairer. I have ſeen the double white kind often mentioned in books, but could never ſee it growing, though I do not know but ſuch a flower might be obtained from ſeeds of the ſingle white, or blue kinds. I have ſometimes known the double blue ſort produce ſome flowers in autumn, which were inclining to white, and thereby ſome people have been deceived, who have procured the roots at that ſeaſon, and planted them in their gardens; but the ſpring following their flowers were blue, as before; and this is what frequently happens, when the autumn is ſo mild as to cauſe them to flower; but whether the double white ſort, mentioned in the books, was only this accidental alteration in the colour of the flower, I cannot ſay, though it ſeems very probable it was, ſince I never could hear of any perſon who ever ſaw the double white ſort flower in the ſpring.

The ſingle ſorts produce ſeeds every year, whereby they are eaſily propagated, and alſo new flowers may be that way obtained. The beſt ſeaſon for ſowing of the ſeeds is in the beginning of Auguſt, either in pots or boxes of light earth, which ſhould be placed ſo as to have only the morning ſun until October, when they ſhould be removed into the full ſun, to remain during the winter ſeaſon; but in March, when the young plants will begin to appear, they muſt be removed again to a ſhady ſituation, and in dry weather ſhould be frequently watered, and about the beginning of Auguſt they will be fit to be tranſplanted; at which time you ſhould prepare a border facing the eaſt, of good, freſh, loamy earth, into which you ſhould remove the plants, placing them about ſix inches diſtance each way, cloſing the earth pretty faſt to their roots, to prevent the worms from drawing them out of the ground, which they are very apt to do at that ſeaſon; and, in the ſpring following, they will begin to ſhew their flowers; but it will be three years before they flower ſtrong, and till then you cannot judge of their goodneſs; when, if you find any double flowers, or any of a different colour from the common ſorts, they ſhould be taken up, and tranſplanted into the borders of the flower-garden, where they ſhould continue at leaſt two years before they are taken up or parted; for it is remarkable in this plant, that where they are often removed and parted, they are very ſubject to die; whereas, when they are permitted to remain undiſturbed for many years, they will thrive exceedingly, and become very large roots.

The double flowers, which never produce ſeeds, are propagated by parting their roots, which ſhould be done in March, at the time when they are in flower; but you ſhould be careful not to ſeparate them into very ſmall heads, nor ſhould they be parted oftener than every third or fourth year, if you intend to have them thrive, for the reaſon before given. They delight in a ſtrong loamy ſoil, and in an eaſtern poſition, where they may have only the morning ſun, though they will grow in almoſt any aſpect, not too warm, and are never injured by cold.

HEPATORIUM. See Eupatorium.

HEPTAPHYLLUM. See Potentilla.

HERACLEUM. Lin. Gen. 345. Sphondylium. Tourn. Inſt. 1. Cow Parſnep.

The Characters are,

The calyx of the greater umbel is large, compoſed of many ſmaller, which are plain; the general involucrum is compoſed of many leaves which fall off; the partial umbels have involucrums of three to ſeven leaves, the outer being the longeſt. The general umbel is deformed, the florets are moſtly fruitful; thoſe of the diſk have five equal petals, which are inflexed; thoſe of the rays have the ſame number of unequal petals, the outer being the largeſt; they have each five ſtamina longer than the petals, terminated by ſmall ſummits. The germen is ſituated under the flower, and is almoſt oval, ſupporting two ſtyles, crowned by ſimple ſtigmas. The germen afterward becomes an elliptical fruit, compoſed of two oval compreſſed ſeeds.

This genus of plants is ranged in the ſecond order of Linnæus's fifth claſs, intitled Pentandria Digynia, the flowers having five ſtamina and two ſtyles.

The Species are,

1. Heracleum (*Sphondylium*) foliolis pinnatifidis. Hort. Cliff. 103. *Cow Parſnep with wing-pointed leaves.* Sphondylium vulgare hirſutum. C. B. P. 157. *Common Cow Parſnep.*
2. Heracleum (*Panaces*) foliis pinnatis, foliolis quinis, intermediis ſeſſilibus, floribus radiatis. Hort. Upſal. 65. *Cow Parſnep with winged leaves having five lobes, and radiated flowers.* Panax Sphondylii folio, ſc. Heracleum, C. B. P. 157.
3. Heracleum (*Alpinum*) foliis ſimplicibus, floribus radiatis. Lin. Sp. 359. *Cow Parſnep with ſimple leaves and radiated flowers.* Sphondylium Alpinum glabrum. C. B. P. 157. *Smooth Alpine Cow Parſnep.*
4. Heracleum (*Sibricum*) foliis pinnatis, folioliis quinis, intermediis ſeſſilibus, corollulis uniformibus. Hort. Upſal. 65. *Cow Parſnep with winged leaves, having five lobes*

lobes and a uniform corolla. Paſtinaca foliis ſimpliciter pinnatis, foliolis pinnafidis. Flor. Siber. 1. p. 218.

The firſt ſort grows naturally in moſt parts of England, ſo is rarely admitted into gardens; there is a variety (if not a diſtinct ſpecies of this) with narrower leaves, which are more divided than thoſe of the firſt; however, as they are ſeldom cultivated, I ſhall not trouble the reader with their deſcription.

The ſecond ſort is placed in moſt of the Pharmacopœias as a medicinal plant, but is rarely uſed as ſuch, eſpecially in England. This riſes with a tall ſtalk near ſix feet high, which is embraced by the baſe of the leaves; theſe are winged, having generally five roundiſh lobes, whoſe ſurface is rough, of a dark green colour: the flowers are produced at the top of the ſtalks, being cloſely incloſed by the empalement when they firſt appear; but this afterward burſting, the umbel expands, having large petals on their exterior row, which are almoſt heart-ſhaped, and are ſucceeded by flat compreſſed ſeeds like thoſe of Parſnep, but larger, having black ſtreaks on their outſide. This grows naturally on the Appenines.

The third ſort grows naturally on the Alps, as alſo in Siberia: the ſtalks of this riſe as high as thoſe of the former, but the leaves are ſmooth. This is ſeldom cultivated.

The fourth ſort grows naturally in Siberia and Tranſylvania; in the former country, the inhabitants eat the ſtalks and leaves of the plant for want of better food.

As theſe plants are rarely cultivated, unleſs in botanic gardens, ſo I ſhall recommend to thoſe who are deſirous to propagate either of the ſpecies, to ſow their weeds in the autumn; and in the ſpring, when the plants are up, to hough the ground, cutting up the ſeeds, and thinning of the plants, in the ſame manner as is directed for Parſneps, with which culture the plants will thrive.

HERBA GERARDI. See ANGELICA SYLVESTRIS MINOR.

HERBALIST, HERBARIST, a perſon who is ſkilled in diſtinguiſhing the kinds, natures, or virtues of herbs or plants.

HERBA PARIS. See PARIS.

To **HERBARIZE,** to go abroad in the fields in queſt of different or new herbs or plants.

HERBIFEROUS ſignifies bearing or bringing forth herbs.

HERBIVOROUS, i. e. devouring or feeding on herbs or Graſs.

HERBOSE, graſſy, or full of Graſs or herbs.

HERBOSITY, graſſineſs, or abundance of Graſs or herbs.

HERBULENT, graſſy, full of Graſs or herbs.

HERMANNIA. Tourn. Inſt. R. H. 656. tab. 432. Lin. Gen. Plant. 742. The title of this genus was given by Dr. Tournefort in honour of that great botaniſt, Paul Herman, M. D. Profeſſor of Botany at Leyden.

The CHARACTERS are,

The flower hath a pitcher-ſhaped permanent empalement, divided into five parts at the brim. It hath five petals, which are narrow at their baſe, and twiſt againſt the ſun within the tubulous empalement, but ſpread open above, where they are broad and obtuſe. It hath five broad ſtamina, which are joined in one body, terminated by pointed ſummits, which are joined. In the center is ſituated a roundiſh five-cornered germen, ſupporting an awl-ſhaped ſtyle which is longer than the ſtamina, crowned by a ſingle ſtigma. The germen afterward becomes a five-cornered roundiſh capſule, with five cells opening at the top, incloſing many ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixteenth claſs, which includes the plants whoſe flowers have five ſtamina joined in one body to the ſtyle.

The SPECIES are,

1. HERMANNIA (*Alnifolia*) foliis cuneiformibus plicatis, crenato-emarginatis. Hort. Cliff. 342. *Hermannia with wedge-ſhaped folded leaves, which are crenated and indented.* Hermannia fruteſcens, folio oblongo ſerrato latiori. Boerh. Ind. *Shrubby Hermannia with a broader, oblong, ſerrated leaf.*
2. HERMANNIA (*Groſſulariæfolia*) foliis obovatis acute inciſis, pedunculis bifloris. Prod. Leyd. 347. *Hermannia with oval leaves acutely cut, and foot-ſtalks having two flowers.* Hermannia fruteſcens folio groſſulariæ parvo hirſuto. Boerh. Ind. *Shrubby Hermannia with a ſmall, hairy, Gooſeberry leaf.*
3. HERMANNIA (*Althææfolia*) foliis obovatis plicatis crenatis tomentoſis Hort. Cliff. 343. *Hermannia with oval, folded, woolly leaves, which are crenated* Hermannia fruteſcens, folio ibiſci hirſuto molli, caule piloſo. Boerh. Ind. *Shrubby Hermannia with a ſoft, hairy, Marſhmallow leaf, and woolly ſtalk.*
4. HERMANNIA (*Hyſſopifolia*) foliis lanceolatis obtuſis ſerratis. Hort. Cliff. 342. *Hermannia with obtuſe ſpear-ſhaped leaves, which are ſawed.* Hermannia fruteſcens, folio oblongo ſerrato. Tourn. *Shrubby Hermannia with an oblong ſerrated leaf.*
5. HERMANNIA (*Trifoliato*) foliis oblongo-ovatis crenatis tomentoſis flore mutabili. *Hermannia with oblong, oval, crenated woolly leaves, and a changeable flower.* Hermannia fruteſcens, folio oblongo molli cordato hirſuto. Boerh. Ind. *Shrubby Hermannia with a ſoft, oblong, hairy, heart-ſhaped leaf.*
6. HERMANNIA (*Pinnata*) foliis tripartitis, media pinnatifida. Hort. Cliff. *Hermannia with tripartite leaves ending in many points.* Hermannia fruteſcens, folio multifido tenui, caule rubro. Boerh. Ind. alt. *Shrubby Hermannia with a narrow multifid leaf, and a red ſtalk.*
7. HERMANNIA (*Lavendulifolia*) foliis lanceolatis obtuſis integerrimis. Hort. Cliff. 342. *Hermannia with obtuſe ſpear-ſhaped leaves, which are entire.* Hermannia fruteſcens, folio lavendulæ latiori & obtuſo, flore parvo aureo. Boerh. Ind. alt. *Shrubby Hermannia with a broad, blunt, Lavender leaf, and a ſmall golden flower.*
8. HERMANNIA (*Hirſuta*) foliis ſimplicibus ternatiſque hirſutis ſeſſilibus. *Hermannia with ſingle and trifoliate leaves which are hairy, and ſit cloſe to the ſtalk.*

The firſt ſort riſes with a ſhrubby ſtalk ſix or eight feet high, dividing into many erect irregular branches, covered with a brown bark, garniſhed with wedge-ſhaped leaves, which are narrow at their baſe, but broad and round at the top; they are about an inch long, and three quarters broad at the point, where they are indented and crenated. The flowers are produced in ſhort ſpikes on the upper part of the branches; they are of a pale yellow colour, but ſmall; theſe appear in April and May, and are often ſucceeded by ſeeds, which ripen in Auguſt.

The ſecond ſort is a ſhrub of lower ſtature than the firſt, but ſends out a great number of branches, which ſpread wide on every ſide, garniſhed with ſmaller leaves than thoſe of the former, which are rough, and ſit cloſe to the branches. The flowers are produced in ſhort cloſe ſpikes at the end of every ſhoot, ſo that the whole ſhrub ſeems covered with flowers; they are of a bright yellow, and appear toward the end of April, but are not ſucceeded by ſeeds in England.

The third ſort is a plant of humbler growth than either of the former, ſeldom riſing more than two feet and a half high; the ſtem is not ſo woody, and the branches are ſoft and ſlender, garniſhed with oval woolly leaves, which are plaited and crenated on the edges; the flowers are produced in looſe panicles at the end of the branches; they are larger than thoſe of the other ſpecies, and have very hairy empalements. This ſort flowers in June and July, and frequently puts out more in the autumn.

The fourth ſort has been longer in the European gardens than either of the other. This riſes with a ſhrubby upright ſtalk to the height of ſeven or eight feet, ſending out many ligneous branches from the ſide, which alſo grow more erect than any of the other; theſe are cloathed with obtuſe ſpear-ſhaped leaves, about an inch and a half long, and half an inch broad, ſawed on the edges toward the end: the flowers come out in ſmall bunches from the ſide of the ſtalk; they are of a pale Straw colour, and appear in May and June; theſe are frequently ſucceeded by ſeeds, which ripen the latter part of Auguſt.

The fifth ſort ſeldom riſes more than two feet high, with a ſoft ligneous ſtalk, ſending out ſlender irregular branches, garniſhed with oblong, oval, woolly leaves, ſtanding upon pretty long footſtalks; the flowers are produced in looſe ſpikes at the end of the branches; theſe are, at their firſt appearance, of a gold colour, but after they have been ſome days open, they change to yellow. This flowers in June and July.

The ſixth ſort riſes with a ſhrubby ſtalk near three feet high, ſending out many ſlender branches, covered with a reddiſh bark, garniſhed with narrow wing-pointed leaves; the flowers come out from the ſide of the branches in ſmall cluſters; they are ſmall, and of a deep yellow colour. This flowers in June and July.

The ſeventh ſort hath ſhrubby branching ſtalks, which are very buſhy, but ſeldom riſe more than a foot and a half high; the branches are very ſlender, and garniſhed with hairy, pale, green leaves of different ſizes; ſome of them are two inches long, and one broad at their ends; but their common ſize is ſeldom more than one inch long, and half an inch broad at their points; they are entire, and ſit pretty cloſe to the branches; the flowers come out from the ſide of the ſtalk ſingly, they are ſmall, and of a yellow colour. This ſort flowers moſt part of ſummer.

The eighth ſort I raiſed from ſeeds which came from the Cape of Good Hope. This riſes with a ſhrubby hairy ſtalk about two feet high, ſending out many ſide branches, which grow more erect than thoſe of the former, garniſhed with oblong, veined, hairy leaves, which are ſometimes ſingle, and at other times come out by threes, the middle one being the largeſt; the flowers are produced toward the end of the branches; they are large, and of a deep yellow colour, with large, ſwollen, hairy empalements. This ſort continues flowering moſt part of ſummer.

All the ſpecies of this genus yet known, are natives of the country about the Cape of Good Hope, from whence moſt of them were brought to the gardens in Holland, where they have been propagated and ſpread through moſt parts of Europe.

The plants are all propagated by planting cuttings of them during any of the ſummer months, in a bed of freſh earth, obſerving to water and ſhade them until they are well rooted, which will be in about ſix weeks after planting; then you ſhould take them up, preſerving a ball of earth to their roots, and plant them into pots filled with light freſh earth, placing them in a ſhady ſituation until they have taken freſh root; after which they may be expoſed to the open air, with Myrtles, Geraniums, &c. until the middle or latter end of October, when they muſt be removed into the green-houſe, obſerving to place them in the cooleſt part of the houſe, where they may have as much free air as poſſible; for if they are too much drawn in the houſe, they will appear very faint and ſickly, and ſeldom produce many flowers; whereas, when they are only preſerved from the froſt, and have a great ſhare of free air, they will appear ſtrong and healthy, and produce large quantities of flowers in April and May, during which ſeaſon they make a very handſome appearance in the green-houſe: they muſt alſo be frequently watered, and will require to be new potted at leaſt twice every year, i. e. in May and September; otherwiſe their roots will be ſo matted, as to prevent their growth.

Theſe plants rarely produce good ſeeds with us, except the fourth and eighth ſorts, which ripen their ſeeds every year in England; the other rarely producing any, I ſuppoſe this may be accounted for by their having been long propagated from cuttings; for thoſe plants which I have raiſed from ſeeds, have been fruitful two or three years after, but I have always found thoſe plants which have been propagated by cuttings taken from theſe, have ſoon become barren: the ſame thing I have obſerved in many other plants, therefore thoſe who are deſirous to continue their plants fruitful, ſhould conſtantly raiſe them from ſeeds. Theſe, as alſo thoſe which are obtained from abroad, muſt be ſown upon a moderate hot-bed; and when the plants come up, they muſt be tranſplanted into ſmall pots, and plunged into another very moderate hot-bed, in order to promote their rooting; after which they muſt be hardened by degrees, to endure the open air in ſummer, and may then be treated as the old plants.

HERMODACTYLUS, the Hermodactyl, commonly called Snake's-head Iris.

This genus is by Dr. Linnæus joined to Iris, the characters of the flower agreeing pretty well with thoſe of that genus; from which Tournefort has ſeparated it from the difference of the root, which is not according to his own ſyſtem, where he makes the ſhape of the petals with their number and poſition, the principal characteriſtics in diſtinguiſhing the claſſes and genera; but as this plant requires a particular treatment, ſo I have continued it under Tournefort's title.

The CHARACTERS are,

It hath a Lily-ſhaped flower, conſiſting of one leaf, and ſhaped exactly like an Iris, but has a tuberous root, divided into two or three dugs, like oblong bulbs.

We have but one SPECIES of this plant, viz.

HERMODACTYLUS (*Tuberoſa*) folio quadrangulo. C. B. P. *Snake's-head Iris*, vulgò. This is alſo called Iris tuberoſa Belgarum, i. e. *Tuberous Iris of the Dutch.*

This plant is eaſily propagated by its tubers, which ſhould be taken off ſoon after the green leaves decay, which is the proper ſeaſon for tranſplanting the root; but they ſhould not be kept long out of the ground, leſt they ſhrink, which will cauſe them to rot when they are planted. They ſhould have a loamy ſoil, not too ſtrong nor deep, and muſt be planted to an eaſt aſpect, where they will flower very well. The roots ſhould not be removed oftener than once in three years, if you deſign to increaſe them; but then they ſhould be planted at a farther diſtance from each other, than if they were to remain but one year; and the beds ſhould be kept clear from weeds, and at Michaelmas there ſhould be ſome fine earth laid over the beds, which will greatly ſtrengthen their roots. The diſtance which theſe plants ſhould be allowed is ſix inches ſquare, and they ſhould be placed three inches deep in the ground. Theſe produce their flowers in May, and their ſeeds are ripe in Auguſt; but as they multiply pretty faſt by their roots, few people are at the trouble of raiſing them from ſeeds; but thoſe who have an inclination ſo to do, muſt treat them in the manner directed for the bulbous Iriſes.

The roots of this plant are very apt to run deep into the ground, and then they ſeldom produce flowers; and many times they ſhoot ſo deep as to be loſt, eſpecially where the ſoil is very light; therefore to prevent this, it will be proper to lay a thickneſs of rubbiſh under the border where theſe are planted, to hinder them from getting down. This ſhould always be practiſed in light ground, but in ſtrong land there will be no occaſion to make uſe of this precaution, becauſe they do not ſhoot downward ſo freely in that.

This plant has by ſome botanic writers been ſuppoſed the true Hermodactyl, but what has been long uſed in Europe for that is the root of a Colchicum.

HERNANDIA. Plum. Nov. Gen. 8. tab. 40. Lin. Gen. Plant. 931. Jack-in-a-Box, vulgò.

The CHARACTERS are,

It hath male and female flowers on the ſame plant; the male flowers have a partial involucrum, compoſed of four oval ſmall leaves, which incloſe three flowers; each of theſe has a proper bell-ſhaped empalement of one leaf; the petal is funnel-ſhaped, cut into ſix ſegments at the brim; it hath three ſhort ſtamina inſerted in the empalement, terminated by erect ſummits. The female flowers are

are ſhaped like the male, but want ſtamina; they have a roundiſh germen, ſupporting three ſlender ſtyles, crowned by acute ſtigmas. The empalement afterward becomes a large, ſwollen, oblong fruit, perforated at each end, incloſing one hard globular nut.

This genus of plants is ranged in the third ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Triandria, which includes thoſe plants which have male and female flowers in the ſame plant, whoſe male flowers have three ſtamina.

We have but one Species of this genus in England, viz.

Hernandia (*Sonora*) foliis peltatis. Hort. Cliff. 485. tab. 13. Hernandia amplo hederæ folio umbilicato. Plum. *Hernandia with a large umbilicated Ivy leaf, commonly called in the Weſt-Indies, Jack-in-a-box.*

This plant is very common in Jamaica, Barbadoes, St. Chriſtopher's, and many other iſlands in the Weſt-Indies, where it is known by the name of Jack-in-a-box. The fruit of this plant when ripe, is perforated, and the nut in the inſide becomes hard; ſo that when the wind blows through the fruit, it makes a whiſtling noiſe, which may be heard at a diſtance; from whence, I ſuppoſe, the inhabitants gave this name to the plant. It grows in the gullies, where there are rills of water.

In Europe this plant is preſerved in curious gardens, with other tender exotic plants. It is propagated by ſowing the ſeeds in a hot-bed in the ſpring; and when the plants have ariſen two inches high, they ſhould be tranſplanted each into a ſeparate pot, filled with freſh rich earth, and plunged into the hot-bed again, obſerving to water and ſhade them until they have taken root; after which time they muſt have air admitted to them, (by raiſing the glaſſes) in proportion to the warmth of the air, or the heat of the bed in which they are placed; and ſhould be frequently watered, otherwiſe they will not thrive. As the plants advance, they ſhould be removed into larger pots, which ſhould be filled with rich earth; but in doing this, you ſhould be very careful not to break the roots, as alſo to preſerve a good ball of earth to them; and if their leaves ſhould hang after being removed, the plants muſt be ſcreened from the ſun until they have taken new root. The beſt time to ſhift theſe plants is in July, that they may be well rooted before the cold approaches; the plants muſt be conſtantly kept in the bark-ſtove: in winter they ſhould have a moderate ſhare of heat, and in the ſummer they muſt have plenty of air in hot weather. With this management, the plants will grow to the height of ſixteen feet or more, and the leaves being very large, will make a beautiful appearance in the ſtove. It hath not as yet flowered in England, though we may expect ſome of the large plants to flower in a ſhort time.

HERNIARIA. Tourn. Inſt. R. H. 507. tab. 228. Lin. Gen. Plant. 272. [of *Hernia*, Lat. a rupture.] Rupturewort.

The Characters are,

The flower hath no petals, but a coloured empalement of one leaf, cut into five parts which ſpread open. It hath five ſmall awl-ſhaped ſtamina, ſituated in the diviſions of the empalement, terminated by ſingle ſummits, and five others which are barren, placed alternately between them. In the center is an oval germen with two ſtigmas, which have acute points; the germen afterward turns to a ſmall capſule incloſed in the empalement, having one oval-pointed ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, which includes the plants whoſe flowers have five ſtamina and two ſtyles.

The Species are,

1. **Herniaria** (*Glabra*) glabra herbacea. J. B. 3. 378. *Smooth Rupturewort.*
2. **Herniaria** (*Hirſuta*) hirſuta herbacea. J. B. 3. 379. *Rough or hairy Rupturewort.*
3. **Herniaria** (*Alſines folia*) alſines folio. Tourn. Inſt. 507. *Rupturewort with a Chickweed leaf.*
4. **Herniaria** (*Fruticoſa*) caulibus fruticoſis, floribus quadrifidis. Amœn. Acad. 4. p. 369. *Rupturewort with ligneous ſtalks and quadrifid flowers.* Herniaria fruticoſa, viticulis lignoſis. C. B. P. 382.

The two firſt ſorts grow naturally in England, but not very common; they are low trailing plants, their branches lying on the ground, and extend ſeven or eight inches each way; they have leaves like the ſmaller Chickweed, the firſt is ſmooth, and thoſe of the ſecond are hairy; the flowers come out in cluſters from the ſide of the ſtalks at the joints; they are ſmall, and of a yellowiſh green, ſo make no appearance.

The fourth ſort hath ſhrubby ſtalks which trail upon the ground, garniſhed with ſmall hairy leaves like the ſecond ſort; the flowers are alſo very like that.

The third ſort is an annual plant, which grows naturally in France and Italy. This doth not ſpread ſo much as either of the other ſorts, but the flowers and leaves are ſomewhat like the firſt, but larger.

Theſe plants are ſeldom cultivated, but in botanic gardens for the ſake of variety. The three firſt are annual plants, ſeldom continuing longer than one year; and muſt be permitted to ſhed their ſeeds, whereby they are better preſerved than if ſown with art. The fourth ſort is an abiding plant, which may be propagated by cuttings; but as they are plants of no beauty, they are rarely preſerved in gardens.

The firſt ſort is what ſhould be uſed in the ſhops, but is rarely ſeen in London, the herb-women commonly bringing the Parſley Breakſtone to the markets, which is ſold inſtead of this plant.

HESPERIS. Tourn. Inſt. R. H. 222. tab. 108. Lin. Gen. Plant. 731. [ſome derive the name of this plant from Heſperia, Italy, from whence the people were anciently called Heſperides; but it is pretty plain, that the name was taken from Ἕσπερος, becauſe the flower commonly ſmells moſt in an evening; either of theſe may be admitted. It is called Viola Matronalis, becauſe it reſembles the Violet, and was at firſt cultivated by women.] Dame's Violet, Rocket, or Queen's Gilliflower; in French, *Juliane*, or *Juliene*.

The Characters are,

The flower is compoſed of four oblong petals in form of a croſs, whoſe baſe or tails are narrow, and are ſituated in a four-leaved empalement, which falls away. It hath ſix awl-ſhaped ſtamina, four of them as long as the tube of the flower, and two much ſhorter, terminated by narrow erect ſummits, reflexed at their points. It hath a honey-gland ſituated between the two ſhort ſtamina, and a four-cornered germen the length of the ſtamina, but no ſtyle, the oblong erect ſtigma ſitting on the germen; the ſtigma is divided into two parts, which join at their points. The germen afterward becomes a plain, long, compreſſed pod with two cells, divided by an intermediate partition, incloſing many oval compreſſed ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa, the flowers having four long and two ſhort ſtamina, and are ſucceeded by long pods.

The Species are,

1. **Hesperis** (*Matronalis*) caule ſimplici erecto, foliis ovato-lanceolatis denticulatis, petalis mucrone emarginatis. Lin. Sp. 927. *Dame's Violet with a ſingle erect ſtalk, oval, ſpear-ſhaped, indented leaves, and the petals of the flowers indented at the top.* Heſperis hortenſis, flore purpureo. C. B. P. 202. *Garden Rocket with a purple flower.*
2. **Hesperis** (*Alba*) caule ſimplici erecto, foliis lanceolatis ſerratis, petalis integris. *Dame's Violet with a ſingle upright ſtalk, ſpear-ſhaped ſawed leaves, and the petals of the flower entire.* Heſperis hortenſis flore candido. C. B. P. 202. *Garden Rocket with a white flower.*
3. **Hesperis** (*Inodora*) caule ſimplici erecto, foliis ſubhaſtatis dentatis petalis obtuſis. Lin. Sp. 727. *Dame's Violet with a ſingle upright ſtalk, halbert-ſhaped, indented, obtuſe leaves and petals.* Heſperis ſylveſtris inodora. C. B. P. 202. *Unſavoury wild Rocket.*

4. **Hesperis** (*Triſtis*) caule hiſpido ramoſo patente. Hort. Upſal. 187. *Dame's Violet with a prickly, branching, ſpreading ſtalk.* Heſperis montana, pallidia, odoratiſſima. C. B. P. 202. *Sweeteſt pale Mountain Rocket.*

5. **Hesperis** (*Siberica*) caule ſimplici, folis lanceolatis dentato-ſerratis, petalis obtuſiſſimis integris. Lin. Sp. 927. *Dame's Violet with a ſingle ſtalk, ſpear-ſhaped ſawed leaves, and blunt entire petals to the flower.*

6. **Hesperis** (*Exigua*) caule ramoſiſſimo diffuſo, foliis lineari-lanceolatis dentatis, ſiliquis apice truncatis. *Dame's Violet with a very branching diffuſed ſtalk, narrow, ſpear-ſhaped, indented leaves, and the points of the pods ſhaped like a truncheon.* Heſperis exigua lutea, folio dentato anguſto. Boerh. Ind. 146. *Rocket with a very ſmall yellow flower, and a narrow indented leaf.*

7. **Hesperis** (*Dentata*) foliis dentato-pinnatifidis, caule lævi. Lin. Sp. Plant. 664. *Dame's Violet with wing-pointed indented leaves, and a ſmooth ſtalk.* Heſperis flore albo minimo, ſiliquâ longâ, folio profundè dentato. Boerh. Ind. alt. 2. 20. *Rocket with a ſmall white flower, a long pod, and leaves deeply indented.*

8. **Hesperis** (*Africana*) caule ramoſiſſimo diffuſo, foliis petiolatis lanceolatis acute dentatis ſcabris ſiliquis ſeſſilibus. Lin. Sp. Plant. 928. *Dame's Violet with very branching diffuſed ſtalks, ſpear-ſhaped, rough, ſawed leaves, and pods ſitting cloſe to the ſtalks.* Heſperis Africana, hieracii folio hirſuto, flore minimo purpuraſcente. Niſſol. Act. *African Rocket with a hairy Hawkweed leaf, and a very ſmall purpliſh flower.*

9. **Hesperis** (*Verna*) caule erecto ramoſo, foliis cordatis amplexicaulibus ſerratis villoſis. Lin. Sp. Plant. 664. *Dame's Violet with an erect branching ſtalk, and hairy, ſawed, heart-ſhaped leaves embracing the ſtalk.* Turritis annua verna, purpuraſcente flore. Tourn. Inſt. 224. *Annual vernal Tower Muſtard, with a purpliſh flower.*

The firſt ſort grows naturally in Italy; this was formerly in greater plenty in the Engliſh gardens than at preſent, having been long neglected becauſe the flowers were ſingle, and made but little appearance; however, as the flowers have a very grateful ſcent, ſo the plant is worthy of a place in every good garden. This riſes with an upright ſtalk a foot and a half high, garniſhed with ſpear-ſhaped leaves which ſit cloſe to the ſtalk, and are ſlightly indented on their edges, ending in acute points: the flowers are produced in a looſe thyrſe on the top of the ſtalks; they are compoſed of four petals, which are roundiſh and indented at their points, of a deep purple colour, and ſmell very ſweet, eſpecially in the evening or in cloudy weather. It flowers in June, and the ſeeds ripen the latter end of Auguſt. It is a biennial plant, ſo that young plants ſhould be raiſed every year, to ſupply the place of thoſe which decay: if the ſeeds are permitted to ſcatter, the plants will come up without trouble in the ſpring; and if the ſeeds are ſown, the beſt ſeaſon for it is in the autumn; becauſe thoſe which are ſown in the ſpring often fail if the ſeaſon proves dry, or will remain a long time in the ground before they vegetate. This plant ſhould have a loamy undunged ſoil, in which it will thrive better than in rich land.

There is a variety of this with double flowers, in ſome of the gardens in France; but that which we have in England, is a variety of the third ſort with unſavoury flowers.

The ſecond ſort has been generally ſuppoſed only a variety of the firſt, differing in the colour of the flower, but is certainly a diſtinct ſpecies; the leaves of this are not ſo long, but much broader than thoſe of the firſt, and their borders are entire; the flowers are not quite ſo large, nor do they form ſo good ſpikes; they are white, and have not ſo fine a ſcent as the firſt. This is alſo a biennial plant, requiring the ſame treatment as the firſt.

The third ſort grows naturally in Hungary and Auſtria. This riſes with an upright ſtalk near two feet high, garniſhed with ſpear-ſhaped leaves, ending in acute points, and ſharply indented on their edges; they are of a dark green, and ſit cloſe to the ſtalks; the flowers grow in looſe ſpikes on the top of the ſtalks; in ſome they are white, in others purple, and ſometimes both colours ſtriped in the ſame flower; theſe have no odour, ſo are not deſerving of a place in gardens, but may be propagated in the ſame manner as the two former.

From this ſort, the double white and purple Rockets have been accidentally obtained, which are much eſteemed for the beauty of their flowers; and if they had the agreeable odour of the Garden Rocket, they would be ſome of the beſt furniture for the borders of the flower-garden, but they are without ſcent; however, for the beauty of their flowers, they are by ſome greatly eſteemed, therefore I ſhall here inſert the beſt method of propagating them yet known.

Theſe plants are naturally biennial, ſo the plants with ſingle flowers rarely ſurvive the ſecond year; nor will thoſe with double flowers continue much longer; ſo that unleſs young plants are annually raiſed to ſupply the place of the old ones, there will ſoon be a want of them, which is what few perſons are careful enough to obſerve; but thinking the roots to be perennial, truſt to their putting out offsets, or the plants remaining after they have flowered; and finding them decay, are apt to think their ſoil very improper for them, and are at a loſs to account for their decaying; whereas, when the plants have flowered, they have finiſhed their period, and ſeldom continue to flower a ſecond time from the ſame root; though in poor land, they will often put out a few weak offsets, which may flower again, but ſeldom ſo ſtrong as the principal roots; therefore thoſe who are deſirous to propagate theſe plants, ſhould do it in the following manner:

There ſhould be ſome ſtrong roots of each ſort kept apart for this purpoſe, which are not intended to flower; when theſe have ſhot up their flower-ſtalks about ſix inches high, they ſhould be cut cloſe to the bottom; each of theſe may be divided in the middle to make two cuttings, which ſhould be planted in a ſoft, gentle, loamy ſoil, to an eaſt expoſure, where they may have only the morning ſun; and theſe may be planted pretty near together, ſo as to be covered with hand or bell-glaſſes, which ſhould be put over them after the cuttings have been well watered, and cloſely ſhut down, drawing the earth round the rim of the glaſſes to exclude the air; then the glaſſes ſhould be ſhaded with mats every day when the ſun is hot; and if the cuttings are gently refreſhed with water once in ſeven or eight days, it will be ſufficient, for too much moiſture will cauſe them to rot: when theſe are watered, the glaſſes ſhould be cloſely ſhut down again as before; with this management the cuttings will put out roots in five or ſix weeks, and will begin to ſhoot above; then the glaſſes ſhould be gently raiſed on one ſide to admit the air to them, and ſo gradually harden them to the open air, to prevent their drawing up weak. When theſe have made good roots, they ſhould be carefully removed, and planted in an eaſt border at about eight or nine inches aſunder, obſerving to ſhade and water them till they have taken new root; after which they will require no other care, but to keep them clean from weeds till the autumn, when they may be tranſplanted into the borders of the pleaſure-garden, where they are deſigned to flower.

The roots which are thus cut down, will ſend up more ſtalks than before; and when theſe are of a proper height, they may be cut off and treated in the ſame way; ſo that if the roots are ſound, there may be two or three crops of theſe cuttings taken from them, and by ſo doing, the old roots may be continued much longer than if they are permitted to flower; and by this management, there may be always a ſupply of good plants for the flower-garden.

Theſe plants are very ſubject to canker and rot when they are planted in a light rich ſoil, but in poor ſtrong ground, I have ſeen them thrive and flower in the utmoſt perfection, where the ſtems of flowers have been as large, and the flowers as fair as the fineſt double

Stock-gilliflowers. Their ſeaſon of flowering is in the beginning of June, and I have frequently raiſed young plants from the ſtalks after the flowers have decayed, by cutting them in lengths, and planting them in the manner before directed; but theſe ſeldom make ſo good plants as the young cuttings, nor are they ſo certain to grow, therefore the other are to be preferred.

The fourth ſort grows naturally in Hungary. This is much cultivated in the gardens abroad, for the great fragrancy of its flowers, which in the evening is ſo ſtrong, as to perfume the air at a great diſtance, eſpecially where there are any number of the plants. The ladies in Germany are very fond of this plant, and during the ſeaſon of their flowering, have the pots placed in their apartments every evening, that they may enjoy the fragrancy of their flowers; for they have but little beauty, being ſmaller than thoſe of the Garden Rocket, and of a pale colour, but the ſcent of their flowers is much preferable to them; though in the day-time, if the weather is clear, they have very little odour; but when the ſun leaves them, their fragrancy is expanded to a great diſtance. To this ſpecies it is ſuppoſed, that the title of Dame's Violet was firſt applied.

This ſort is very rarely ſeen in the Engliſh gardens: I ſuppoſe it has been neglected, becauſe the flowers make no appearance. It is a biennial plant like the Garden Rocket, which is propagated by ſeeds in the ſame manner; but the plants are not quite ſo hardy, and are very ſubject to rot in winter, eſpecially on a moiſt ſoil, or in rich land, where they are apt to grow very rank, ſo are ſoon injured by wet and cold in the winter; therefore the plants of this ſort ſhould be planted in a dry poor ſoil, and a warm ſituation; and if ſome of them are planted in pots to be placed under a common frame in winter, where they may be ſheltered from hard rains and froſt, but enjoy the free air at all times when the weather is mild, it will be a ſure way to preſerve them.

The leaves of this ſort are much larger than thoſe of the Garden Rocket, and of a paler green; the ſtalks are cloſely ſet with briſtly hairs; the flowers grow in looſe panicles at the top of the ſtalk, and appear about the ſame time with the Garden Rocket.

The ſeeds of the fifth ſort were ſent me from Germany without any title, nor any account of the country from whence it came; but as it was ſent with the ſeeds of ſome Siberian plants, I ſuppoſe this came from the ſame country. This is a biennial plant, which riſes with a ſtrong branching ſtalk between two and three feet high, which is very hairy, garniſhed with oblong heart-ſhaped leaves, ending in acute points, ſitting cloſe to the ſtalk; they are four inches long, and one and a half broad at their baſe, gradually diminiſhing to the point, and are ſlightly ſawed on their edges; the upper part of the ſtalk divides into two or three branches, which are garniſhed with ſmall leaves of the ſame ſhape with thoſe below, and are terminated with looſe panicles of ſingle, large, purple flowers of great fragrancy. This ſort flowered the end of June 1757, but the great rains which fell in Auguſt, rotted the plants before the ſeeds were ripe.

The ſixth ſort grows naturally in the warm parts of Europe; this is annual; the ſtalks riſe about eight or nine inches high, branching out greatly on every ſide in a confuſed order; they are garniſhed with ſmall, narrow, indented leaves, and are terminated by cluſters of ſmall yellow flowers, which make no appearance.

The ſeventh ſort grows naturally in Sicily. This is an annual plant, which ſeldom riſes more than ſix inches high; the ſtalk branches toward the top into three or four ſmaller, which are terminated by ſmall white flowers; the leaves are two inches long and one broad, cut almoſt to the midrib on each ſide, ſo as to reſemble a winged leaf.

The eighth ſort grows naturally in Africa. This is an annual plant with a very branching ſtalk, which riſes about nine inches high, garniſhed with rough ſpear-ſhaped leaves ſawed on their edges, and terminated by looſe panicles of ſmall purple flowers, which appear in June and July; theſe are ſucceeded by long pods ſitting cloſe to the ſtalks, and are filled with ſmall ſeeds which ripen in September.

Theſe three ſorts are rarely cultivated, except in botanic gardens for the ſake of variety. If the ſeeds of theſe are permitted to ſcatter, the plants will come up without care, and only require to be kept clean from weeds; or they may be ſown either in the ſpring or the autumn where they are to ſtand, for they do not bear tranſplanting well.

The ninth ſort is an annual plant, which grows naturally in the ſouth of France. This ſends out ſeveral heart-ſhaped leaves from the root, which ſpread on the ground; they are ſawed and hairy: the ſtalk riſes nine inches high, branching toward the top, garniſhed with leaves of the ſame ſhape, which embrace the ſtalks with their baſe; the flowers are produced in looſe panicles at the end of the branches; they are of a lively purple colour, and thoſe plants which riſe in the autumn, flower early in the ſpring. If theſe ſeeds are ſown in the autumn, they ſucceed much better than in the ſpring.

HEUCHERA. Lin. Gen. Plant. 283. Sanicle.

The Characters are,

The flower is compoſed of five narrow petals, which are inſerted in the border of the one-leaved empalement. It hath five erect awl-ſhaped ſtamina, which are much longer than the empalement, terminated by roundiſh ſummits. It hath a roundiſh bifid germen, with two erect ſtyles the length of the ſtamina, crowned by obtuſe ſtigmas. The germen afterward turns to an oval-pointed capſule with two horns, which are reflexed, having two cells filled with very ſmall ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and two ſtyles.

We have but one Species of this genus, viz.

Heuchera (*Americana*.) Hort. Cliff. 82. Mitella Americana, flore ſquallidè purpureo villoſo. Boerh. Ind. alt. *Mitella of America, with hairy flowers of a dirty purple colour.*

This plant grows naturally in Virginia, but is hardy enough to thrive in the open air in England. It hath a perennial root, which ſends out many heart-ſhaped oval leaves, which are indented into four or five lobes, and are crenated on their edges, of a lucid green, and ſmooth; from between theſe come out the foot-ſtalks of the flower, which are naked, and riſe a foot high, dividing at the top into a looſe panicle, ſuſtaining many ſmall hairy flowers, of an obſolete purple colour. This flowers in May, and the ſeeds ripen in Auguſt.

It is propagated by parting the roots in autumn, and ſhould be planted in a ſhady ſituation; there is little beauty in this plant, but it is preſerved in ſome gardens for the ſake of variety.

HIBISCUS. Lin. Gen. Plant. 756. Ketmia. Tourn. Inſt. R. H. 99. tab. 26. *Syrian Mallow.*

The Characters are,

The flower has a double empalement, which is permanent; the outer is compoſed of eight or ten narrow leaves, the inner is ſhaped like a cup, and is of one leaf, cut at the brim into five acute points. It hath five heart-ſhaped petals, which join at their baſe into one. It hath many ſtamina, which are joined to the ſtyle, in form of a column, within the tube of the flower, but expand toward the top, and are terminated by kidney-ſhaped ſummits. It has a round germen, with ſlender ſtyles longer than the ſtamina, crowned by roundiſh ſtigmas. The germen afterward turns to a capſule with five cells, opening in five parts, incloſing kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſixteenth claſs, which includes thoſe plants whoſe flowers have many ſtamina joined to the ſtyles in one body, forming a column.

The Species are,

1. Hibiscus (*Syriacus*) foliis cuneiformi-ovatis, ſupernè inciſo-dentatis, caule arboreo. Hort. Cliff. 350. *Hibiſcus*

cus with wedge-ſhaped oval leaves, whoſe upper parts are cut, indented, and a tree-like ſtalk. Ketmia Syrorum quibuſdam. C. B. P. 316. *The Syrian Ketmia, commonly called Althæa frutex.*

2. Hibiscus (*Sinenſis*) foliis cordato-quinquangularis obſoletè ſerratis, caule arboreo. Hort. Upſal. 205. *Hibiſcus with heart-ſhaped leaves, having five angles which are ſlightly ſawed, and a tree-like ſtalk.* Ketmia ſinenſis, fructu ſubrotundo. Tourn. Inſt. R. H. 100. *China Ketmia with a roundiſh fruit, commonly called China Roſe.*

3. Hibiscus (*Abelmoſchus*) foliis ſubpeltato-cordatis ſeptemangularibus, ſerratis hiſpidis. Hort. Cliff. 349. *Hibiſcus with heart-ſhaped target leaves, having ſeven angles which are ſawed, and ſet with prickly hairs.* Ketmia Americana hirſuta, flore flavo, & ſemine moſchato. Tourn. Inſt. R. H. 100. *Hairy American Ketmia with a yellow flower and muſky ſeed, commonly called Muſk.*

4. Hibiscus (*Manihot*) foliis palmato-digitatis ſeptempartitis. Hort. Cliff. 350. *Hibiſcus with fingered leaves, which are divided into ſeven parts.* Ketmia Americana, folio Papayæ, flore magno flaveſcente, fundo purpureo, fructu erecto pyramidali hexagono, ſemine rotundulo ſapore fatuo. Boerh. Ind. alt. 1. 272. *American Ketmia with a Papaw leaf, and a large yellow flower, having a purple bottom, a pyramidal, ſix-cornered, erect fruit, and round ſeeds of a flat taſte.*

5. Hibiscus (*Tomentoſus*) foliis cordatis angulatis ſerratis tomentoſis, caule arboreo. *Hibiſcus with angular, heart-ſhaped, ſawed, woolly leaves, and a tree-like ſtalk.* Malva arboreo, folio oblongo acuminato veluto dentato & leviter ſinuato, flore ex rubro flaveſcente. Sloan. Cat. 95. *Tree Mallow with oblong, acute-pointed, indented leaves, ſlightly ſinuated, and a reddiſh yellow flower.*

6. Hibiscus (*Tiliaceus*) foliis cordatis ſubrotundis indiviſis acuminatis crenatis, caule arboreo. Prod. Leyd. 532. *Hibiſcus with entire heart-ſhaped leaves, and a tree-like ſtalk.* Ketmia Indica tiliæ folio. Tourn. Inſt. R. H. 100. *Indian Ketmia with a Lime-tree leaf.*

7. Hibiscus (*Javanica*) foliis ovatis acuminatis ſerratis glabris, caule arboreo. Flor. Zeyl. 260. *Hibiſcus with oval-pointed, ſawed, ſmooth leaves, and a tree-like ſtalk.* Alcea Javanica arboreſcens, flore pleno rubicundo. Bryen. Cent. 121. tab. 56. *Tree Vervain Mallow of Java, with a double red flower, called in India Shoe-flower.*

8. Hibiscus (*Vitifolis*) foliis ſerratis inferioribus ovatis indiviſis, ſuperioribus quinquepartitis, caule aculeato. Prod. Leyd. 358. *Hibiſcus with ſawed leaves, the lower oval and undivided, the upper divided into five parts, and a prickly ſtalk.* Ketmia Indica vitis folio, magno flore. Tourn. Inſt. R. H. 100. *Indian Ketmia with a Vine leaf and large flower.*

9. Hibiscus (*Sabdariffa*) foliis ſerratis, inferioribus cordatis, mediis tripartitis, ſummis quinquepartitis, caule aculeato. *Hibiſcus with ſawed leaves, the lower ones being heart-ſhaped, the middle divided into three parts, the upper into five, and a prickly ſtalk.* Ketmia Ægyptiaca vitis folio, parvo flore. Tourn. Inſt. R. H. 100. *Egyptian Ketmia with a Vine leaf and a ſmall flower.*

10. Hibiscus (*Goſſypifolius*) foliis quinquelobatis ſerratis, caule glabro. *Hibiſcus with ſawed leaves divided into five lobes, and a ſmooth ſtalk.* Ketmia Indica, Goſſyppii folio, acetoſæ ſapore. Tourn. Inſt. R. H. 100. *Indian Ketmia with a Cotton leaf, and the taſte of Sorrel.*

11. Hibiscus (*Ficulneus*) foliis quinquefido-palmatis, caule aculeato. Hort. Cliff. 498. *Hibiſcus with hand-ſhaped five-pointed leaves, and a prickly ſtalk.* Ketmia Zeylanica, fici folio, perianthio oblongo integro. Hort. Elth. 190. tab. 157. *Ketmia of Ceylon with a Fig leaf, and an oblong entire perianthium.*

12. Hibiscus (*Surattenſis*) foliis quinquepartitis, lobis ovato-lanceolatis hirſutis crenatis, caule ſpinoſſimo. *Hibiſcus with leaves divided into five lobes, which are oval, ſpear-ſhaped, hairy, and crenated, and a very prickly ſtalk.* Ketmia Indica aculeata, foliis digitatis. Tourn. Inſt. 101. *Prickly Indian Ketmia with hand-ſhaped leaves.*

13. Hibiscus (*Cordifolius*) foliis cordatis hirſutis crenatis, floribus lateralibus, caule arboreo ramoſo. *Hibiſcus with heart-ſhaped, hairy, crenated leaves, flowers growing from the ſides of the branches, and a tree-like branching ſtalk.* Ketmia Americana fruteſcens foliis ſubrotundis crenatis hirſutis, flore luteo. Houſt. *Shrubby American Ketmia with roundiſh, hairy, crenated leaves, and a yellow flower.*

14. Hibiscus (*Bahamenſis*) foliis oblongo-cordatis glabris, denticulatis, ſubtus incanis, floribus ampliſſimis. *Hibiſcus with oblong, heart-ſhaped, ſmooth, indented leaves, hoary on their under ſide, and very large flowers.*

15. Hibiscus (*Ficifolius*) foliis quinquepartito pedatis, calycibus inferioribus latere rumpentibus. Lin. Sp. Plant. 696. *Hibiſeus with leaves like a hand, divided into five parts, and the lower empalement torn ſideways.* Ketmia Braſilienſis, folio ficûs, fructu pyramidato ſulcato. Tourn. Inſt. R. H. 100. *Ketmia of the Braſils with a Fig leaf, and a pyramidal furrowed fruit.*

16. Hibiscus (*Pentacarpos*) foliis inferioribus cordatis angulatis, ſuperioribus ſubhaſtatis, floribus ſubnutantibus, piſtillo cernuo. Lin. Sp. Plant. 697. *Hibiſcus with lower leaves heart-ſhaped and angular, the upper ones ſomewhat ſpear-ſhaped, nodding flowers, and a recurved piſtil.* Ketmia paluſtris minor, folio anguſto, flore parvo purpuraſcente, fructu depreſſo pentagona. Zannich. Venet. 155. tab. 91. *Smaller Marſh Ketmia with a narrow leaf, a ſmall purpliſh flower, and a five-cornered depreſſed fruit.*

17. Hibiscus (*Populneus*) foliis ovatis acuminatis ſerratis, caule ſimpliciſſimo, petiolis floriferis. Hort. Upſal. 205. *Hibiſcus with oval-pointed ſawed leaves, a ſingle ſtalk, and foot-ſtalks having flowers.* Ketmia Africana Populi folio. Tourn. Inſt. 100. *African Ketmia with a Poplar leaf.*

18. Hibiscus (*Paluſtris*) caule herbaceo ſimpliciſſimo, foliis ovatis ſubtrilobis, ſubtus tomentoſis, floribus axillaribus. Lin. Sp. Plant. 693. *Hibiſcus with a ſingle herbaceous ſtalk, oval leaves having three lobes, woolly on their under ſide.* Ketmia paluſtris flore purpureo. Tourn. Inſt. 100. *Marſh Ketmia with a purple flower.*

19. Hibiscus (*Trionum*) foliis tripartitis inciſis, calycibus inflatis. Hort. Upſal. 206. *Hibiſcus with tripartite cut leaves, and a ſwollen empalement.* Ketmia veſicaria vulgaris. Tourn. Inſt. *Common Bladder Ketmia, called Venice Mallow, or Flower of an hour.*

20. Hibiscus (*Africana*) foliis tripartitis dentatis, lobis anguſtioribus caule hirſuto calycibus inflatis. *Hibiſcus with tripartite indented leaves having narrower lobes, a hairy ſtalk, and ſwollen empalements.* Ketmia veſicaria Africana. Tourn. Inſt. 101. *African Bladder Ketmia.*

21. Hibiscus (*Hiſpidus*) foliis inferioribus trilobis, ſummis quinque partitis obtuſis crenatis calycibus inflatis, caule hiſpido. *Hibiſcus with under leaves having three lobes, the upper being cut into five obtuſe ſegments, which are crenated, ſwollen empalements, and a prickly ſtalk.*

22. Hibiscus (*Malvaviſcus*) foliis cordatis-crenatis, angulis lateralibus extimis parvis, caule arboreo. Hort. Cliff. 349. *Hibiſcus with heart-ſhaped crenated leaves, whoſe outward lateral angles are ſmall, and a tree-like ſtalk.* Malvaviſcus arboreſcens, flore miniato clauſo. Hort. Elth. 210. tab. 170. *Tree-like, viſcous, ſeeded Mallow, with a cloſed ſcarlet flower.*

The firſt ſort is commonly called Althæa frutex by the nurſery gardeners, who propagate the ſhrubs for ſale; of this there are four or five varieties, which differ in the colour of their flowers; the moſt common hath pale purple flowers with dark bottoms; another hath bright purple flowers with black bottoms, a third hath white flowers with purple bottoms; a fourth variegated flowers with dark bottoms; and a fifth pale yellow flowers with dark bottoms; but the laſt is very rare at preſent in the Engliſh gardens; there are alſo two with variegated leaves, which are by ſome much eſteemed.

This grows naturally in Syria, from whence it has been introduced to the gardens, and is one of the great ornaments of the autumn ſeaſon: it riſes with a ſhrubby ſtalk to the height of ſix or ſeven feet, ſending out many ligneous branches, covered with a ſmooth gray bark, garniſhed with oval ſpear-ſhaped leaves, whoſe upper parts are frequently divided into three lobes, which are ſawed; theſe are placed alternately on the branches, ſtanding on ſhort foot-ſtalks. The flowers come out from the wings of the ſtalks at every joint of the ſame year's ſhoot; they are large, and ſhaped like thoſe of the Mallow, having five large roundiſh petals, which join at their baſe, ſpreading open at the top in ſhape of an open bell: theſe appear in Auguſt, and if the ſeaſon is not too warm, there will be a ſucceſſion of flowers part of September; the early flowers are ſucceeded by ſhort capſules with five cells, filled with kidney-ſhaped ſeeds; but unleſs the ſeaſon proves warm, they will not ripen in this country.

It is propagated by ſeeds, which ſhould be ſown in pots filled with light earth the latter end of March; and if they are plunged into a gentle heat, it will greatly forward the growth of the ſeeds. When the plants are come up, they muſt be inured to the open air, and in May the pots may be plunged into the ground, in a border expoſed to the eaſt, where they may have the morning ſun: the reaſon of my adviſing the pots to be plunged into the ground, is to prevent the earth from drying ſo faſt as it would do when the pots ſtand on the ſurface, ſo that the plants will not require ſo much water in ſummer; theſe plants will require no other culture, but to keep them clean from weeds, and in very dry weather to refreſh them with water during the firſt ſummer, but in autumn it will be proper to remove the pots under a common frame to ſcreen them from the froſt; or where there is not ſuch conveniency, they may be plunged cloſe to a hedge, pale, or wall, to a good aſpect; and in ſevere froſt, they ſhould be covered with mats, Straw, or other light covering; for although theſe plants, when they have obtained ſtrength, will reſiſt the cold of our winters, yet the young plants, whoſe ſhoots are tender, are very often injured by the firſt froſt of autumn: ſo that if they are not ſcreened the firſt year, they are often killed to the ground. Toward the latter end of March will be a good time to tranſplant theſe plants, at which time a ſpot of light ground muſt be prepared to receive them, which ſhould be divided into beds four feet broad, with paths of two feet broad between; then the plants ſhould be ſhaken out of the pots with the earth about them, and ſeparated with care, for their roots are very tender, and apt to break with little force; theſe ſhould be planted at about nine inches aſunder in the beds; ſo that if four rows are planted in each bed, there will be ſix inches allowed between the outſide rows and the paths. The ground ſhould be gently cloſed about the roots to prevent the air penetrating to them; and if a little old tanners bark, or mulch, is laid over the ſurface of the beds, it will prevent the earth from drying, and be of great uſe to the plants; during the following ſummer they muſt be kept clean from weeds, and if the following winter prove ſevere, it will be prudent to cover the plants again in autumn, eſpecially if they ſhoot late in the ſeaſon, or the autumn proves cold and moiſt, for then the plants will be in great danger of having their tops killed: in theſe beds the plants may remain two years, by which time they will be fit to tranſplant where they are deſigned to remain; for if they are kept longer in the nurſery, they will not remove ſo well. The beſt time for tranſplanting theſe plants is the end of March, or the beginning of April, for they ſeldom begin to ſhoot till the end of April, or the beginning of May; they ſhould have a light ſoil, not too wet, for in ſtrong land their ſtems grow moſſy, and they never thrive after.

Theſe plants may alſo be propagated by cuttings, which, if planted the latter end of March, in pots filled with light earth, and plunged into a gentle heat, will take root; but the plants ſo raiſed, are not ſo good as the ſeedlings. The ſeveral varieties may be propagated by grafting upon each other, which is the common method of propagating the ſorts with ſtriped leaves.

The ſecond ſort grows naturally in India, from whence the French firſt carried the ſeeds to their ſettlements in the Weſt-Indies; and the inhabitants of the Britiſh colonies there have been ſupplied with the ſeeds from them, ſo have given it the title of Martinico Roſe: of this there are the double and ſingle flowering, which from the ſeeds of the double the ſingle is frequently produced, but the ſeeds of the ſingle ſeldom vary to the double. The flowers of theſe plants alter in their colour, for at their firſt opening they are white, then they change to a bluſh Roſe colour, and as they decay they turn to a purple. In the Weſt-Indies, all theſe alterations happen the ſame day, as I ſuppoſe the flowers in thoſe hot countries are not of longer duration: but in England, where the flowers laſt near a week in beauty, the changes are not ſo ſudden.

This plant has a ſoft ſpongy ſtem, which, by age, becomes ligneous and pithy. It riſes to the height of twelve or fourteen feet, ſending out branches on every ſide toward the top, which are hairy, garniſhed with heart-ſhaped leaves, cut into five acute angles on their borders, and are ſlightly ſawed on their edges, of a lucid green on their upper ſide, but pale below, ſtanding alternately upon pretty long foot-ſtalks. The flowers are produced from the wings of the ſtalk, like thoſe of the firſt ſort; the ſingle one is compoſed of five large petals, which ſpread open, and are firſt white, but afterward change in the manner before-mentioned; theſe are ſucceeded by ſhort, thick, blunt capſules, which are very hairy, having five cells, which contain many ſmall kidney-ſhaped ſeeds, having a fine plume of fibrous down adhering to them.

This ſort is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot filled with kitchen-garden earth, and plunged into a moderate hot-bed, where they muſt be ſhaded till they have taken new root; then they muſt be treated as other plants from warm countries, but not too tenderly, for theſe require a large ſhare of air in warm weather, otherwiſe they will draw up very weak: theſe plants ſhould not be quite expoſed to the open air the firſt ſeaſon, and the firſt winter will require the warmth of a moderate ſtove; but as they get more ſtrength, they may be treated with leſs care, for they will bear the open air in ſummer, in a warm ſheltered ſituation, and will live through the winter in a very good green-houſe, provided they have not too much wet; but the plants thus hardily treated, will not make ſo great progreſs, nor flower ſo well as with a little additional warmth; and if they are too tenderly managed, they will draw up weak, ſo will be leſs likely to flower. This ſort uſually flowers in England in November, ſo that it keeps to the uſual time of flowering in its native country.

The third ſort grows naturally in the Weſt-Indies, where it is commonly known by the title of Muſk; the French cultivate great quantities of theſe plants in their American Iſlands, the ſeeds of which are annually ſent to France in great quantities, ſo that they certainly have ſome way of rendering it uſeful, as it ſeems to be a conſiderable branch of trade. This riſes with an herbaceous ſtalk about three or four feet high, ſending out two or three ſide branches, garniſhed with large leaves cut into ſix or ſeven angles, which are acute, and ſawed on their edges; theſe ſtand on long foot-ſtalks, and are placed alternately. The ſtalks and leaves of this are very hairy. The flowers come out from the wings of the ſtalk upon pretty long foot-ſtalks, which ſtand erect; they are large, of a ſulphur colour, with dark purple bottoms, and are ſucceeded by pyramidal five-cornered capſules, which open in five cells, filled with large kidney-ſhaped ſeeds of a very muſky odour.

This ſort ſeldom lives more than one year in England, but in its native country will laſt two years. It is propagated by ſeeds, which, if ſown on a good hot-bed in the ſpring, and the plants afterward planted in pots filled with light earth, and plunged into a freſh hot-bed, treating them afterward in the ſame way as the Amaranthus, they will flower in July, and their ſeeds will ripen in autumn.

The fourth ſort grows naturally in both the Indies; this riſes with an herbaceous ſmooth ſtalk three or four feet high, garniſhed with leaves which are divided into ſeven ſegments almoſt to the bottom; the middle ſegment being four inches long and half an inch broad, the upper lateral ſegments about three inches long and the ſame breadth; theſe are indented at their extremities, but the lower ſegments are not much more than an inch long, and have foot-ſtalks four inches long. The flowers are produced from the wings of the ſtalks toward the top, ſtanding on ſhort foot-ſtalks; they are compoſed of five large ſulphur-coloured petals, which, when open, ſpread five inches wide; they have a dark purple bottom, with a column of ſtamina and ſtyles riſing in the center, and are ſucceeded by large, pyramidal, five-cornered, erect ſeed-veſſels, opening in five cells, which are filled with pretty large kidney-ſhaped ſeeds, which have little ſmell or taſte.

It is propagated by ſeeds in the ſame manner as the former ſort, and if ſo managed, will produce flowers and perfect ſeeds the ſame ſeaſon; but the plants may be continued through the winter in a moderate warmth, though few perſons are at the trouble of preſerving the plants after they have ripened their ſeeds, becauſe the young plants make a better appearance.

The fifth ſort grows naturally in the Weſt-Indies, where it riſes with a woody ſtalk ſeven or eight feet high, ſending out many ſide branches toward the top, which are covered with a whitiſh bark, and garniſhed with angular heart-ſhaped leaves, which are woolly; they are about four inches long, and three broad toward their baſe, ending in acute points, and have ſeveral longitudinal veins. The flowers are produced from the wings of the ſtalk upon long foot-ſtalks; they are compoſed of five roundiſh petals, which are joined at their baſe, but ſpread open above, and are of a yellow colour, turning to a red as they decay; theſe are ſucceeded by large, obtuſe, five-cornered, hairy ſeed-veſſels, which open in five cells, filled with large kidney-ſhaped ſeeds.

This is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring, and the plants afterward treated in the ſame way as the two laſt mentioned, during the firſt ſummer, but in the autumn they muſt be plunged into the tan-bed in the ſtove, where they ſhould conſtantly remain, and be treated in the ſame way as other tender plants from the ſame country, giving them but little water in winter; the ſecond year the plants will flower, but they have not as yet perfected ſeeds in England.

The ſixth ſort grows naturally in both Indies; this riſes with a woody pithy ſtem eight or ten feet high, dividing into ſeveral branches toward the top, which are covered with a woolly down, and garniſhed with round heart-ſhaped leaves, ending in acute points; they are of a lucid green on their upper ſide, and hoary on their under, full of large veins, and are placed alternately on the ſtalks. The flowers are produced at the end of the branches in looſe ſpikes; they are of a whitiſh yellow colour, and are ſucceeded by ſhort acuminated capſules, opening in five cells, filled with large kidney-ſhaped ſeeds.

This ſort is propagated in the ſame way, and the plants require the ſame treatment as the fifth, and flower the ſecond year, provided they are brought forward, otherwiſe they will not flower before the third or fourth ſeaſon; but they will bear the open air in ſummer, in a warm ſituation, though they will not make great progreſs there.

The ſeventh ſort grows naturally on the coaſt of Malabar, from whence I received the plants; this riſes with a woody ſtalk twelve or fourteen feet high, dividing into many ſmall branches toward the top, which are garniſhed with oval ſawed leaves, ending in acute points; they are of a lucid green above, but are pale on their under ſide, and are placed without order. The flowers come out from the ſide of the branches, at the wings of the leaves, on pretty long foot-ſtalks; they are compoſed of many oblong roundiſh petals of a red colour, which expand like the Roſe, the flowers being as large when fully blown, as the common red Roſe, and as double. This is a perennial plant, which is propagated by cuttings; and the plants muſt conſtantly be kept in the ſtove, giving them a large ſhare of air in warm weather, and but little water in winter. There is a variety of this with white flowers, but I have not ſeen any of the plants in the Engliſh gardens; nor have I ſeen the ſingle flowering kind, for the inhabitants of India propagate that with double flowers by cuttings, which put out roots freely; this they do for the ſake of flowers, which the women of that country make uſe of to colour their hair and eye-brows black, which will not waſh off: the Engliſh there uſe it for blacking of their ſhoes, and from thence have titled it Shoe-flower.

The eighth ſort is an annual plant, which riſes with an upright ſtalk ſeven or eight feet high; the lower leaves are oval, ſerrated, and entire, but the upper leaves are divided almoſt to the foot-ſtalk, into five ſpear-ſhaped ſegments, like the fingers of a hand, ſtanding on very long foot-ſtalks, which have thorns at their baſe, and are ſharply ſawed on their edges. The flowers come out from the wings of the ſtalks; they are large, of a pale ſulphur colour, with a dark purple bottom, and are ſucceeded by oval, acuminated, prickly capſules, which open in five cells, filled with large kidney-ſhaped ſeeds.

This ſort is propagated by ſeeds, which muſt be ſown upon a hot-bed, and the plants treated in the ſame way as the third ſort; and when they are grown too tall to ſtand under the frames, they muſt be placed in the ſtove, where they will flower in Auguſt, and the ſeeds will ripen in autumn.

The ninth ſort is near of kin to the eighth, but the ſtalks do not grow ſo tall; the lower leaves are heart-ſhaped and entire, the middle leaves are divided into three, and the upper into five ſegments, almoſt to the foot-ſtalks; they are ſawed on their edges, and the ſtalk is prickly. The flowers come out from the wings of the ſtalks; they are of a very pale ſulphur colour, with dark bottoms, but not ſo large as thoſe of the laſt.

This is propagated by ſeeds in the ſame way as the eighth, and the plants require the ſame treatment. It flowers in July and Auguſt, and the ſeeds ripen in autumn.

The bark of both theſe plants is full of ſtrong fibres, which I have been informed the inhabitants of the Malabar coaſt prepare and make into a ſtrong cordage; and by what I have obſerved, it may be wrought into fine ſtrong thread of any ſize, if properly manufactured.

The tenth ſort grows naturally in the Weſt-Indies, where the inhabitants uſe the green pods to add an acid taſte to their viands: there are two varieties of this, one with a light green, and the other a deep red pod, which always maintain their difference; but as there is no other difference but that of the colour of their pods, they do not deſerve ſeparate titles. This riſes with an herbaceous ſtem about three feet high, ſending out ſeveral lateral branches, which are garniſhed with ſmooth leaves divided into five lobes. The flowers come out from the ſide of the branches; they are of a dirty white, with dark purple bottoms, and are ſucceeded by obtuſe ſeed-veſſels, divided into five cells, which are filled with kidney-ſhaped ſeeds.

This ſort is propagated in the ſame way as the third, and will flower and perfect ſeeds the ſame year, ſo is ſeldom preſerved longer in England.

The eleventh ſort is a native of Ceylon; this riſes with an herbaceous ſtalk, which is prickly, from two to three feet high, dividing upward into ſmall branches, which are garniſhed with hand-ſhaped leaves, divided into five ſegments. The flowers come out from the wings of the leaves; they are ſmall and white, with purple bottoms, and are ſucceeded by ſhort obtuſe capſules with five cells, filled with kidney-ſhaped ſeeds. The ſeeds of this ſort were ſent me by Dr. Breynius of Dantzick.

This plant is annual, ſo muſt be treated in the ſame way as the third.

The twelfth ſort is alſo annual with us; this riſes with an herbaceous ſtalk three feet high, cloſely ſet with prickly hairs, and divides into branches upward, garniſhed with hand-ſhaped leaves, divided into five lobes, which are ſpear-ſhaped, ending in acute points; they are hairy, and crenated on their edges, ſtanding upon very long foot-ſtalks; the flowers come out from the wings of the ſtalk, and are very like thoſe of the third; this plant requires the ſame culture as the third ſort. The ſeeds of this were ſent me by Dr. Juſſieu, from Paris.

The thirteenth ſort was diſcovered by the late Dr. Houſtoun in the iſland of Cuba, from whence he ſent me the ſeeds. This riſes with a woody ſtalk twelve or fourteen feet high, ſending out many lateral branches, garniſhed with hairy heart-ſhaped leaves, crenated on their edges; the flowers come out ſingle from the wings of the leaves; they are of a very bright yellow colour, but not ſo large as either of the former ſorts, and are ſucceeded by ſhort capſules ending in acute points, divided into five cells, which are filled with kidney-ſhaped ſeeds. This plant is tender, ſo requires the ſame treatment as the fifth, and other tender kinds, with which management it flowers and produces good ſeeds here.

The fourteenth ſort has a perennial root but an annual ſtalk. The ſeeds of this were ſent me from the Bahama Iſlands, which ſucceeded in the Chelſea garden, where the plants produced plenty of flowers, but did not ripen their ſeeds. This riſes with ſeveral ſtalks from the root, which grow four feet high, garniſhed with oblong, heart-ſhaped, ſmooth leaves, ending in acute points, of a light green on their upper ſide, but hoary on their under, and are ſlightly indented on their edges, ſtanding upon long foot-ſtalks; the flowers are produced at the top of the ſtalks; they are very large, and of a light purple colour with dark bottoms, and are ſucceeded by ſhort capſules divided into five cells, filled with kidney-ſhaped ſeeds.

This is propagated by ſeeds, which muſt be ſown on a moderate hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, and plunged into a hot-bed, treating them in the ſame way as the other tender ſorts, but allowing them a greater ſhare of air in warm weather; for theſe may be brought to ſtand in the open air in ſummer, but unleſs the ſeaſon is very warm they will not flower there; for thoſe which flowered in the Chelſea garden, were plunged into atan-bed whoſe heat was declining, under a deep frame, where they produced plenty of flowers, but they came too late to ripen ſeeds. The ſtalks decay in the autumn, but if the pots are ſheltered under a hot-bed frame and ſecured from froſt, they will continue ſeveral years, and put out new ſtalks in the ſpring.

The fifteenth ſort is very common in the Weſt-Indies, where the inhabitants cultivate it for the pods or ſeed-veſſels, which they gather green to put into their ſoups; theſe, having a ſoft viſcous juice, add a thickneſs to their ſoups, and renders them very palatable. It riſes with a ſoft herbaceous ſtalk, from three to five feet high, dividing upward into many branches, garniſhed with hand-ſhaped leaves, divided into five lobes; the flowers are produced from the wings of the ſtalk; they are of a pale ſulphur colour with dark purple bottoms, but are ſmaller than either of the other ſorts, and of very ſhort duration, opening in the morning with the riſing ſun, but are faded long before noon in warm weather. Theſe are ſucceeded by capſules of very different forms, in the different varieties; in ſome the capſules are not thicker than a man's finger, and five or ſix inches long; in others they are very thick, and not more than two or three inches long; in ſome plants they grow erect, in others they are rather inclined; and theſe varieties are conſtant, for I have many years cultivated theſe plants, and have not found them vary.

This ſort is propagated by ſeeds in the ſame way as the third, and the plants require the ſame treatment, for they are too tender to thrive in the open air in this country; I have often tranſplanted the plants into warm borders, after they have acquired proper ſtrength, and have ſometimes in very warm ſeaſons had them thrive for a ſhort time, but the firſt cold or bad weather their leaves have all dropped off; and then they have decayed gradually, ſo that they have but rarely flowered, and have never in the beſt ſeaſons perfected their ſeeds; therefore thoſe who are inclinable to cultivate theſe plants, muſt conſtantly ſhelter them in bad weather.

The ſixteenth ſort grows naturally near Venice, in moiſt land; this hath a perennial root, and an annual ſtalk, which riſes from three to four feet high; the lower leaves are angular and heart-ſhaped, but the upper are ſpear-ſhaped, and ſlightly indented on their edges; the flowers are produced from the wings of the leaves, upon long foot-ſtalks; they are ſmall, and of a purple colour with a dark bottom, and are ſucceeded by five-cornered compreſſed capſules, filled with kidney-ſhaped ſeeds.

This ſort is propagated by ſeeds, which muſt be ſown on a hot-bed, and the plants ſhould be treated in the ſame way as the fourteenth ſort, otherwiſe they will not flower; for although the roots will live in the full ground here, yet the ſummers are not warm enough to bring them to flower. I have ſome of the roots which have remained ſeven years, putting up many ſtalks, which riſe upward of three feet, and have the flower-buds formed on their tops; but theſe appear ſo late in the ſeaſon, that they ſeldom have opened.

The ſeventeenth ſort grows naturally in North America; this hath a perennial root and an annual ſtalk; the roots of this ſort will live in the full ground, but unleſs the ſummer is warm, the flowers ſeldom open. It riſes with ſingle ſtalks from the root, two feet high or more; the leaves are oval and ſawed, the flowers are large and purple.

The eighteenth ſort grows naturally in North America, in moiſt ground. This hath a perennial root, and an annual ſtalk like the former, which is herbaceous and never branches; the leaves are oval, with three lobes which are not deeply divided; they are of a bright green on their upper ſide, but woolly on their under; the flowers are produced from the wings of the ſtalk; they are large, and of a bright purple colour. This ſort, like the former, ſeldom flowers in the open air here, unleſs the ſummer proves very warm, but the roots will live in the full ground, if they are planted in a ſheltered ſituation. The only way to have theſe plants flower in this country, is to keep the roots in pots, and ſhelter them under a frame in winter, and in the ſpring plunge them into a gentle hot-bed, which will cauſe them to put out their ſtalks early; and when the ſtalks are ſo high as to reach the glaſſes, the pots may be removed into a glaſs-caſe; where, if they are duly ſupplied with water, and have plenty of air in hot weather, they will flower very well in July, and in warm ſeaſons will ripen their ſeeds.

The nineteenth ſort is an annual plant, which grows naturally in ſome parts of Italy, and has been long cultivated in the Engliſh gardens, by the title of Venice Malva. Gerard and Parkinſon title it Alcea Veneta, and Flos Hora, or Flower of an hour, from the ſhort duration of its flowers, which in hot weather continue but few hours open: however, there is a ſucceſſion of flowers which open daily for a conſiderable time, ſo that a few of theſe plants may be allowed a place in every curious garden.

It riſes with a branching ſtalk a foot and a half high, having many ſhort ſpines which are ſoft, and do not appear unleſs cloſely viewed: the leaves are divided into three lobes, which are deeply jagged almoſt to the midrib; theſe jags are oppoſite, and the ſegments are obtuſe; the flowers come out at the joints of the ſtalks upon pretty long foot-ſtalks, having a double empalement, the outer being compoſed of ten long narrow leaves, which join at their baſe; the inner is of one thin leaf, ſwollen like a bladder, cut into five acute ſegments at the top, having many longitudinal purple ribs, and is hairy; both theſe are permanent, and incloſe the capſule after the flower is paſt. The flower is compoſed of five obtuſe petals, which ſpread open at the top, the lower part forming an open bell-ſhaped flower; theſe have dark purple bottoms, but are of a pale ſulphur colour above, having the ſtamina and apices joined in a column in the center; after the flower is paſt, the germen turns to a blunt capſule opening in five cells, which are filled with ſmall kidney-ſhaped ſeeds. It flowers in June, July, and Auguſt, and the ſeeds ripen about a month after. This ſort is propagated by ſeeds, which ſhould be ſown where the plants are deſigned to remain, for they do not bear tranſplanting well; if the ſeeds are ſown in autumn, the plants will come up early in the ſpring, ſo will flower in the ſummer, and thoſe which are ſown early in the ſpring will ſucceed them; ſo that by ſowing them at three different ſeaſons, they may be continued in ſucceſſion till the froſt ſtops them. Theſe require no other culture but to keep them clean from weeds, and thin them where they are too cloſe; and if the ſeeds are permitted to ſcatter, the plants will come up full as well as when ſown, ſo that it will maintain its ſituation unleſs it is weeded out.

The twentieth ſort grows naturally at the Cape of Good Hope; this is alſo an annual plant which reſembles the former, but the ſtalks grow more erect, are of a purpliſh colour, and very hairy; the leaves are compoſed of three lobes, which are divided almoſt to the foot-ſtalk; theſe are narrow, the middle lobe ſtretching out more than twice the length of the two ſide lobes, and they are but ſlightly indented on their edges, whereas thoſe of the former are cut almoſt to the midrib; the flowers are larger, and their colour deeper, than thoſe of the other.

The ſeeds of the twenty-ſecond ſort were ſent me from the Cape of Good Hope, a few years paſt. This is alſo an annual plant, having at firſt ſight ſome reſemblance of the other ſorts before-mentioned; but it riſes with ſtrong hairy branching ſtalks, garniſhed with much broader leaves than either of the former, the lower being divided into three, and the upper into five obtuſe lobes, which are crenated on their edges; the flowers are large, but of a paler colour than thoſe of the other. This has maintained the difference ten years, ſo that there is no doubt of its being a diſtinct ſpecies.

All theſe are as hardy as the nineteenth ſort, ſo may be treated in the ſame way.

The twenty-third ſort grows naturally at Campeachy, from whence the late Dr. Houſtoun ſent me the ſeeds. This differs ſo eſſentially from the other ſpecies in its fructification, as to deſerve another title; for all the other have dry capſules with five cells, including many kidney-ſhaped ſeeds, but this hath a ſoft viſcous berry, with a hard ſhell incloſed, containing five roundiſh ſeeds: it riſes with a ſhrubby ſtalk ten or twelve feet high, dividing into many branches, which are garniſhed with ſmooth, heart-ſhaped, angular leaves, which are crenated on their edges; the flowers come out from the wings of the ſtalks ſingly, ſtanding on ſhort foot-ſtalks; they are compoſed of five oblong petals, which are twiſted together and never expand; they are of a fine ſcarlet, and are ſucceeded by roundiſh berries of a ſcarlet colour when ripe, incloſing a hard ſhell which opens in five cells, each containing a ſingle roundiſh ſeed.

This ſort is generally propagated here by cuttings, becauſe the ſeeds do not often ripen here; if the cuttings are planted in pots filled with light earth, and plunged into a gentle hot bed, keeping the air from them, they will ſoon take root, and ſhould be gradually inured to bear the open air. Theſe plants require a moderate ſtove to preſerve them through the winter; and if they are kept in warmth in ſummer, they will flower, and ſometimes ripen fruit, though they may be placed abroad in a ſheltered ſituation for two or three months in ſummer, but the plants ſo treated ſeldom flower ſo well.

HIERACIUM. Lin. Gen. Plant. 818. Tourn. Inſt. R. H. 469. tab. 267. [of Ἱέραξ, *Gr.* a hawk; ſo called, becauſe hawks as well as eagles, have a ſtrong and quick ſight; and it is reported, that if by reaſon of the heat of the air, a film grows over the eyes of this bird, then the parent let falls a drop of the juice of it in its eye, which takes it off; and that, in like manner, it is good to clear the human ſight.] Hawkweed.

The CHARACTERS are,

It hath a flower compoſed of many hermaphrodite florets, which are included in one common ſcaly empalement, whoſe ſcales are narrow, and very unequal in their length and poſition; the florets are equal and uniform; they have one petal which is ſhaped like a tongue, indented in five ſegments at the point, placed imbricatim over each other; theſe have each five ſhort hairy ſtamina, terminated by cylindrical ſummits. At the bottom of the petal is ſituated the germen, ſupporting a ſlender ſtyle, crowned by two recurved ſtigmas; the germen afterward becomes a ſhort four-cornered ſeed crowned with down, ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, which includes the plants with a compound flower, compoſed only of fruitful florets.

There are a great number of ſpecies of this genus, many of which grow naturally as weeds in England, and the others are ſo in different countries, therefore I ſhall only ſelect thoſe wihch are the moſt beautiful, and beſt worth cultivating from the number, which to enumerate, would ſwell this work greatly beyond its bounds.

1. HIERACIUM (*Aurantiacum*) foliis integris caule ſubnudo ſimpliciſſimo piloſo corymbifero. Hort. Cliff. 388. *Hawkweed with entire leaves, and a ſingle, hairy, naked ſtalk, terminated by a corymbus of flowers.* Hieracium hortenſe, floribus atro purpuraſcentibus. C. B. P. 128. *Garden Hawkweed with dark purple flowers.*
2. HIERACIUM (*Cerinthoides*) foliis radicalibus obovatis denticulatis, caulinis oblongis ſemiamplexicaulibus. Prod. Leyd. 124. *Hawkweed with oval indented leaves at the root, thoſe on the ſtalks oblong, and half embracing them.* Hieracium Pyrenaicum folio cerinthes. Schol. Bot. *Pyrenian Hawkweed with a Honeywort leaf.*
3. HIERACIUM (*Blattaroides*) foliis lanceolatis amplexicaulibus dentatis, floribus ſolitariis, calycibus laxis. Hort. Cliff. 387. *Hawkweed with ſpear-ſhaped indented leaves embracing the ſtalks, flowers growing ſingly, and looſe empalements.* Hieracium Pyrenaicum, blattariæ folio minus hirſutum. Tourn. Inſt. 472. *Pyrenean Hawkweed with a Moth Mullein leaf, leſs hairy.*
4. HIERACIUM (*Amplexicaule*) foliis amplexicaulibus cordatis ſubdentatis, pedunculis unifloris hirſutis, caule ramoſo. Hort. Cliff. 387. *Hawkweed with heart-ſhaped, indented, hairy foot-ſtalks, leaves embracing the ſtalks bearing one flower, and a branching ſtalk.* Hieracium Pyrenaicum rotundifolium amplexicaule. Schol. Bot. *Pyrenean Hawkweed, with round leaves embracing the ſtalks.*
5. HIERACIUM (*Sabaudum*) caule erecto multifloro, foliis ovato-lanceolatis dentatis ſemiamplexicaulibus. Prod. Leyd. 124. *Hawkweed with an erect ſtalk bearing many flowers, and oval ſpear-ſhaped leaves half embracing the ſtalk.* Hieracium ſabaudum altiſſimum, foliis latis brevibus, crebrius naſcentibus. Mor. Hiſt. 3. p. 71.

6. Hieracium (*Umbellatum*) foliis linearibus ſubdentatis ſparſis, floribus ſubumbellatis. Flor. Lapp. 287. *Hawkweed with linear indented leaves placed thinly, and flowers almoſt in an umbel.* Hieracium fruticoſum, anguſtiſſimo incano folio. H. L. 316.

The firſt ſort grows naturally in Syria; this ſends out from the root many oblong oval leaves, which are entire and hairy; from between the leaves ariſe a ſingle ſtalk, little more than a foot high, covered with hairs; the flowers are produced in a corymbus at the top; they are of a dark red colour, compoſed of many florets, which are ſucceeded by oblong black ſeeds, crowned with a white down, which, when ripe, by the elaſticity of the down, is drawn out of the empalement, and by the firſt ſtrong gale of wind, are wafted to a conſiderable diſtance. The flowers appear the beginning of June, and the ſeeds ripen in about five or ſix weeks after, but there is frequently a ſucceſſion of flowers till the autumn.

It is propagated by ſeeds, which ſhould be ſown on an eaſt aſpected border in March; and when the plants come up, they muſt be kept clean from weeds, till they are ſtrong enough to remove, which will be by the beginning of June; then they ſhould be tranſplanted to a ſhady border of undunged ground, at ſix inches diſtance, obſerving to water them if the weather ſhould prove dry, till they have taken new root; after which, if they are kept clean from weeds, they will require no other culture: in the autumn they ſhould be tranſplanted where they are deſigned to remain; the following ſummer they will flower and produce ripe ſeeds, and the roots will continue ſome years, if they are not planted in a rich moiſt ſoil, which frequently occaſions their rotting in winter.

The ſecond ſort grows naturally on the Pyrenean mountains. It is a perennial plant, whoſe lower leaves are oval, indented, and of a grayiſh colour; thoſe on the ſtalks are ſmaller, but of the ſame ſhape and colour, and half embrace the ſtalks with their baſe; the ſtalks riſe a foot high, branching out in ſeveral diviſions, each being terminated by one yellow flower. This is propagated by ſeeds as the firſt ſort.

The third ſort grows on the Pyrenees; this hath a perennial root, which ſends up ſeveral erect ſtalks, garniſhed with ſpear-ſhaped leaves which are indented; the flowers are produced from the wings of the ſtalks, upon ſhort foot-ſtalks, each ſuſtaining one large yellow flower, having a looſe empalement; this flowers in June; it is propagated by parting of the roots in autumn, and will thrive in any ſituation.

The fourth ſort riſes with a branching ſtalk a foot and a half high, garniſhed with heart-ſhaped leaves which are indented at their baſe, where they embrace the ſtalks; each diviſion of the branches terminate in a hairy foot-ſtalk, ſuſtaining one large yellow flower, which appears in June, and the ſeeds ripen in the end of July. This is a perennial plant, which is propagated by ſeeds as the firſt ſort, and requires the ſame treatment.

The fifth ſort grows naturally in Savoy; the root of this is perennial, ſending up ſeveral erect ſtalks near two feet high, garniſhed with ſhort, ſpear-ſhaped, indented leaves, half embracing the ſtalk with their baſe; the flowers are pretty large, of a deep yellow colour, terminating the ſtalks; it flowers in July.

The ſixth ſort grows naturally in Holland; it is a perennial plant, riſing with three or four ſlender ſtalks, garniſhed with hoary linear leaves, and terminated by yellow flowers. This rarely produces ſeeds in England, ſo is propagated by parting of the roots in autumn: but the fifth may be propagated either in the ſame manner, or from ſeeds as the firſt ſort, as it produces plenty of ſeeds here.

HILLS have many uſes, of which I ſhall only mention three or four.

1ſt, They ſerve as ſcreens, to keep off the cold and nipping blaſts of the northern and eaſtern winds.

2dly, The long ridges and chains of lofty mountains, being generally found to run from eaſt to weſt, ſerve to ſtop the evagation of thoſe vapours toward the poles, without which they would all run from the hot countries, and leave them deſtitute of rain.

3dly, They condenſe thoſe vapours, like alembic heads into clouds; and ſo by a kind of external diſtillation, give origin to ſprings and rivers; and by amaſſing, cooling, and conſtipating them, turn them into rain, and by that means render the fervid regions of the torrid zone habitable.

4thly, They ſerve for the production of a great number of vegetables and minerals, which are not found in other places.

It hath been found by experience and calculation, that Hills, though they meaſure twice as much as the plain ground they ſtand upon, yet the produce of the one can be no more than the other; and therefore, in purchaſing land, the Hills ought not to be bought for more than their ſuperficial meaſure, i. e. to pay no more for two acres upon the ſide of a Hill, than for one upon the plain, if the ſoil be equally rich.

It is true, that thoſe lands that are hilly and mountainous, are very different as to their valuable contents, from what are found in flat and plain ground, whether they be planted, ſown, or built upon, as for example:

Suppoſe a Hill contains four equal ſides, which meet in a point at top; yet the contents of theſe four ſides can produce no more grain, or bear no more trees, than the plain ground on which the Hill ſtands, or than the baſe of it; and yet by the meaſure of the ſides, there may be double the number of acres, rods, and poles, which they meaſure on the baſe or ground-plot.

For as long as all plants preſerve their upright method of growing, hilly ground can bear no more plants in number than the plain at the baſe.

Again, as to buildings on a Hill, the two ſides of a Hill will bear no more than the ſame number of houſes that can ſtand in the line at the baſe.

And as to rails, or park pailing over a Hill, though the meaſure be near double over the Hill to the line at the bottom, yet both may be incloſed by the ſame number of pales of the ſame breadth.

HIPPOCASTANUM. See Esculus.

HIPPOCRATEA. Lin. Gen. Plant. 54. Coa. Plum. Nov. Gen. 8. tab. 35.

The Characters are,

It hath a large ſpreading empalement of one leaf, cut at the top into five ſegments; the flower hath five oval petals, which are indented at the points. It hath three awl-ſhaped ſtamina, terminated by broad ſummits, and an oval germen ſituated below the petal, with a ſtyle the length of the ſtamina, crowned by an obtuſe ſtigma. The germen afterward becomes a heart-ſhaped capſule winged at the top, incloſing five ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, the flowers having three ſtamina and one ſtyle.

We have but one Species of this genus, viz.

Hippocratea (*Volubilis.*) Lin. Sp. 50. Plum. Gen. 8. *Hippocratea with a triple roundiſh fruit and a twining ſtalk.* Coa ſcandens, fructu trigemino ſubrotundo. Plum. Nov. Gen. 8. *Climbing Coa with a triple roundiſh fruit.*

The ſeeds of this plant were ſent me from Campeachy by Mr. Robert Millar, and ſeveral of the plants were raiſed in England, which continued two years in ſeveral gardens, but not one of them lived to flower; they grew to the height of eight or ten feet, twining round ſtakes, but their ſtalks were very ſlender, and decayed at the bottom, probably from their having too much wet.

It is a very tender plant, ſo muſt be conſtantly kept in the bark-bed in the ſtove, and ſhould have but little wet in winter.

HIPPOCREPIS. Lin. Gen. Plant. 791. Ferrum equinum. Tourn. Inſt. 400. tab. 225. Horſeſhoe Vetch; in French, *Fer de Cheval.*

The Characters are,

The empalement of the flower is permanent, of one leaf, divided into five parts, the two upper being joined. The flower is of the butterfly kind; the ſtandard hath a narrow baſe the length of the empalement, but is heart-ſhaped above; the wings are oval, oblong, and blunt; the keel is moon-ſhaped and compreſſed. It hath ten ſtamina, nine joined and one ſeparate, which ſtand erect, terminated by ſingle ſummits. It hath an oblong narrow germen, ſitting on an awl-ſhaped ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes a long, plain, compreſſed pod, which is cut into many parts from the under ſeam to the upper, each part forming a roundiſh ſinus, with obtuſe three-cornered joints connected to the upper ſeam, each joint being ſhaped like a horſe-ſhoe, incloſing a ſingle ſeed.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, which includes the plants with a leguminous flower, having ten ſtamina joined in two bodies.

The Species are,

1. Hippocrepis (*Uniſiliquoſa*) leguminibus ſeſſilibus ſolitariis. Hort. Cliff. 364. *Horſe-ſhoe Vetch with ſingle pods ſitting cloſe to the ſtalk.* Ferrum equinum, ſiliquâ ſingulari. C. B. P. 349. *Horſe-ſhoe Vetch with a ſingle pod.*
2. Hippocrepis (*Comoſa*) leguminibus pedunculatis confertis, margine exteriore repandis. Prod. Leyd. 384. *Horſe-ſhoe Vetch, with pods growing in cluſters upon foot-ſtalks, whoſe outer border is turned inward.* Ferrum equinum Germanicum, ſiliquis in ſummitate. C. B. P. 346. *German Horſe-ſhoe Vetch having pods on the tops of the ſtalks.*
3. Hippocrepis (*Multiſiliquoſa*) leguminibus pedunculatis confertis, margine altero lobatis. Hort. Cliff. 364. *Horſe-ſhoe Vetch with pods growing in cluſters upon foot-ſtalks, one border of which has lobes.* Ferrum equinum ſiliquâ multiplici. C. B. P. 346. *Horſe-ſhoe Vetch with many pods.*

The firſt ſort grows naturally in Italy and Spain. This is an annual plant, which ſends from the root ſeveral trailing ſtalks a foot long, that divide upward into ſmaller branches, garniſhed with winged leaves, compoſed of four or five pair of narrow ſmall lobes, terminated by an odd one, which are obtuſe, and indented at their ends; from the wings of the ſtalk come out ſingle flowers of the butterfly kind, which are yellow, and ſucceeded by ſingle pods ſitting cloſe to the ſtalks, which are about two inches long, and a third of an inch broad, bending inward like a ſickle, and divided into many joints ſhaped like a horſe-ſhoe. This flowers in June and July, and the ſeeds ripen in the autumn, ſoon after which the plants decay.

The ſecond ſort is found growing naturally in ſome parts of England, upon chalky hills, particularly at Hogmagog hills near Cambridge; this is a ſmaller plant than the former, and hath a perennial root, ſending out ſlender trailing ſtalks about ſix inches long, which are garniſhed with narrow winged leaves; the flowers grow in cluſters on the top of long foot-ſtalks; theſe are ſucceeded by pods which are ſhorter, and twiſted inward in roundiſh curves, but have joints ſhaped like thoſe of the former ſort.

The third ſort grows naturally in the ſouth of France, Germany, and Italy. This is an annual plant, with trailing ſtalks greatly reſembling the firſt, but the flowers are produced in cluſters on the top of pretty long foot-ſtalks; they are ſhaped like thoſe of the other ſorts, and the pods are jointed in like manner, but the joints are fixed to the oppoſite border. Theſe plants flower in June and July, and the ſeeds ripen in Auguſt and September.

Theſe plants are propagated by ſeeds, which ſhould be ſown in the autumn, where the plants are deſigned to remain; and when the plants come up, they muſt be kept clean from weeds, and thinned where they are too cloſe, which is all the culture they require. The two annual ſorts will decay in the autumn after they have perfected their ſeeds, but the roots of the other will continue two or three years, provided they are not in too good ground.

HIPPOLAPATHUM. See Rumex.

HIPPOMANE. Lin. Gen. Plant. 1099. Mançanilla. Plum. Nov. Gen. 50. tab. 30. The Manchineel.

The Characters are,

It hath male and female flowers in the ſame ſpike; the male flowers come out in ſmall cluſters, from a ſmall cup-ſhaped empalement; theſe have no petals; from the center of each empalement ariſes a ſingle ſtyle, terminated by two bifid ſummits. The female flowers have no petal, but an oval germen wrapped up in a three-leaved empalement; they have no ſtyle, but are crowned by a tripartite bifid ſtigma. The germen afterward becomes a roundiſh fruit with a fleſhy cover, incloſing a rough hard ſhell with ſeveral cells, each incloſing one oblong ſeed.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-firſt claſs, which includes the plants with male and female flowers, which have but one ſtamina.

The Species are,

1. Hippomane (*Mançinella*) foliis ovatis ſerratis. Hort. Cliff. 484. *Hippomane with oval ſawed leaves.* Mançanella pyrie facie. Plum. Nov. Gen. 50. *Manchineel with the appearance of the Pear-tree.*
2. Hippomane (*Biglanduloſa*) foliis ovato-oblongis, baſi glanduloſis. Lin. Sp. Plant. 1431. *Hippomane with oval oblong leaves, which have glands at their baſe.* Mançanilla lauri foliis oblongis. Plum. Nov. Gen. 50. *Manchineel with oblong Bay leaves.*
3. Hippomane (*Spinoſa*) foliis ſubovatis dentato ſpinoſis. Lin. Gen. Plant. 1191. *Hippomane with oval leaves which have prickly indentures.* Mançanilla aqui-folii foliis. Plum. Nov. Gen. 50. *Manchineel with Holly leaves.*

The firſt ſort grows naturally in all the iſlands of the Weſt-Indies. This is a very large tree in its native ſoil, almoſt equalling the Oak in ſize; the wood is much eſteemed for making of cabinets, book-caſes, &c. being very durable, and taking a fine poliſh; it is alſo ſaid, that the worms will not eat it: but as the trees abound with a milky cauſtic juice, ſo before they are felled, they make fires round their trunks to burn out their juice, otherwiſe they who fell them, would be in danger of loſing their ſight, by the juice flying in their eyes; and wherever this falls on the ſkin, it will raiſe bliſters; and if it comes upon linen, it will immediately turn it black, and on being waſhed will come into holes: it is alſo dangerous working of the wood after it is ſawn out, for if any of the ſawduſt happens to get into the workmens eyes, it cauſes inflammations, and the loſs of ſight for ſome time; to prevent which, they generally cover their faces with fine lawn, during the time they are working the wood.

This tree hath a ſmooth browniſh bark; the trunk divides upward into many branches, which are garniſhed with oblong leaves about three inches long, and one inch and a half broad, ending in acute points; they are ſlightly ſawed on their edges, and are of a lucid green, ſtanding on ſhort foot-ſtalks. The flowers come out in ſhort ſpikes at the end of the branches, being of both ſexes in the ſame ſpike, but having no petals they make but little appearance; theſe are ſucceeded by fruit, about the ſize and of the ſame ſhape as the Golden Pippin, turning of a yellow colour when ripe, which has often tempted ſtrangers to eat of them to their coſt, for they inflame the mouth and throat to a great degree, cauſing violent pains in the throat and ſtomach, which is dangerous, unleſs remedies are timely applied.

The inhabitants of America believe it is dangerous to ſit or lie under theſe trees, and affirm, that the rain, or dew, which falls from the leaves, will raiſe bliſters; but it is very certain, that unleſs the leaves are broken, and the juice of them mix with the rain, it will do no injury.

The ſecond ſort grows naturally at Carthagena in New Spain, and the third at Campeachy, from which places the late Dr. Houſtoun ſent me their ſeeds. The ſecond ſort grows to as large a ſize as the firſt. The leaves of this are much longer than thoſe of the firſt, and have two ſmall glandules growing at their baſe; they are ſawed on their edges, and are of a lucid green.

The third ſort is of humbler growth, ſeldom riſing more than twenty feet high; the leaves of this greatly reſemble thoſe of the common Holly, and are ſet with ſharp prickles at the end of each indenture; they are of a lucid green, and continue all the year.

Theſe plants are preſerved in ſome of the curious gardens in Europe, where they can never be expected to riſe to any great height, for they are too tender to live in theſe northern countries, but in ſtoves; they riſe eaſily from ſeeds, provided they are good. The ſeeds muſt be ſown upon a good hot-bed, and when the plants come up, they ſhould be each planted in a ſmall ſeparate pot filled with light ſandy earth, and plunged into a good bed of tanners bark, treating them in the ſame way as other tender plants; but they muſt not have much wet, for theſe plants abound with an acrid milky juice, and it is certain that moſt plants which do, are ſoon killed by much moiſture: theſe plants muſt be removed into the ſtove, and plunged into the tan-bed in autumn, where they ſhould conſtantly remain, giving them very little water in winter; and in ſummer when the weather is warm, they ſhould have a good ſhare of air admitted to them, and once or twice a week refreſhed with water; by this management I have raiſed many of theſe plants to the height of five or ſix feet, which have, by their ſhining green leaves, made a pretty variety during the winter ſeaſon in the ſtove.

HIPPOPHAE. Lin. Gen. Plant. 980. Rhamnoides. Tourn. Cor. 52. tab. 481. Baſtard Rhamnus, or Sea Buckthorn.

The CHARACTERS are,

It is male and female in different plants; the male flowers have an empalement of one leaf, cut into two ſegments, which cloſe at their points; they have no petals, but have four ſhort ſtamina, terminated by oblong angular ſummits, which are equal to the empalement. The female flowers hvve no petals, but have a one-leaved empalement, which is oval, oblong, tubulous, and bifid at the brim; theſe have no ſtamina, but in the center is ſituated a ſmall roundiſh germen, with a ſhort ſtyle, crowned by an oblong thick ſtigma, twice the length of the empalement. The germen afterward turns to a globular berry with one cell, incloſing one roundiſh ſeed.

This genus of plants is ranged in the fourth ſection of Linnæus's twenty-firſt claſs, intitled Diœcia Tetrandria, in which are included thoſe plants which are male and female in diſtinct plants, and the male flowers have four ſtamina.

The SPECIES are,

1. HIPPOPHAE (*Rhamnoides*) foliis lanceolatis. Lin. Sp. Plant. 1023. *Hippophae with ſpear-ſhaped leaves.* Rhamnoides ſalicis folio. Tourn. Cor. 53. *Sea Buckthorn with a Willow leaf.*
2. HIPPOPHAE (*Canadenſis*) foliis ovatis. Lin. Sp. Plant. 1024. *Hippophae with oval leaves, called Canada Sea Buckthorn.*

The firſt ſort grows naturally on the ſea-banks in Lincolnſhire, and alſo on the ſand-banks between Sandwich and Deal, in Kent; there are two varieties of this, one with yellow, and the other with red fruit; but it is the firſt only which I have obſerved growing naturally in England; the other I ſaw growing on the ſand-banks in Holland.

Theſe riſe with ſhrubby ſtalks eight or ten feet high, ſending out many irregular branches, which have a brown bark ſilvered over, garniſhed with very narrow ſpear-ſhaped leaves, about two inches long, and a quarter of an inch broad in the middle, leſſening gradually to both ends, of a dark green on their upper ſide, but hoary on their under, having a prominent midrib; the two borders of the leaves are reflexed like the Roſemary; theſe are placed alternate on every ſide the branches, ſitting very cloſe. The flowers come out from the ſide of the younger branches, to which they ſit very cloſe; the male flowers growing in ſmall cluſters, but the female come out ſingly; theſe make but little appearance. They appear in July, and the berries on the female plants are ripe in autumn.

This ſort is eaſily propagated by ſuckers from the root, for the roots ſpread wide, and ſend up a great number of ſhoots, ſo as to form a thicket: if theſe are taken off in autumn, and tranſplanted into a nurſery, they will be fit to tranſplant after one year's growth, to the places where they are to remain: as there is little beauty in this plant, ſo one or two of them may be allowed a place in a plantation of ſhrubs for the ſake of variety.

The ſecond ſort grows naturally in North America; this hath much the appearance of the former ſort, but the leaves differ in their ſhape, theſe being much ſhorter and broader, and are not ſo white on their under ſide. This hath not as yet flowered in this country, but the plants ſeem equally hardy with the former, and may be eaſily propagated by ſuckers or layers.

HIPPOSELINUM. See SMYRNIUM.

HIRUNDINARIA. See ASCLEPIAS.

HOEING is neceſſary and beneficial to plants, for two things: 1ſt, For deſtroying of weeds; 2dly, Becauſe it diſpoſes the ground better to imbibe the night dews, keeps it in a conſtant freſhneſs, and adds a vigour to the plants and trees, whoſe fruit by that means, becomes better conditioned than otherwiſe it would be.

This operation is performed by the hand, with an inſtrument called a Hoe, which is well known to every gardener. There are ſeveral ſizes of theſe; the ſmalleſt, which is called an Onion Hoe, is not more than three inches broad, and is uſed for Hoeing of Onions; not only to cut up the young weeds, but alſo to thin the Onions, by cutting up all thoſe which are too cloſe. The next ſize is near four inches and a half broad, and is called a Carrot Hoe; this is uſed for Hoeing of Carrots, or any other crop which requires the ſame room as thoſe. The largeſt ſize is about ſeven inches broad, and is frequently called a Turnep Hoe, being uſed for Hoeing of Turneps; but this is generally uſed by the kitchen-gardeners, for Hoeing between all their crops which are planted out, or ſtand ſo far aſunder as to admit an inſtrument of this breadth to paſs between the plants. Beſide, theſe ſort of Hoes, which are contrived to draw toward the perſon who uſes them, there is another ſort of a different form, which is called a Dutch Hoe; this is made for the perſon who uſes it to puſh from him, ſo that he does not tread over the ground which is hoed. This is a very proper inſtrument for ſcuffling over the ground to deſtroy weeds, in ſuch places where the plants will admit of its being uſed, and a perſon will go over a much greater ſpace of ground in the ſame time with one of theſe inſtruments, than with the common Hoe; but this inſtrument is not ſo proper for Hoeing out crops, ſo as to leave the plants at a proper diſtance, nor will it penetrate the ground ſo far; therefore the other ſort of hoe is to be preferred to this, becauſe it ſtirs the ground and looſens the ſurface, whereby the dews penetrate the ground, and thereby promote the growth of the plants. Of late years there has alſo been another inſtrument introduced in the field culture, called the Horſe Hoe, which is a ſort of plough with the ſhear ſet more inclining to a horizontal poſition than the common plough; but as moſt of the farmers are at a loſs how to uſe this inſtrument, ſo it has been but little practiſed in this country as yet; nor is it likely to be brought into uſe, unleſs the garden farmers near London, who are undoubtedly the beſt huſbandmen in Europe, introduce it; for the common farmers can never be ſuppoſed to alter their old eſtabliſhed methods, till by neceſſity they are drove to it: a ſtrong inſtance we have of this kind, in the culture of Turneps, which for many years were ſown in moſt of the counties in England, but till within about ſixty years paſt, they were never hoed, except within twenty or thirty miles of London, where the gardeners who had been bred in the kitchen-gardens near London, every ſeaſon went out in particular gangs to the different parts of the neighbouring country, and each party engaged to hoe the Turneps in ſuch a particular diſtrict, at a certain price per acre; and from the ſucceſs of the farmers who firſt employed them, their neighbours were at length tempted to follow their example, ſo that it became neceſſary for ſome of their labourers to underſtand this work; and from that time it has prevailed ſo much, as that many of the diſtant counties have now engaged in this practice: and if the Horſe-hoeing huſbandry was but well eſtabliſhed among the farmers near London, there would be little doubt of its ſpreading into the diſtant counties; but there are great prejudices againſt it at preſent, moſt of them ariſing from the ignorance of the farmers in general, and others from the over-fondneſs of the author to his own ſchemes, which has in many particulars carried him into many known abſurdities; and theſe being well known to every practical farmer and gardener, are ſufficient arguments with them againſt making trial of the uſeful part of his ſcheme.

The utility of this method of huſbandry, is firſt, in proportioning the number of plants to the paſture, which the ground is ſuppoſed capable of nouriſhing properly. The ſecond is, by frequent ſtirring of the ſurface of the land, all weeds which rob the crop of its nouriſhment is deſtroyed, and the clods of earth are hereby divided and pulverized, ſo that the roots of the plants can more eaſily penetrate them, and ſearch their proper food; beſides, the dews and moiſture are eaſily imbibed in the looſe ground, whereby the plants receive a greater ſhare of nouriſhment.

There are few perſons who properly conſider of what conſequence the ſtirring and breaking of the ſurface of the ground is to all crops growing therein. I have frequently made trial of this, when the crop has been ſo bad as to be thought not worth ſtanding, which has been occaſioned by the great quantity of rain which has fallen, whereby the ſurface of the ground has been ſo cloſely bound, as that the plants could find no nouriſhment, but have changed their uſual verdure to a purple colour, and have made no progreſs; but upon Hoeing the ground and breaking the clods, the plants have put out new roots, and have flouriſhed exceedingly. From many repeated trials of this kind I can affirm, that if the Wheat in general was ſowed in rows, ſo as that the plough may be brought between them in the ſpring, to looſen the ground, which by the winter's rains may have been too cloſely bound, the crop would more than double what is the common produce.

But the author of this ſcheme was too ſanguine in his propoſals, firſt, by aſſerting, that in this method of huſbandry, the land would conſtantly produce the ſame ſort of crops without diminution; and ſecondly, it might be done without dreſſing or manuring the ground; and his fondneſs for his own ſcheme carried him ſo far in the proſecution of it, as at laſt to have much worſe crops than any of his neighbours; however, this ſhould not diſcourage others from the practice of it, though upon different principles: for although the land thus cultivated, will not nouriſh the ſame plant without manuring ſeveral years, yet by this method of huſbandry I can affirm, that all crops will be ſo much improved, as to doubly anſwer the difference of expence, and leſs than a ſixth part of the ſeed will be enough for the ſame ſpace of ground. The common ſwing plough will anſwer all intents of Horſe-hoeing.

HOLCUS. Lin. Gen. Plant. 1015. Milium. Tourn. Inſt. R. H. 514. tab. 298. Sorgum. Mich. Indian Millet, or Corn.

The CHARACTERS are,

It hath male and hermaphrodite flowers ſometimes on the ſame plant, at others on different plants. The male flowers are ſmall, and have a bivalve chaff; theſe valves are oval, ſpear-ſhaped, and twiſted, ending with an acute beard; they have a ſmall hairy corolla with three hairy ſtamina, terminated by oblong ſummits. The hermaphrodite flowers are ſingle, in a ſtiff bivalve chaff; the inner of theſe is ſlender, hairy, and leſs than the empalement; the outer valve terminates in a rigid beard, and is larger than the empalement; they have three hairy ſtamina, terminated by oblong ſummits, with a roundiſh germen, ſupporting two hairy ſtyles, crowned with plumoſe ſummits. The germen afterward becomes an oval ſingle ſeed wrapped up in the chaff.

This genus of plants is ranged in the firſt ſection of Linnæus's twenty-third claſs, intitled Polygamia Monœcia which includes thoſe plants which have male and hermaphrodite flowers in different parts of the ſame plant, whoſe flowers have ſeveral ſtamina.

The SPECIES are,

1. HOLCUS (*Sorgum*) glumis villoſis, ſeminibus ariſtatis. Hort. Upſal. 301. *Holcus with hairy chaff and bearded ſeeds.* Milium arundinaceum, ſubrotundo ſemine, Sorgo nominatum. C. B. P. 26. *Reed-like Millet, with a roundiſh ſeed, called Sorgum.*
2. HOLCUS (*Saccharatus*) glumis glabris, ſeminibus muticis. Lin. Sp. Plant. 1047. *Holcus with ſmooth huſks, and ſeeds without awns.* Milium Indicum, arundinaceo caule, granis flaveſcentibus. H. L. 425. *Indian Millet with a reedy ſtalk, and yellowiſh grains.*

There are ſeveral other of the graſſy tribe which belong to this genus, but as they are not cultivated for uſe, ſo I ſhall not enumerate them here.

The two ſorts here mentioned, grow naturally in India, where their grain is often uſed to feed poultry, and the ſeeds of theſe are frequently ſent to Europe for the ſame purpoſe; but the ſummers are ſeldom warm enough to ripen the ſeeds in the open air in England, but in Italy they are both cultivated. The ſtalks of theſe plants riſe five or ſix feet high, which are ſtrong reedy, and like thoſe of the Maiz, or Turkey Wheat, but ſmaller. The leaves are long and broad, having a deep furrow through the center, where the midrib is depreſſed on the upper ſurface, and is very prominent below. The leaves are two feet and a half long, and two inches broad in the middle, embracing the ſtalks with their baſe. The flowers come out in large panicles at the top of the ſtalks, reſembling, at firſt appearance, the male ſpikes of the Turkey Wheat; theſe are ſucceeded by large roundiſh ſeeds, which are wrapped round with the chaff. Theſe plants are propagated in a few gardens for the ſake of variety, but as they are late in ripening their grain here, ſo they are not worth cultivating for uſe. The ſeeds ſhould be ſown on a warm border, or upon a gentle hot-bed in March; and when the plants come up, they ſhould be thinned and planted at the diſtance of a foot aſunder in the rows, and the rows ſhould be three feet diſtance; the culture after this, is to keep the ground clean from weeds, and draw the earth up with a hoe to the ſtems of the plants; if the ſeaſon proves warm, their panicles will appear in July, and the grain will ripen in September, but in bad ſeaſons their grain will not ripen here.

HOLLOW ROOT. See FUMARIA.

HOLLY. See ILEX.

HOLLYHOCKS. See ALCEA.

HOMOGENEAL or **HOMOGENEOUS** plants, are ſuch plants as are of the ſame kind, or nature, with others.

HONEYSUCKLE. See PERICLYMENUM.

HOPS. See LUPULUS.

HORDEUM. Lin. Gen. Plant. 94. Tourn. Inſt. R. H. 513. tab. 293. Barley; in French, *Orge.*

The CHARACTERS are,

It hath a partial involucrum of ſix narrow-pointed leaves, which contain three flowers. The petal of the flower opens with two valves; the under valve is angular, ſwelling, oval, and pointed, being longer than the empalement, ending in a long beard; the inner is ſmall and ſpear-ſhaped. The flower hath three hairy ſtamina ſhorter than the petal, terminated by oblong ſummits. It hath an oval turned germen, ſupporting two hairy reflexed ſtyles, crowned by the like ſtigmas. The germen afterward becomes an oblong bellied ſeed,

ſeed, pointed at both ends, having a longitudinal furrow, ſurrounded by the petal of the flower, which does not fall off.

This genus of plants is ranged in the ſecond ſection of Linnæus's third claſs, which includes the plants whoſe flowers have three ſtamina and two ſtyles.

The Species are,

1. Hordeum (*Vulgare*) floſculis omnibus hermaphroditis ariſtatis ordinibus duobus erectioribus. Lin. Sp. Plant. 84. *Barley with all the flowers hermaphrodite, and two orders of beards, which are erect.* Hordeum polyſticum vernum. C. B. P. 22. *Spring Barley with many rows of grain.*

2. Hordeum (*Zeocriton*) floſculis lateralibus maſculis muticis, ſeminibus angularibus imbricatis. Hort. Upſal. 23. *Barley with male flowers on the ſide, without awns, and angular ſeeds placed over each other.* Hordeum diſtichon. C. B. P. 22. *Common long-eared Barley.*

3. Hordeum (*Diſtichon*) floſculis lateralibus maſculis muticis, ſeminibus angularibus imbricatis. Hort. Upſal. 23. *Barley with male flowers on the ſide, without awns, and angular imbricated ſeeds.* Hordeum diſtichum, ſpicâ breviore & latiore, granis confertis. Raii Syn. 246. *Barley with ſhorter and broader ſpikes, commonly called Sprat, or Battledore Barley.*

4. Hordeum (*Hexaſtichon*) floſculis omnibus hermaphroditis ariſtatis, ſeminibus ſexfariàm æqualiter poſitis. Hort. Upſal. 23. *Barley with all the flowers hermaphrodite, bearded, and ſix rows of ſeeds equally ranged.* Hordeum hexaſticum pulchrum. J. B. 2. 429. *Winter, or Square Barley, Bear Barley, or Big.*

The firſt ſort is the common Spring Barley, which is principally cultivated in England; of this the farmers make two ſorts, viz. the common and rath-ripe Barley, which are the ſame: for the rath-ripe has only been an alteration, occaſioned by being long cultivated upon warm gravelly lands. The ſeeds of this, when ſown in cold or ſtrong land, will the firſt year ripen near a fortnight earlier than the ſeeds taken from ſtrong land; therefore the farmers in the vales, generally purchaſe their ſeed Barley from the warm land; for if ſaved in the vales two or three years, it will become full as late in ripening as the common Barley of their own product; and the farmers on the warm land are alſo obliged to procure their ſeed Barley from the ſtrong land, otherwiſe their grain would degenerate in bulk and fulneſs, which by thus changing is prevented. This ſort of Barley is eaſily diſtinguiſhed by the two orders of beards, or awns, which ſtand erect; the chaff is alſo thinner than that of the two laſt ſpecies, ſo is eſteemed better for malting.

The ſecond ſort is the long-eared Barley, which is cultivated in many parts of England, and is an exceeding good ſort; but ſome farmers object to this ſort, becauſe they ſay the ears being long and heavy, it is more apt to lodge; this hath the grains regularly ranged in a double row, lying over each other like tiles on a houſe, or the ſcales of fiſhes. The huſk, or chaff of this Barley is alſo very thin, ſo is much eſteemed for malting.

The third ſort is uſually called Sprat Barley; this hath ſhorter and broader ears than either of the other ſorts; the awns, or beards, are longer, and the grains are placed cloſer together, and the awns being long, the birds cannot ſo eaſily get out the grains; this ſeldom grows ſo tall as the other ſpecies, the ſtraw is ſhorter and coarſer, ſo not very good fodder for cattle.

The fourth ſort is rarely cultivated in the ſouthern parts of England, but in the northern counties, and in Scotland, is generally ſown, being much hardier than the other ſpecies, ſo will bear the cold; this hath its grains diſpoſed in ſix rows: the grain is large and plump, but it is not ſo good for malting, which is the reaſon for its not being cultivated in the ſouthern parts of England, where the other ſorts, which are much better for that purpoſe, do thrive well.

All theſe ſorts of Barley are ſown in the ſpring of the year, in a dry time; in ſome very dry light land, the Barley is ſown early in March; but, in ſtrong clayey ſoils, it is not ſown till April, and ſometimes not until the beginning of May; but when it is ſown late, if the ſeaſon doth not prove very favourable, it is very late in autumn before it is fit to mow, unleſs it be the rath-ripe ſort, which is often ripe in nine weeks from the time of ſowing.

Some people ſow Barley upon land where Wheat grew the former year; but when this is practiſed, the ground ſhould be ploughed the beginning of October in a dry time, laying it in ſmall ridges, that the froſt may mellow it the better, and this will improve the land greatly; and if this can be ploughed again in January, or the beginning of February, it will break and prepare the ground better; then in March the ground is ploughed again, and laid even where it is not very wet; but in ſtrong wet lands the ground ſhould be laid round, and the furrows made deep to receive the wet. When this is finiſhed, the common method is to ſow the Barley-ſeed with a broad caſt at two ſowings; the firſt being harrowed in once, the ſecond is harrowed until the ſeed is buried; the common allowance of ſeed is four buſhels to an acre. This is the quantity of grain uſually ſown by the farmers; but if they could be prevailed on to alter this practice, they would ſoon find their account in it; for if leſs than half that quantity is ſown, there will be a much greater produce, and the corn will be leſs liable to lodge, as I have many years experienced; for when corn or any other vegetable ſtands very cloſe, the ſtalks are drawn up weak, ſo are incapable to reſiſt the force of winds, or bear up under heavy rains; but when they are at a proper diſtance, their ſtalks will be more than twice the ſize of the other, ſo are ſeldom laid. I have frequently obſerved in fields where there has been a foot-path through the middle, that the corn which has ſtood thin on each ſide the path hath ſtood upright, when all the reſt on both ſides has been laid flat on the ground: and whoever will obſerve theſe roots of corn near the paths, will find them tiller out (i. e. have a greater number of ſtalks) to more than four times the quantity of the other parts of the field. I have ſeen experiments made by ſowing Barley in rows acroſs divers parts of the ſame field, and the grains ſowed thin in the rows, ſo that the roots were three or four inches aſunder in the rows, and the rows at a foot diſtance; the intermediate ſpaces of the ſame field were at the ſame time ſown broad caſt in the uſual way; the ſucceſs was this, the roots which ſtood thin in the rows tillered out from ten or twelve, to upward of thirty ſtalks on each root, the ſtalks were ſtronger, the ears longer, and the grains larger than any of thoſe ſown in the common way; and when thoſe parts of the field where the corn was ſown in the uſual way has been lodged, theſe parts ſown thin have ſupported their upright poſition againſt wind and rain, though the rows have been made not only lengthways, but croſs the lands, in ſeveral poſitions, ſo that there could be no alteration in regard to the goodneſs of the land, or the ſituation of the corn; therefore where ſuch experiments have been frequently made, and always attended with equal ſucceſs, there can be no room to doubt which of the two methods is more eligible; ſince if the crops were only ſuppoſed to be equal in both, the ſaving more than half the corn ſown is a very great advantage, and deſerves a national conſideration, as ſuch a ſaving, in ſcarce times, might be a very great benefit to the public.

I know the farmers in general are very apt to complain if their corn does not come up ſo thick as to cover the ground green in a ſhort time, like Graſs fields; but I have often obſerved, that from the badneſs of the ſeaſon it has come up thin, or by accident has been in part killed, their corn has been ſtronger, the ears longer, and the grain plumper, ſo that the produce has been much greater than in thoſe years when it has come up thick; for the natural growth of corn is to ſend out many ſtalks from a root, and not riſe ſo much in height; therefore it is entirely owing to the roots ſtanding too near each other, when the ſtalks are drawn up tall and weak. I have had eighty-ſix ſtalks upon one root of Barley, which were ſtrong, produced longer ears, and the grain was better filled than any which I ever ſaw grow in the common method of huſbandry, and the land upon which this grew was not very rich: but I have frequently obſerved on the ſides of hot-beds in the kitchen-gardens, where Barley-ſtraw has been uſed for covering the beds, that ſome of the grains left in the ears has dropped out and grown, the roots have produced from thirty to ſixty ſtalks each, and thoſe been three or four times larger than the ſtalks ever arrive at in the common way: but to this I know it will be objected, that although upon rich land in a garden, theſe roots of corn may probably have ſo many ſtalks, yet in poor land they will not have ſuch produce; therefore unleſs there is a greater quantity of ſeeds ſown, their crop will not be worth ſtanding, which is one of the greateſt fallacies that can be imagined; for to ſuppoſe that poor land can nouriſh more than twice the number of roots in the ſame ſpace as rich land, is ſuch an abſurdity, as one could hardly ſuppoſe any perſon of common underſtanding guilty of; and yet ſo it is, for the general practice is to allow a greater quantity of ſeed to poor land, than for richer ground; not conſidering that where the roots ſtand ſo cloſe, they will deprive each other of the nouriſhment, ſo ſtarve themſelves, which is always the caſe where the roots ſtand cloſe; which any perſon may at firſt ſight obſerve, in any part of the fields where the corn happens to ſcatter when they are ſowing it; or in places where, by harrowing, the ſeed is drawn in heaps, thoſe patches will ſtarve, and never grow to a third part of the ſize as the other parts of the ſame field; and yet common as this is, it is little noticed by farmers, otherwiſe they ſurely would not continue their old cuſtom of ſowing. I have made many experiments for ſeveral years in the pooreſt land, and have always found that all crops which are ſown or planted at a greater diſtance than uſual, have ſucceeded beſt; and I am convinced, if the farmers could be prevailed on to quit their prejudices, and make trial of this method of ſowing their corn thin, they would ſoon ſee the advantage of this huſbandry.

The noblemen and gentlemen in France are very buſy in ſetting examples of this huſbandry in moſt of their provinces, being convinced by many trials of its great utility; and it were to be wiſhed, the ſame was done in England.

When the Barley is ſown, the ground ſhould be rolled after the firſt ſhower of rain, to break the clods and lay the earth ſmooth, which will render it better to mow, and alſo cauſe the earth to lie cloſer to the roots of the corn, which will be of great ſervice to it in dry weather.

Where Barley is ſown upon new broken up land, the uſual method is, to plough up the land in March, and let it lie fallow until June, at which time it is ploughed again, and ſown with Turneps, which are eaten by ſheep in winter, by whoſe dung the land is greatly improved; and then in March following the ground is ploughed up again, and ſown with Barley as before.

There are many people who ſow Clover with their Barley, and ſome have ſown the Lucern with Barley; but neither of theſe methods is to be commended, for where there is a good crop of Barley, the Clover or Lucern muſt be ſo weak as not to pay for ſtanding; ſo that the better way is to ſow the Barley alone without any other crop among it, and then the land will be at liberty for any other crop, when the Barley is taken off the ground; but this practice of ſowing Clover, Rye-graſs, and other Graſs-ſeeds, with corn, has been ſo long and univerſally eſtabliſhed among farmers, that there is little hope of prevailing with thoſe people to alter a cuſtom which has been handed down to them from their predeceſſors, although there ſhould be many examples produced, to ſhew the abſurdity of this practice.

When the Barley has been up three weeks or a month, it will be a very good method to roll it over with a weighty roller, which will preſs the earth cloſe to the roots of the corn, and thereby prevent the ſun and air from penetrating the ground, which will be of ſingular ſervice in dry ſeaſons; and this rolling of it before it ſtalks, will cauſe it to till out into a greater number of ſtalks; ſo that if the plants ſhould be thin, this will cauſe them to ſpread ſo as to fill the ground, and likewiſe to ſtrengthen the ſtalks.

The time for cutting of Barley is, when the red colour of the ears is off, and the ſtraw turns yellow, and the ears begin to hang down: in the north of England they always reap their Barley, and make it up in ſheaves, as practiſed here for Wheat, by which method they do not loſe near ſo much corn, and it is alſo more handy to ſtack; but this method cannot ſo well be practiſed where there are many weeds amongſt the corn, which is too frequently the caſe in the rich lands near London, eſpecially in moiſt ſeaſons; therefore when this is the caſe, the Barley muſt lie on the ſwarth till all the weeds are dead; but as it is apt to ſprout in wet weather, it muſt be ſhook up, and turned every fair day after rain to prevent it. When it is carried in, it ſhould be thoroughly dry, otherwiſe if it be ſtacked wet, it will turn muſty; or if too green, it is ſubject to burn in the mow. The common produce of Barley, is two and a half, or three quarters on an acre, but I have ſometimes known ſix or ſeven quarters on an acre.

HORIZONTAL SHELTERS have, by ſome perſons, been greatly recommended to preſerve fruit-trees from blights; but with how little reaſon, or upon what ſlight experiments, every one who has ever made uſe of them will eaſily judge; eſpecially thoſe which are contrived by placing tiles in the wall at certain diſtances, nothing being more obvious, than that vegetables, when prevented from receiving the advantage of dews, rains, &c. thoſe kindly benefits of heaven, grow weak, languid, and at laſt entirely decay: and ſince, from vaſt numbers of experiments which have been lately made, we find that trees imbibe great quantities of nouriſhment through the pores of their leaves and branches, whereby they are rendered vigorous and healthy, even in ſuch ſeaſons, and upon ſuch ſoils, where one would think it impoſſible they ſhould receive much nouriſhment from the earth; to deprive them of this advantage, is no leſs than deſtroying them; though perhaps, if the trees are vigorous, it may not be effected ſuddenly; but there will be very viſible ſigns of decay on them daily, and a few years will put a period to their lives, as I have more than once obſerved, where ſuch walls were built.

The only ſort of theſe ſhelters which I have ever obſerved uſeful for fruit-trees, was made with two leaves of ſlit deal, joined over each other, and painted; this being fixed upon the top of the wall with pullies, to draw up and down at pleaſure, formed a ſort of penthouſe; which being let down in great rains, or cold nights, during the time that the trees were in flower, or the fruit was ſetting, proved ſerviceable; but then theſe ſhelters were removed away ſoon after the fruit was ſet, ſo that the trees might enjoy all the advantages of rain, dew, &c. in the ſummer, which is abſolutely neceſſary, if we would have healthy trees or good fruit.

HORMINUM. Tourn. Inſt. 178. tab. 82. Salvia. Lin. Gen. Plant. 36. Clary; in French, *Ormin.*

The CHARACTERS are,

The empalement of the flower is permanent, of one leaf, tubulous, and channelled, having two lips; the upper is broad, ending in three acute points; the under is ſhorter, ending in two points. The flower has one petal, divided into two lips; the upper is concave, compreſſed on the two ſides, and incurved with a ſlight indenture at the point, the lower is broader and more indented. It hath two ſhort ſtamina, ſituated in the tube of the flower, terminated by ſhort proſtrate ſummits, and two other which decay ſoon after the flowers open. In the bottom of the tube are four roundiſh germen, ſupporting a ſingle ſtyle crowned by a bifid ſtigma, ſituated in the upper lip of the petal. The germen afterward becomes four ſeeds, lodged in the empalement.

This genus of plants is ranged in the firſt ſection of Tournefort's fourth claſs, which includes the herbs with a lip flower of one leaf, whoſe upper lip is forked, or ſhaped like a helmet. Dr. Linnæus has joined this genus, and alſo the Sclarea of Tournefort to the Salvia, including them all in that genus;

but as there are many ſpecies of each genus, ſo it is better to keep them aſunder, whereby their old titles, by which they have always been known in the ſhops and market will be retained, though there is no very eſſential difference in their characters.

The Species are,

1. Horminum (*Verbenacea*) foliis ſinuatis ſerratis, corollis calyce anguſtioribus acutis. *Clary with ſinuated ſawed leaves, and the petal of the flower narrower than the cup.* Horminum ſylveſtre lavendulæ flore. C. B. P. 239. *Wild Clary with a Lavender flower.*
2. Horminum (*Lyrata*) foliis pinnato-ſinuatis rugoſis, calycibus corollâ longioribus. *Clary with wing-ſhaped ſinuated leaves, which are rough, and the empalements longer than the petal of the flower.* Horminum folio querno. Volk. *Oak-leaved Clary.*
3. Horminum (*Verticillatum*) verticillis ſubnudis, ſtylo corollarum labio inferiore incumbente. *Clary with heart-ſhaped, crenated, indented leaves, naked whorls, and the ſtyle lying under the lip of the petal.* Horminum ſylveſtre latifolium verticillatum. C. B. P. 283. *Broad-leaved wild Clary, with flowers growing in whorls.*
4. Horminum (*Napifolium*) foliis radicalibus pinnato-inciſis, caulinis cordatis crenatis, ſummis ſemiamplexicaulibus. *Clary, whoſe lower leaves are cut and winged, thoſe on the ſtalks heart-ſhaped and crenated, and thoſe on the top half embracing the ſtalks.* Horminum napi folio. Mor. Hort. R. Blæſſ. *Clary with a Navew leaf.*
5. Horminum (*Sativum*) foliis obtuſis crenatis, bracteis ſummis ſterilibus majoribus coloratis. *Clary with obtuſe crenated leaves, the bracteæ on the top of the ſtalks large, coloured, and barren.* Horminum comâ purpuro-violaceâ. J. B. 3. 309. *Clary with a purple Violet top.*

The firſt ſort grows naturally on ſandy and gravelly grounds, in many parts of England. This a perennial plant; the lower leaves grow upon pretty long foot-ſtalks, and are near four inches long and two broad; they are ſinuated on their borders, and bluntly crenated; their ſurface is rugged and wrinkled; the ſtalks are a foot long, ſquare, and inclining toward the ground; the leaves upon theſe are ſmaller, and crenated on their edges; the flowers grow in a whorled ſpike at the top of the ſtalk, generally with two ſhorter ſpikes, one on each ſide; the flowers are ſmall and blue; theſe are ſcarce ſo long as their empalements; they have but one petal, which is divided into two lips, the upper being a little longer than the under, and almoſt ſhuts over it; there are but two perfect ſtamina in each flower, and four germen at the bottom, ſupporting a ſingle ſtyle; the germen afterward become ſo many naked ſeeds, ſitting in the empalement. It flowers in June and July, and the ſeeds ripen in Auguſt and September. This ſort propagates itſelf in plenty, if the ſeeds are permitted to ſcatter, and requires no other culture but to keep the plants clean from weeds.

This is ſometimes called Oculus Chriſti, from the ſuppoſed virtues of its ſeeds in clearing of the ſight, which it does by its viſcous covering; for when any thing happens to fall into the eye, if one of the ſeeds is put in at one corner, and the eye-lid kept cloſe over it, moving the ſeed gently along the eye, whatever happens to be there will ſtick to the ſeed, and ſo be brought out. The virtues of this are ſuppoſed to be the ſame as the Garden Clary, but not quite ſo powerful.

The ſecond ſort grows naturally in the ſouth of France and Italy; the lower leaves are upward of four inches long, and not more than one broad, regularly ſinuated on both ſides, in form of a winged leaf; the ſtalks riſe about the ſame height with the former, but all the leaves upon the ſtalks are ſinuated in the ſame manner as the lower; the flowers are ſmaller than thoſe of the firſt, but grow in whorled ſpikes like them. This is a perennial plant, which is very hardy, and will propagate itſelf in plenty by the ſcattered ſeeds. It is ſeldom kept in gardens but for the ſake of variety.

The third ſort is a perennial plant, which grows naturally in Auſtria and Bohemia. This ſends out from the root a great number of heart-ſhaped leaves, which are ſawed on their edges and deeply veined, ſtanding upon pretty long foot-ſtalks which are hairy; the ſtalks ariſe from between theſe, which are ſquare, and grow two feet and a half high, which are garniſhed with two heart-ſhaped leaves at each joint, whoſe baſe ſits cloſe to the ſtalks, half embracing them; the ſtalks at the two or three upper joints, put out on each ſide a long foot-ſtalk; theſe, and alſo the principal ſtalk, are garniſhed with whorls of ſmall blue flowers, not much unlike thoſe of the common ſort, but larger; the ſpikes are more than a foot long, and toward the top the whorls are nearer together. It flowers in June, and the ſeeds ripen in Auguſt.

The fourth ſort grows naturally in the ſouth of France, and in Italy. This is alſo a perennial plant, which has ſome reſemblance of the third, but the lower leaves of this are cut at their baſe to the mid-rib, into one or two pair of ears or lobes, which are but ſmall, and are often at a diſtance from each other; the leaves are not ſawed, but are bluntly indented; the ſtalks of this are ſlenderer, and do not grow ſo tall as thoſe of the third, nor are the ſpikes of flowers ſo long. This flowers and ſeeds at the ſame time with the third.

Both ſorts may be eaſily propagated by ſeeds, which, if ſown in the ſpring on an open ſpot of ground, the plants will come up, and require no other care but to keep them clean from weeds, and allow them room to grow; for the plants ſhould not be nearer than two feet apart, for they grow very large, and will laſt ſeveral years.

The fifth ſort is an annual plant, which grows naturally in Spain; of this there are three varieties which are conſtant, one with purple tops, another with red tops, and a third with green tops. As they differ in nothing but the colour of their bracteæ on the top of the ſtalks, ſo I have not put them down as different ſpecies, though from more than thirty years cultivating them, I have not known them alter.

Theſe plants have obtuſe crenated leaves, ſhaped like thoſe of the common red Sage; the ſtalks are ſquare and grow erect, about a foot and a half high; their lower parts are garniſhed at each joint with two oppoſite leaves of the ſame ſhape, but gradually diminiſhing in ſize toward the top: the ſtalks are garniſhed upward with whorls of ſmall flowers, and are terminated by cluſters of ſmall leaves, which in one are red, in another blue, and a third green, which make a pretty appearance, and are preſerved in gardens for ornament. They flower in June and July, and their ſeeds ripen in the autumn.

The ſeeds of theſe are ſown in the ſpring, in the places where they are deſigned to remain, and require no other care but to keep them clean from weeds, and thin them where they come up too cloſe.

Garden Clary. See Sclarea.

HORNBEAM. See Carpinus.

HORSE CHESTNUT. See Esculus.

HORSE DUNG is of great uſe to make hot-beds for the raiſing all ſorts of early garden crops, as Cucumbers, Melons, Aſparagus, Sallading, &c. for which purpoſe no other ſort of Dung will do ſo well, this fermenting the ſtrongeſt; and, if mixed with long litter, and ſea-coal aſhes in a due proportion, will continue its heat much longer than any other ſort of Dung whatſoever; and afterwards when rotted, becomes an excellent manure for moſt ſorts of lands, more eſpecially for ſuch as are of a cold nature; and for ſtiff clayey lands, when mixed with ſea-coal aſhes, and the cleanſing of London ſtreets, it will cauſe the parts to ſeparate much ſooner than any other compoſt will do; ſo that where it can be obtained in plenty, I would always recommend the uſe of it for ſuch lands.

HOSE IN HOSE, a term uſed in gardening, to ſignify one tube or petal within another, as in the

Polyanthus, where there are in ſome varieties two petals.

HOT-BEDS are of general uſe in theſe northern parts of Europe, without which we could not enjoy ſo many of the products of warmer climes as we do now; nor could we have the tables furniſhed with the ſeveral products of the garden, during the winter and ſpring months, as they are at preſent in moſt parts of England, better than perhaps in any other country in Europe: for although we cannot boaſt of the clemency of our climate, yet England is better furniſhed with all ſorts of eſculent plants for the table, much earlier in the ſeaſon, and in greater quantities, than in the gardens of our neighbours, which is owing to our ſkill in Hot-beds.

The ordinary Hot-beds which are commonly uſed in the kitchen-gardens, are made with new horſe dung, in the following manner:

1ſt, There is a quantity of new horſe dung from the ſtable (in which there ſhould be part of the litter or ſtraw which is commonly uſed in the ſtable, but not in too great proportion to the dung,) the quantity of this mixture muſt be according to the length of the bed intended; which, if early in the year, ſhould not be leſs than one good load for each light; this dung ſhould be thrown up in a heap, mixing therewith a few ſea-coal aſhes, ſome leaves of trees, and tan, which will be of ſervice to continue the heat of the dung; it ſhould remain ſix or ſeven days in this heap; then it ſhould be turned over, and the parts well mixed together, and caſt into a heap again, where it may continue five or ſix days longer, by which time it will have acquired a due heat; then in ſome well ſheltered part of the garden, you muſt dig a trench in length and width, proportionable to the frames you intend it for; and if the ground be dry, about a foot deep; but if wet, not above ſix inches; then wheel the dung into the opening, obſerving to ſtir every part of it with a fork, and lay it exactly even and ſmooth thro' every part of the bed; as alſo to lay the bottom part of the heap (which is commonly free from litter) upon the ſurface of the bed; this will prevent the ſteam from riſing ſo plentifully as it would otherwiſe do. To prevent this, and the heat from riſing ſo violently as to burn the roots of whatever plants are put into the ground, it will be a very good way to ſpread a layer of neats dung all over the ſurface of the horſe dung, which will prevent the mould from burning: if the bed is intended for Cucumbers or Melons, the earth ſhould not be laid all over the bed at firſt, only a hill of earth ſhould be firſt laid in the middle of each light on which the plants ſhould be planted, and the remaining ſpace ſhould be filled up from time to time as the roots of the plants ſpread; but this is fully explained under thoſe two articles. But if the hot-bed is intended for other plants, then after the bed is well prepared, it ſhould be left two or three days for the ſteam to paſs off, before the earth is laid upon the dung.

In the making of theſe hot-beds, it muſt be carefully obſerved to ſettle the dung cloſe with a fork; and if it be full of long litter, it ſhould be equally trod down cloſe in every part, otherwiſe it will be ſubject to heat too violently, and conſequently the heat will be much ſooner ſpent, which is one of the greateſt dangers theſe ſort of beds may be liable to. During the firſt week or ten days after the bed is made, you ſhould cover the glaſſes but ſlightly in the night, and in the day time carefully raiſe them to let out the ſteam, which is ſubject to riſe very copiouſly while the dung is freſh; but as the heat abates, ſo the covering ſhould be increaſed; otherwiſe the plants in the beds will be ſtinted in their growth, if not entirely deſtroyed. In order to remedy this evil, if the bed be very cold, you muſt put a pretty good quantity of new hot dung round the ſides of it, which will add a freſh heat thereto, and cauſe it to continue a conſiderable time after; and as the ſpring advances, the ſun will ſupply the loſs of the dung's heat; but then it will be adviſeable to lay ſome mowings of Graſs round the ſides of the bed, eſpecially if the nights ſhould prove cold, as it often happens in May, which is many times, even at that ſeaſon, very hurtful to tender plants on Hot-beds.

But although the Hot-bed I have deſcribed is what the kitchen-gardeners commonly uſe, yet thoſe made with tanners bark are much preferable, eſpecially for all tender exotic plants or fruits, which require an even degree of warmth to be continued for ſeveral months, which is what cannot be effected by horſe dung only. The manner of making theſe beds is as follows:

There muſt be a trench dug in the earth about three feet deep, if the ground be dry; but if wet, it muſt not be above a foot or ſix inches deep at moſt, and muſt be raiſed in proportion above ground, ſo as to admit of the tan being laid three feet thick. The length muſt be proportioned to the frames intended to cover it, but ſhould never be leſs than eleven or twelve feet; but if it is twice that length it will be better, and the width not leſs than ſix, which is the leaſt ſize of theſe beds for to continue the heat. This trench ſhould be bricked up round the ſides to the above-mentioned height of three feet, paving the bottom with bricks to prevent the earth mixing with the tan, and ſhould be filled in the ſpring with freſh tanners bark (i. e. ſuch as the tanners have lately drawn out of their vats, after they have uſed it for tanning leather) which ſhould be laid in a round heap for a week or ten days before it is put into the trench, that the moiſture may the better drain out of it, which, if detained in too great a quantity, will prevent its fermentation; then put it into the trench, and gently beat it down equally with a dung-fork; but it muſt not be trodden, which would alſo prevent its heating, by ſettling it too cloſe; then you muſt put on the frame over the bed, covering it with the glaſſes, and in about ten days or a fortnight it will begin to heat; at which time you may plunge your pots of plants or ſeeds into it, obſerving not to tread down the bark in doing it.

A Bed thus prepared (if the bark be new and not ground too ſmall) will continue in a good temper of warmth for two or three months; and when you find the heat decline, if you ſtir up the bark again pretty deep, and mix a load or two of freſh bark amongſt the old, it will cauſe it to heat again, and preſerve its warmth two or three months longer. There are many people who lay ſome hot horſe dung in the bottom of the trench, under the bark, to cauſe it to heat; but this is what I would never practiſe, unleſs I wanted the bed ſooner than the bark would heat of itſelf, and then I would put but a ſmall quantity of dung at bottom, for that is ſubject to make it heat too violently, and will occaſion its loſing the heat ſooner than ordinary; and there will never be any danger of the bark's heating if it be new, and not put into the trench too wet, though it may ſometimes be a fortnight or more before it acquires a ſufficient warmth, but then the heat will be more equal and laſting.

The frames which cover theſe Beds ſhould be proportioned to the ſeveral plants they are deſigned to contain: for example, if they are to cover the Ananas or Pine-apple, the back part of the frame ſhould be three feet and a half high, and the lower part fifteen inches, which will be a ſufficient declivity to carry off the wet; and the back ſide will be high enough to contain the large fruiting plants, and the lower ſide will be ſufficient for the ſhorteſt plants; ſo that by placing them regularly according to their height, they will not only have an equal diſtance from the glaſſes, but alſo appear much handſomer to the ſight. And although many people make their frames deeper than what I have allotted, yet I am fully perſuaded, that where there is but height enough to contain the plants, without bruiſing their leaves, it is much better than to allow a larger ſpace; for the deeper the frame is made, the leſs will be the heat of the air incloſed therein, there being no artificial warmth but what the bark affords, which will not heat a large ſpace of air; and as the Pine-apple requires to be conſtantly kept very warm, in order to ripen the fruit well, ſo it will be found upon trial, that the depth I have allowed will anſwer that purpoſe better than a greater.

But if the Bed be intended for taller plants, then the frame muſt be made in depth proportionable thereto; but if it be for ſowing of ſeeds, the frame need not be above fourteen or ſixteen inches high at the back, and ſeven inches deep in the front, by which means the heat will be much greater; and this is commonly the proportion allowed to the frames uſually made uſe of in the kitchen-gardens. As to their length, that is generally according to the fancy of the owner; but they commonly contain three lights each, which is in the whole about eleven feet in length, though ſometimes they are made to contain four lights; but this is too great a length for the boxes, for the frames thus made are not ſo handy to remove, as when they are ſhorter, and are more ſubject to decay at their corners. Some indeed have them to contain but two lights, which is very handy for raiſing Cucumber and Melon plants while young; but this is too ſhort for a Bark-bed, as not allowing room for a proper quantity of bark to continue a warmth for any conſiderable time, as was before-mentioned; but for the other purpoſes, one or two ſuch frames are very convenient for common Dung-beds.

As to thoſe frames which are made very deep, it is much the better way to have them made to take aſunder at the four corners, ſo that they may be removed with eaſe; otherwiſe it will be very difficult to take the frame off, when there is occaſion to put in new bark, or take out the old. The manner of making theſe frames is generally known, or may be much better conceived by ſeeing them than can be expreſſed in writing, therefore I ſhall forbear ſaying any thing more on this head.

HOTTONIA. Boerh. Ind. alt. 1. p. 207. Lin. Gen. Plant. 203. Stratoites. Vaill. Act. Par. 1719. Water Violet.

The Characters are,

The flower is funnel-ſhaped; it has one petal, with a tube the length of the one-leaved empalement, but is cut above into five oblong oval ſegments, which ſpread open, and are indented at their extremity. It hath five ſhort awl-ſhaped ſtamina ſtanding on the tube of the petal, oppoſite to the cuts, terminated by oblong ſummits. In the center is ſituated a globular germen ending in a point, ſupporting a ſhort ſlender ſtyle crowned by a globular ſtigma, which afterward becomes a capſule of the ſame form, with one cell, filled with globular ſeeds, ſitting upon the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes the plants whoſe flowers have five ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Hottonia (*Paluſtris.*) Boerh. Ind. alt. 1. p. 207. Water Violet. Millifolium aquaticum ſive viola aquatica caule nudo. C. B. P. 141. *Water Milfoil, or Water Violet, with a naked ſtalk.*

This plant grows naturally in ſtanding waters in many parts of England; the leaves which are for the moſt part immerſed in the winter, are finely winged and flat, like moſt of the ſea plants; theſe extend pretty wide, and at the bottom have long fibrous roots, which ſtrike into the mud; the flower-ſtalks riſe five or ſix inches above the water; they are naked, and toward the top have two or three whorls of purple flowers, terminated by a ſmall cluſter of the ſame. Theſe flowers have the appearance of thoſe of the Stock-gilliflower, ſo make a pretty appearance on the ſurface of the water. The flowers appear in June.

It may be propagated in deep ſtanding waters, by procuring its ſeeds, when they are ripe, from the places of their natural growth, which ſhould be immediately dropped into the water where they are deſigned to grow, and the ſpring following they will appear; and if they are not diſturbed, they will ſoon propagate themſelves in great plenty.

HUMIDITY is the quality commonly called moiſture, or the power of wetting others, which quality ſome liquors and fluids are endowed with; and it differs very much from fluidity, in that it depends altogether on the congruity of the component particles of any liquor to the pores or ſurfaces of ſuch particular bodies, as it is capable of adhering to.

Thus, quickſilver is not a moiſt liquor, in reſpect to our hands or clothes, and many other things it will not ſtick to; but it may be called a moiſt liquor, in reſpect to gold, lead, or tin, to the ſurfaces of which it will preſently adhere.

Nay, water itſelf, that wets almoſt every thing, and is the great ſtandard of Humidity, or moiſture, is not capable of wetting every thing; for it ſtands, and runs eaſily off in globular drops, on the leaves of Cabbages, and many other plants; and will not wet the feathers of ducks, ſwans, and other water fowl.

And it is very plain, that it is only the texture that may cauſe the fluid to be humid; becauſe neither quickſilver alone, nor biſmuth, will ſtick upon glaſs; yet being mixed together, they will form a maſs that will ſtick on it; as it is very well known in the foliating of looking-glaſſes, in which ſuch a compoſition is uſed.

HUMULUS. See Lupulus.

HURA. Lin. Gen. Plant. 965. Hura, or Sand-box-tree.

The Characters are,

It hath male and female flowers on the ſame plant. The male flowers have no petal, or ſcarce any empalement, but a column of ſtamina, which are joined at bottom to the ſtyle, forming a cylinder; theſe ſpread out at the top, and are terminated by ſingle ſummits lying over each other. The female flowers have a ſwelling empalement of one leaf, with one tubulous petal; the roundiſh germen is ſituated in the bottom of the empalement, ſupporting a long cylindrical ſtyle, crowned by a large funnel-ſhaped ſtigma, which is a plain convex, divided into twelve equal obtuſe parts. The germen afterward becomes an orbicular ligneous fruit, depreſſed at top and bottom, having twelve deep furrows, with ſo many cells, which open at the top with an elaſticity, each containing one round flat ſeed.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Monodelphia, which includes thoſe plants which have male and female flowers at ſeparate diſtances in the ſame plant, whoſe ſtamina are joined to the ſtyle, forming one body.

We know but one Species of this genus, viz.

Hura (*Crepitans.*) Hort. Cliff. 486. *Sand-box-tree.* Hura Americana, Abutili Indici folio. Hort. Amſt. 2. 131. tab. 66. *American Hura with the leaf of the Indian Abutilon, commonly called in the Weſt-Indies Sand-box-tree.*

This grows naturally in the Spaniſh Weſt-Indies, from whence it has been introduced into the Britiſh colonies of America, where ſome of the plants are preſerved by way of curioſity. It riſes with a ſoft ligneous ſtem to the height of twenty-four feet, dividing into many branches, which abound with a milky juice, and have ſcars on their bark, where the leaves have fallen off. The branches are garniſhed with heart-ſhaped leaves; thoſe which are the biggeſt are eleven inches long, and nine inches broad in the middle, indented on their edges, having a prominent midrib, with ſeveral tranſverſe veins from that to the ſides, which are alternate; theſe ſtand upon long ſlender foot-ſtalks. The male flowers come out from between the leaves, upon foot-ſtalks which are three inches long; they are formed into a cloſe ſpike, or katkin, forming a column, lying over each other like the ſcales of fiſh. The female flowers are ſituated at a diſtance from the male; theſe have a ſwelling cylindrical empalement, out of which riſes the petal of the flower, which hath a long funnel-ſhaped tube, ſpreading at the top, where it is divided into twelve parts, which are reflexed. After the flower is paſt, the germen ſwells and becomes a round, compreſſed, ligneous capſule, having twelve deep furrows, each being a diſtinct cell, containing one large round compreſſed ſeed; when the pods are ripe, they burſt with an elaſticity, and throw out their ſeeds to a conſiderable diſtance.

It is propagated by ſeeds, which ſhould be ſown early in the ſpring, in pots filled with light rich earth, and plunged into a hot-bed of tanners bark. If the ſeeds are freſh, the plants will appear in about five or ſix weeks after the ſeeds are ſown. As the plants will advance very faſt, where due care is taken of them, ſo they ſhould have a large ſhare of freſh air admitted to them in warm weather, otherwiſe they will draw up too weak. When the plants are about two inches high, they ſhould be tranſplanted each into a ſeparate ſmall pot filled with light rich earth, and plunged again into the hot-bed of tanners bark, being careful to ſhade them from the heat of the ſun, until they have taken new root; after which time they muſt have free air admitted to them, by raiſing of the glaſſes in proportion to the warmth of the ſeaſon, and ſhould be frequently, but gently, watered. When the plants have filled theſe ſmall pots with their roots, they muſt be ſhaken out of them, and their roots trimmed, and then placed in larger pots, which ſhould be filled with the like rich earth, and plunged again into the hot-bed, where they ſhould remain till Michaelmas, provided the plants have room, without touching of the glaſſes, at which time they muſt be removed into the bark-ſtove, and plunged in the warmeſt part thereof: during the winter ſeaſon they muſt be ſparingly watered, for as the plants have ſucculent ſtalks, much moiſture will rot them; they muſt alſo be kept very warm, otherwiſe they will not live in this country. In ſummer they muſt have a large ſhare of freſh air in warm weather, but they muſt not be removed into the open air, for they are too tender to live abroad in the warmeſt part of the year in this country.

This plant is now pretty common in the Engliſh gardens, where there are collections of tender plants preſerved, ſome of which are grown to the height of twelve or fourteen feet, and many of them have produced flowers, but there has not been any of their fruit produced as yet in England.

As theſe plants have ample leaves, which are of a beautiful green colour, they afford an agreeable variety among other tender exotic plants in the ſtove; for where they are kept warm, and duly refreſhed with water, they retain their leaves all the year in verdure.

The fruit of this plant is, by the inhabitants of the Weſt-Indies, cut open on the ſide where the foot-ſtalk grew, and the ſeeds carefully taken out, after which the ſhells are uſed to contain ſand for writing, which gave riſe to the name of Sand-box. When theſe fruit are brought entire into England, it is very difficult to preſerve them; for when the heat of the ſummer comes on, they uſually burſt with an exploſion, and ſcatter their ſeeds about; and from the noiſe made by the ripe fruit, it was by Hernandez titled, Arbor crepitans.

HYACINTHUS. Tourn. Inſt. R. H. 344. tab. 180. Lin. Gen. Plant. 427. Hyacinth; in French, *Jacinte*.

The CHARACTERS are,

The flower has no empalement. It has one bell-ſhaped petal, whoſe rim is cut into ſix parts, which are reflexed; and three nectariums on the point of the germen, with ſix ſhort awl-ſhaped ſtamina, terminated by ſummits, which cloſe together. In the center is ſituated a roundiſh three-cornered germen, having three furrows ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a roundiſh three-cornered capſule, having three cells, which contain roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, which includes thoſe plants whoſe flowers have ſix ſtamina and but one ſtyle.

The SPECIES are,

1. HYACINTHUS (*Nonſcriptas*) corollis campanulatis ſexpartitis apice revolutis. Hort. Cliff. 125. *Hyacinth with a bell-ſhaped petal divided into ſix parts, which are reflexed at their tops.* Hyacinthus oblongo flore cæruleus major. C. B. P. 43. *Greater Hyacinth with an oblong blue flower*; and the Hyacinthus Anglicus. Ger. 99. *Engliſh Hyacinth, or Hare Bells.*
2. HYACINTHUS (*Serotinus*) corollarum exterioribus petalis ſubdiſtinctis, interioribus coadunatis. Lin. Sp. Plant. 453. *Hyacinth whoſe exterior part of the flower has diſtinct petals, but the interior joined.* Hyacinthus obſoleto flore. C. B. P. 44. *Hyacinth with a worn-out flower.*
3. HYACINTHUS (*Utrinque Floribus*) corollis campanulatis ſexpartitis, floribus utrinque diſpoſitis. *Hyacinth with a bell-ſhaped petal which is divided into ſix parts, and flowers ranged on each ſide of the ſtalk.* Hyacinthus floribus campanulæ utrinque diſpoſitis. C. B. P. 44. *Hyacinth with bell-ſhaped flowers diſpoſed on every ſide the ſtalk.*
4. HYACINTHUS (*Cernuus*) corollis campanulatis ſexpartitis racemo cornuo. Lin. Sp. Plant. 217. *Hyacinth with bell-ſhaped petals divided into ſix parts, and a nodding branch of flowers.* Hyacinthus floribus campanulæ, uno verſu diſpoſitis. C. B. P. 44. *Hyacinth with bell-ſhaped flowers ranged on one ſide the ſtalk.*
5. HYACINTHUS (*Amethyſtinum*) corollis campanulatis ſemiſexfidis baſi cylindricis. Hort. Upſal. 58. *Hyacinth with bell-ſhaped petals cut half way into ſix parts, and a cylindrical baſe.* Hyacinthus oblongo cæruleo flore minor. C. B. P. 44. *Leſſer Hyacinth with an oblong blue flower.*
6. HYACINTHUS (*Orientalis*) corollis infundibuliformibus ſemiſexfidis baſi ventricoſis. Hort. Upſal. 85. *Hyacinth with a funnel-ſhaped petal cut half into ſix parts, and ſwelling at their baſe.* Hyacinthus Orientalis albus primus. C. B. P. 44. *Early White Eaſtern Hyacinth.*

The ſorts here mentioned are all of them diſtinct ſpecies, of which there are ſeveral varieties, eſpecially of the ſixth, which have been cultivated with ſo much art, as to render ſome of them the moſt valuable flowers of the ſpring; in Holland the gardens abound with them, where the floriſts have raiſed ſo many varieties as to amount to ſome hundreds; and ſome of their flowers are ſo large, double, and finely coloured, as that their roots are valued at twenty or thirty pounds ſterling each root; to enumerate theſe varieties here, would ſwell this work to very little purpoſe, as every year produces new kinds.

The firſt ſort grows naturally in woods and near hedges, in lands which have lately been woods, in many parts of England, ſo is ſeldom admitted into gardens; but the poor people, who make it their buſineſs to gather the wild flowers of the fields and woods for noſegays, &c. bring great quantities of theſe in the ſpring to London, and ſell them about the ſtreets.

There is a variety of this with white flowers, which is kept in ſome gardens, which only differs in the colour of their flowers from the other.

The ſecond ſort is preſerved in ſome few gardens for the ſake of variety, but as it hath as little beauty as the firſt, ſo is ſeldom allowed a place in the flower-garden. The flowers of this are narrower than thoſe of the firſt ſort, and ſeem as if their petals were divided to the bottom, three of the outer ſegments being ſeparated from the other, ſtanding at a ſmall diſtance from the three interior, but they are all joined at their baſe; when the flowers firſt appear, they are of a light blue colour, but before they decay, they fade to a worn-out purple colour. This flowers early in the ſpring, and grows naturally in Spain and Mauritania.

The third ſort grows naturally in Spain and Italy; this hath blue flowers of the open ſpread bell-ſhape, which are divided into ſix ſegments almoſt to the bottom,

tom, and are diſpoſed on every ſide the ſtalk. The ſtalks riſe about nine inches high, and when the roots are ſtrong, the thyrſe of flowers is large. This flowers about the ſame time with the firſt ſort, and was formerly preſerved in gardens, but ſince there have been ſo many finer flowers raiſed from the ſeeds of the Eaſtern Hyacinths, theſe have been almoſt totally neglected, ſo that they are ſeldom ſeen but in old gardens

The fourth ſort ſeems to be a variety of the firſt, the flowers being ranged for the moſt part upon one ſide of the ſtalk, and the top of the ſpike is always bent on one ſide. The flowers are of a bluſh Peach colour, and appear about the ſame time as the firſt ſort.

The fifth ſort grows naturally in Spain; this hath a ſmaller flower than either of the former ſorts, and comes earlier in the ſeaſon. The petal is cut into ſix parts half the length, and is reflexed at the brim; the lower part is cylindrical, a little ſwelling at the baſe, and is of a deeper blue than either of the former. This was formerly called by the gardeners the Coventry blue Hyacinth.

The ſixth ſort is the Eaſtern Hyacinth, of which we formerly had no other varieties in the Engliſh gardens, but the ſingle and double white and blue flowering; but from the ſeeds of theſe there were a few others raiſed in England; and alſo by the Flemiſh gardeners, who came over annually with their flower-roots to vend in England; but the gardeners in Holland have within the laſt fifty years raiſed ſo many fine varieties, as to render the former ſorts of little or no value.

But thoſe who are deſirous to preſerve any of the old ſorts, need not be at much trouble about it, for their roots propagate in great plenty in any ſoil or ſituation, and will require no other care but to take up their roots every other or third year, ſoon after their leaves decay, and plant them again in autumn; for if they are permitted to remain longer in the ground, their roots will have multiplied to ſo great a degree, as to render their flowers very ſmall and weak, ſo of little worth.

All the different ſorts of Hyacinths are propagated by ſeeds or offſets from the old bulbs; the former method has been but little practiſed in England till very lately, but in Holland and Flanders it hath been followed for many years, whereby they have obtained a very great variety of the moſt beautiful flowers of this kind: and it is owing to the induſtry of the floriſts in thoſe countries, that the lovers and delighters in gardening are ſo agreeably entertained, not only with the curious variety of this, but of moſt other bulbous rooted flowers, few other floriſts thinking it worth their trouble to wait four or five years for the flowers of a plant, which when produced, perhaps there might not be one in forty that may deſerve to be preſerved; but they did not conſider that it was only the loſs of the four or five firſt years after ſowing, for if they continued ſowing every year after they began, there would be a ſucceſſion of flowers annually, which would conſtantly produce at leaſt ſome ſorts that might be different from what they had before ſeen; and new flowers being always the moſt valuable to ſkilful floriſts (provided they have good properties to recommend them) it would always be a ſufficient recompence for their trouble and loſs of time.

The method of raiſing theſe flowers from ſeed is as follows: having provided yourſelf with ſome good ſeed (which ſhould be ſaved from either ſemi-double, or ſuch ſingle flowers as are large, and have good properties) you muſt have a parcel of ſquare ſhallow boxes or pots, with holes in their bottoms to let off moiſture, which muſt be filled with freſh light ſandy ſoil, laying the ſurface very level; then ſow your ſeeds thereon as equally as poſſible, covering it about half an inch thick with the ſame light earth; the time for this work is about the middle or latter end of Auguſt. Theſe boxes, or pots, ſhould be placed where they may enjoy the morning ſun only until the latter end of September, at which time they ſhould be removed into a warmer ſituation, and towards the end of October they ſhould be placed under a common hot-bed frame, where they may remain during the winter and ſpring months, that they may be protected from hard froſts; though they ſhould be expoſed to the open air when the weather is mild, by taking off the glaſſes. In the latter end of February or the beginning of March, the young plants will begin to appear above ground, at which time they muſt be carefully ſcreened from froſts, otherwiſe they will be ſoon deſtroyed when they are ſo young; but you muſt never cover them at that ſeaſon but in the night, or in very bad weather; for when the plants are come up, if they are cloſe covered, they will draw up very tall and ſlender, and thereby prevent the growth of their roots. About the middle of April, if the weather proves good, you may remove the boxes out of the frame, placing them in a warm ſituation, obſerving, if the ſeaſon be dry, to refreſh them now and then gently with a little water, as alſo to keep them very clear from weeds, which would ſoon overſpread the tender plants, and deſtroy them, if permitted to remain.

Towards the beginning of May theſe boxes ſhould be removed into a cooler ſituation; for the heat of the ſun at that ſeaſon would be too great for theſe tender plants, cauſing their blades to decay much ſooner than they would naturally do, if they were ſcreened from its violence. In this ſhady ſituation they ſhould remain during the heat of ſummer, obſerving to keep them conſtantly clear from weeds; but you muſt not place them under the dripping of trees, &c. nor ſhould you give them any water after their blades are decayed, for that would infallibly rot the roots. About the latter end of Auguſt you ſhould ſift a little light rich earth over the ſurface of the boxes, and then remove them again into a warmer ſituation, and treat them, during the winter, ſpring, and ſummer months, as was before directed: and about the middle of Auguſt following you ſhould prepare a bed of light rich ſandy ſoil, in proportion to the quantity of your ſeedling plants; and having levelled the ſurface very even, you ſhould take the earth from the boxes in which your plants were raiſed, into a ſieve, in order to get out all the roots, which by this time, (if they have grown well) will be about the thickneſs of a ſmall quill; theſe roots ſhould be placed upon the bed at about two or three inches aſunder, obſerving to ſet the bottom part of their roots downwards; then cover them over two inches thick with the ſame light earth; but as it will be impoſſible to get all the ſmall roots out of the earth in the boxes, you ſhould ſpread the earth upon another bed equally, and cover it over with light earth; by which method you will not loſe any of the roots, be they ever ſo ſmall.

Theſe beds muſt be arched over with hoops, and in very hard froſty weather they muſt be covered with mats, &c. to protect them from froſt; and in the ſpring, when the green leaves are above ground, if the weather ſhould be very dry, you muſt refreſh them with water; but do this ſparingly, for nothing is more injurious to theſe bulbs than too great quantities of moiſture. During the ſummer ſeaſon you muſt conſtantly keep the beds clear from weeds; but after the blades are decayed, you muſt never give them any water; and in autumn you ſhould ſtir the ſurface of the bed with a very ſhort hand-fork, being exceeding careful not to thruſt it ſo deep as to touch the roots, which, if hurt, are very ſubject to periſh ſoon after. Then ſift a little freſh, light, rich earth over the bed about an inch thick, or ſomewhat more, and in winter cover them again (as was before directed.) In this bed the roots may continue two years, obſerving to treat them, both in ſummer and winter, as before; then the third year the roots ſhould be carefully taken up a little before their leaves decay, laying the roots horizontally in the ground to ripen for three weeks, after which they may be kept out of the ground till the end of Auguſt, when they ſhould be planted into new beds prepared as before, placing them at the diſtance of ſix inches aſunder; in theſe beds the roots may remain till they flower, during which time they ſhould be treated as before, with this difference only, that inſtead of covering them with mats in the winter, the ſurface of the ground ſhould be covered with tanners bark.

When their flowers begin to ſhew themſelves, you ſhould mark all ſuch as appear to have good properties, by thruſting a ſmall ſtick down by each root; which roots, at the time for taking them up, ſhould be ſelected from the reſt, and planted by themſelves; though I would by no means adviſe the rejecting any of the other roots, until they have blown two years, before which you cannot be aſcertained of their value. When the green leaves of theſe plants begin to decay, their roots muſt be taken up, and a bed of light earth, in a ſhady ſituation, ſhould be raiſed into a ridge; the better to ſhoot off the moiſture, the roots ſhould be laid into the earth again in an horizontal poſition, leaving the green leaves hanging out of the ground from the roots, whereby the great moiſture contained in their very ſucculent leaves and flower-ſtalks may be exhaled, and prevented from returning to the roots, which, when ſuffered ſo to do, is very often the cauſe of their rotting after they are out of the ground. In this ridge the roots ſhould remain until the leaves are quite dried off, when they muſt be taken up, and after being cleared of all manner of filth, which would be hurtful to them, they muſt be laid up in boxes, where they may be preſerved dry until September, which is the proper ſeaſon for planting them again; the method of doing this ſhall be hereafter mentioned, when we treat of the management of old roots.

I ſhall now proceed to the culture of ſuch Hyacinths as have either been obtained from Holland, or are of our own product from the ſeeds of ſuch flowers as were very beautiful, and worthy to be preſeved in collections of good flowers: and it hath been the want of ſkill in the management of theſe noble flowers, which has ocaſioned the ill ſucceſs moſt people have had with them in England, whereby they have been neglected, ſuppoſing their roots to degenerate after they have flowered in England, which is a great miſtake; for were the roots managed with the ſame art as hath been practiſed in Holland, I am fully convinced they would thrive near as well in England as there, or elſewhere, as I have experienced; for, from ſome hundreds of roots which I have received from Holland at two or three different times, I have had a very great increaſe of their roots, which were as large, and produced as many flowers upon their ſtems, as the ſame ſorts generally do in Holland.

The ſoil in which theſe flowers ſucceed beſt, is a light, ſandy, freſh, rich earth, which may be compoſed after the following manner: take half freſh earth from a common, or paſture land, which is chiefly of a ſandy loam; this ſhould be off the ſurface, and not taken above eight or nine inches deep at moſt; and if you take the turf, or green ſward with it, it will ſtill be better, provided you have time to let it rot before it is uſed; to this you ſhould add a fourth part of ſea-ſand, and the other fourth part of rotten cow dung; mix theſe well together, and caſt it into a heap, where it may remain until you uſe it, obſerving to turn it over once in three weeks or a month, that it may be well mixed. If this compoſt is made two years before it is uſed, it will be much the better; but if you are obliged to uſe it ſooner, then it ſhould be oftener turned, that the parts may the better unite.

This ſoil ſhould be laid two feet deep on the beds which are deſigned for Hyacinths, and if you lay a little rotten cow dung, or tanners bark, at the bottom, which may be within reach of the fibres, but ſhould by no means touch the bulb, it will be better. If the ſoil is very wet where theſe beds are made, you ſhould raiſe them ten or twelve inches above the ſurface of the ground; but if it be dry, they need not be raiſed above three or four inches.

The manner of preparing the beds is as follows: Firſt, take all the former old earth out of the bed to the depth you intend, which ſhould be near three feet; then ſpread ſome rotten neats dung, or tan, in the bottom, about ſix inches thick, laying it very level; upon this you ſhould lay the above-mentioned earth two feet thick, levelling it very even; then ſcore out the diſtances for the roots, which ſhould be eight inches ſquare, in ſtrait rows each way; after which, place your roots exactly in the ſquares, obſerving to ſet the bottom part downward; then cover the roots ſix inches deep with the ſame prepared earth, being very careful in doing this not to diſplace any of the roots; and if the tops of theſe beds are made a little rounding, to ſhoot off the wet, it will be of ſervice in moiſt ground, provided the middle of the beds are not made too high, which is a fault the other way.

The beſt ſeaſon for planting theſe roots is the middle or latter end of September, according to the earlineſs or lateneſs of the ſeaſon, or the weather when it happens; but I would adviſe you never to plant them when the ground is extreme dry, unleſs there be a proſpect of ſome rain ſoon after; for if the weather ſhould continue dry for a conſiderable time after, the roots will receive a mouldineſs, which will certainly deſtroy them. The beds will require no farther care until the froſt comes on very ſevere, at which time they ſhould have ſome rotten tan ſpread over them, about four inches thick; and if the alleys on each ſide of the bed are filled up, either with rotten tan, dung, or ſand, it will prevent the froſt from penetrating the ground on each ſide to the roots, and ſecure them from being deſtroyed; but when the winters prove very ſevere, it will alſo be proper to have ſome Peas-haulm, Straw, or ſuch like covering laid over them, which will keep out the froſt better than mats; and lying hollow, will admit the air to the ſurface of the ground, and alſo permit the exhalations to paſs off, whereby the earth will remain dry, and prevent the roots from rotting, which has often happened when the beds have been too cloſe covered. But you muſt obſerve to take off this light covering whenever the weather is mild, and only let it continue on in very hard froſts; for where the beds are covered with tan or ſea-coal aſhes, no common froſt can penetrate through, ſo the coverings are uſeleſs, except in very ſevere froſt; for a ſmall froſt cannot injure the roots before the green leaves appear above ground, which is ſeldom before the beginning of February, at which time the beds muſt be arched over with hoops, that they may be covered either with mats, canvas, or ſome other light covering, to prevent the froſt from injuring the buds as they ariſe above ground; but theſe coverings muſt be conſtantly taken off every day when the weather is mild, otherwiſe the flower-ſtems will be drawn up to a great height, and become very weak, and the foot-ſtalks of the flowers will be long and ſlender, and ſo rendered incapable of ſupporting the bells; which is a great diſadvantage to the flowers, for one of their greateſt beauties conſiſts in the regular diſpoſition of their bells. When theſe hoops are fixed over the beds, the rotten tan ſhould be moſt of it taken off them; in doing of which, great care ſhould be taken not to bruiſe or injure the leaves of the Hyacinths, which by that time will be breaking out of the ground with the flower-ſtem, therefore the tan ſhould be removed by the hands; or if any inſtrument is made uſe of in the doing of it, there muſt be great caution how it is performed.

When the ſtems of the flowers are advanced to their height before the flowers are expanded, you ſhould place a ſhort ſtick down by each root, to which, with a wire formed into a hoop, the ſtem of the flowers ſhould be faſtened, to ſupport them from falling; otherwiſe, when the bells are fully expanded, their weight will incline them to the ground, eſpecially if they are not ſcreened from the wind and rain.

During their ſeaſon of flowering they ſhould be covered in the heat of the day from the ſun, as alſo from all heavy rains; but they ſhould be permitted to receive all gentle ſhowers, as alſo the morning and evening ſun; but if the nights are froſty, they muſt be conſtantly defended therefrom. With this management you may continue your Hyacinths in beauty at leaſt one whole month, and ſometimes more, according to their ſtrength, or the favourableneſs of the ſeaſon.

When their flowers are quite decayed, and the tops of their leaves begin to change their colour, you muſt carefully raiſe the roots out of the ground with a narrow ſpade, or ſome other handy inſtrument; this is what the Dutch gardeners term lifting of them: in the doing of this, the inſtrument muſt be carefully thruſt down by the ſide of the root, being careful not to bruiſe or injure it, as alſo to put it below the bottom of the root; then by the forcing of this inſtrument on one ſide, the fibres of the root are raiſed and ſeparated from the ground. The deſign of this is, to prevent their receiving any more nouriſhment from the ground; for by imbibing too much moiſture at this ſeaſon, the roots frequently rot after they are taken up: about a fortnight after this operation the roots ſhould be entirely taken out of the ground, and then carried to beds ſituated where the morning ſun only ſhines upon them; the earth of the beds ſhould be looſe and raiſed into a ſharp ridge, laying the roots into it in a horizontal poſition, with their leaves hanging out, by which means a great part of the moiſture contained in their thick ſucculent ſtalks and leaves will evaporate; which, if it were permitted to return back to the roots, would cauſe them to rot and decay after they are taken up, which has been the general defect of moſt of the Hyacinths in England.

In this poſition the roots ſhould remain until the green leaves are entirely decayed, which perhaps may be in three weeks time. This is what the Dutch gardeners term the ripening of their roots, becauſe by this method the roots become firm, and the outer cover is ſmooth, and of a bright purple colour; whereas thoſe roots which are permitted to remain undiſturbed, till the leaves and ſtalks are quite decayed, will be large, ſpongy, and their outer coats will be of a pale colour; for the ſtems of many of theſe flowers are very large, and contain a great quantity of moiſture, which, if ſuffered to return into the roots, will infallibly cauſe many of them to periſh. After they are ſo ripened, you muſt take them out of the ground, and wipe them clean with a ſoft woollen cloth, taking off all the decayed parts of the leaves and fibres, putting them into open boxes where they may lie ſingly, and be expoſed to the air, but they muſt be preſerved carefully from moiſture; nor ſhould they be ſuffered to remain where the ſun may ſhine upon them; in this manner they may be preſerved out of the ground until September, which is the ſeaſon for planting them again, at which time yon muſt ſeparate all the ſtrong flowering roots, planting them in beds by themſelves, that they may make an equal appearance in their flowers; but the offsets and ſmaller roots ſhould be planted in another ſeparate bed for one year, in which time they will acquire ſtrength, and by the ſucceeding year will be as ſtrong as the older roots.

The ſingle and ſemi-double flowers ſhould be planted alſo in a bed by themſelves, where they ſhould be carefully ſheltered (as was directed before) from the froſt, until the flowers are blown; at which time their covering ſhould be entirely removed, and they ſuffered to receive the open air, but the flower-ſtalks ſhould be ſupported with ſticks; which, though the weather may ſoon deface the beauty of the flowers, yet is abſolutely neceſſary to promote their ſeeding; and when the ſeeds are quite ripe, you muſt cut off the veſſels and preſerve them, with the ſeeds therein, until the ſeaſon for ſowing it. But you muſt obſerve, that after theſe flowers have produced ſeeds, they ſeldom flower ſo well again, at leaſt not in two years after; ſo that the beſt method to obtain good ſeeds is, to plant new roots every year for that purpoſe. Although theſe roots are, by moſt perſons, taken up every year, yet if the beds are well prepared for them, they may remain two years in the ground unremoved, and the roots will increaſe more the ſecond year than the firſt, though the flowers are more liable to degenerate; therefore thoſe who cultivate theſe for ſale, take up their roots annually when they are large and ſaleable; but the offsets and ſmall roots, they uſually leave two years in the ground.

There are ſome perſons who let their Hyacinth roots remain three or four years unremoved, by which they have a much greater increaſe of roots, than when they are annually taken up; but the roots by this great increaſe are frequently degenerated, ſo as to produce ſingle flowers; therefore I ſhould adviſe the taking up of the roots every year, eſpecially thoſe of the moſt valuable kinds, which is the moſt certain method to preſerve them in their greateſt perfection, though the increaſe may not be ſo great; and if theſe roots are planted a fortnight or three weeks earlier in the autumn than is before directed, it will cauſe them to produce ſtronger flowers; and thoſe roots which are annually removed, will be rounder and firmer than ſuch as ſtand two years unremoved.

For the other ſorts of Hyacinth, ſee Muscari and Ornithogalum.

HYACINTHUS TUBEROSUS. See Crinum and Polyanthes.

HYDRANGEA. Gron. Flor. Virg. 50. Lin. Gen. Plant. 492. We have no Engliſh title for this genus.

The Characters are,

The flower hath a ſmall permanent empalement of one leaf, indented in five parts, and five roundiſh petals which are equal, and larger than the empalement. It hath ten ſtamina which are alternately longer than the petal, terminated by roundiſh ſummits. Under the flower is ſituated a roundiſh germen, ſupporting two ſhort ſtyles ſtanding apart, crowned by permanent obtuſe ſtigmas. The germen afterward turns to a roundiſh capſule, crowned by the two horned ſtigmas, divided tranſverſly into two cells, filled with ſmall angular ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's tenth claſs, intitled Decandria Dygynia, which includes the plants whoſe flowers have ten ſtamina and two ſtyles.

We have but one Species of this genus, viz.

Hydrangea (*Arboreſcens.*) Gron. Flor. Virg. 50.

This plant grows naturally in North America, from whence it has been brought within a few years paſt to Europe, and is now preſerved in gardens for the ſake of variety more than its beauty. It hath a ſpreading fibrous root, from which is ſent up many ſoft, pithy, ligneous ſtalks, which riſe about three feet high, garniſhed at each joint with two oblong heart-ſhaped leaves placed oppoſite, ſtanding upon foot-ſtalks about one inch long; the leaves are three inches long, and two broad near their baſe, ſawed on their edges, and have many veins running from the mid-rib upward to their borders; they are of a light green, and fall away in the autumn; the flowers are produced at the top of the ſtalks, in form of a corymbus; they are white, compoſed of five petals, with ten ſtamina ſurrounding the ſtyle. Theſe appear toward the end of July and in Auguſt, but ſeldom perfect their ſeeds in England.

This is eaſily propagated by parting of the roots; the beſt time for this is the latter end of October, which is alſo the beſt time to tranſplant them: the plants ſhould have a moiſt ſoil, for they grow naturally in marſhy places; they require no other culture but to keep them clear from weeds, and dig the ground between them every winter. The roots are perennial, and if in very ſevere froſt the ſtalks are killed, they will put out new ones the following ſpring.

HYDRASTIS. See Warneria.

HYDROCOTYLE, [of ὕδωρ, water, and κοτύλη, a cavity; becauſe this plant has a cavity in the leaves which contains water, and the plant grows in marſhes.] Water Navelwort.

This plant grows in great plenty in moiſt places in moſt parts of England, and is never cultivated for uſe, ſo I ſhall paſs it over with only naming it.

HYDROLAPATHUM. See Rumex.

HYDROPHYLLON. Lin. Gen. Plant. 187. Hydrophyllon. Tourn. Inſt. R. H. 81. tab. 16. Water Leaf.

The Characters are,

The flower has a permanent empalement of one leaf, cut into five ſegments which ſpread open. It hath one bell-ſhaped petal, which is divided into five parts, indented at their points; under each of theſe ſegments is fixed a nectarium, which is ſituated about the middle, and ſhut up lengthways by two lamellæ. It hath five ſtamina which are longer than the petal, terminated by oblong proſtrate ſummits, and an oval-pointed germen, ſupporting an awl-ſhaped ſtyle the length of the ſtamina, crowned by a bifid ſpreading ſtigma. The germen afterward becomes a globular capſule with one cell, incloſing one large round ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes the plants whoſe flowers have five ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Hydrophyllon (*Virginianum*) foliis pinnatifidis. Lin. Sp. 208. Morini. Joncq. Hort. *Water Leaf with wing-pointed leaves.*

This plant grows naturally in many parts of North America, on moiſt ſpongy ground. The root of it is compoſed of many ſtrong fleſhy fibres, which ſpread wide on every ſide, from which ariſe many leaves with foot-ſtalks five or ſix inches long, which are jagged into three, five, or ſeven lobes, almoſt to the midrib; theſe are indented on their edges, and have ſeveral veins running from the midrib to the ſides; they are of a lucid green, and in the ſpring have water ſtanding on the cavities, from whence I ſuppoſe Morinus gave it the title of Water Leaf, and not from the plant growing in water, as Tournefort conjectures. The flowers riſe with foot-ſtalks from the root, having one or two ſmall leaves of the ſame ſhape with the lower; the flowers are produced in looſe cluſters hanging downward; they are of a dirty white and bell-ſhaped, ſo make no great figure. They appear in June, and the ſeeds ſometimes ripen here in Auguſt.

This plant is very hardy in reſpect to cold, but it ſhould be planted in a moiſt rich ſoil; for if it is planted in a dry warm ſoil, it will not live, unleſs it is conſtantly watered in dry weather. It may be propagated by parting of the roots, which ſhould be done in autumn, that the plants may be well rooted before ſpring, for otherwiſe they will require a great deal of water. It requires a moiſt ſoil and ſhady ſituation.

HYDROPIPER, the common biting Arſe-ſmart, which grows in great plenty in moiſt places near ditches ſides almoſt every where.

HYDROSTATICS [ὑδροστατικὴ, of ὕδωρ, water, and στατικὴ, of στατὸς, ſtanding, of ἵστημι, I ſtand or ſtop; Hydroſtatics being conceived as the doctrine of the æquillibrum of liquors,] or the doctrine of the gravitation of fluid; or it is that part of the mechanics which conſiders the weight or gravity of fluid bodies; particularly of water, and of ſolid bodies immerged therein.

To Hydroſtatics belongs whatever relates to the gravities and æquilibria of liquors, with the art of weighing bodies in water, in order to eſtimate their ſpecific gravities.

Of the uſe of this ſcience in horticulture, the Rev. Dr. Hales, in his excellent Treatiſe of Vegetable Staticks, has given many examples, by experiments, ſhewing the quantities of moiſture imbibed and perſpired by plants and trees, neceſſary to be known, in order to promote the buſineſs of vegetation.

Some of the moſt uſeful heads of this ſcience are;

1. That the upper parts of all fluids preſs upon the lower.

2. That a lighter fluid may gravitate or preſs upon a heavier.

3. That if a body that is contiguous to the water, be altogether, or in part, lower than the upper ſurface of the water, the lower part of the body will be preſſed upwards by the water which touches it beneath.

4. There needs only a competent weight of an external fluid, to account for the riſing of water in pumps, &c.

5. If a body be placed under water, ſo that its uppermoſt ſurface lie parallel to the horizon, the direct preſſure that it ſuſtains is no more than that of a column of water, whoſe baſe is the horizontal ſuperficies of the body, and its heighth the perpendicular depth of the water. And if the water which leans on the body be contained in pipes which are open at both ends, the preſſure of the water is to be eſtimated by the weight of a pillar of water, the baſe of which is equal to the lower orifice of the pipe, and whoſe height is equal to a perpendicular, which reaches from thence to the top of the water, although the pipe ſhould be much inclined any way, or though it ſhould be ever ſo regularly ſhaped, and much broader in ſome other place than the bottom.

6. A body which is immerſed in a fluid, ſuſtains a natural preſſure from the fluid, which alſo increaſes as the body is placed deeper beneath the ſurface of the fluid.

7. The reaſon why water aſcends in ſiphons, and by which it flows through them, may be explained from the external preſſure of ſome other fluid, without having recourſe to the abhorrence of a vacuum.

8. The moſt ſolid body, which will ſink by its own weight at the ſurface, yet if it be placed at a depth twenty times greater than that of its own thickneſs it will not ſink, if its deſcent be not aſſiſted by the incumbent water.

9. If a body which is ſpecifically lighter than a fluid, be immerſed in that fluid, it will riſe with a force proportionable to the exceſs of gravity in that fluid.

10. If a body which is heavier than a fluid be immerſed, it will ſink with a force that is proportionable to the exceſs of its gravity.

11. If any veſſel be filled with water, or any other liquor, the ſurface of which is capable of being even, it will continue ſo till diſturbed by ſome other external cauſe.

12. When the fluids are preſſed, they are preſſed undiquaque, i. e. on all ſides.

How far the knowledge of any of theſe properties of fluids may conduce to the philoſophical improvement of gardening, and the buſineſs of vegetation, will be more clearly perceived when well conſidered by the ingenious artiſt, than being ſet forth by words.

HYGROMETER [ὑγρόμετρον, of ὑγρὸς, moiſt, and μέτρον, meaſure, of μετρέω, to meaſure,] is a machine or inſtrument contrived to ſhew or meaſure, the moiſtneſs and drineſs of the air, according as it abounds with moiſt or dry vapours, and to meaſure and eſtimate the quantity of ſuch moiſtneſs and drineſs.

There are divers kinds of Hygrometers; for whatever body either ſwells or ſhrinks by drineſs or moiſture, is capable of being formed into an Hygrometer; ſuch are the woods of moſt kinds, particularly Aſh, Deal, Poplar, &c. ſuch alſo is a cord, catgut, &c.

Stretch a hempen cord or fiddle-ſtring along a wall, bringing it over a truckle or pully; and to the other end tie a weight, unto which fit a ſtyle or index; on the ſame wall fit a plate of metal, divided into any number of equal parts, and the Hygrometer is complete.

For it is a matter of undoubted obſervation, that moiſture ſenſibly ſhortens the length of cords and ſtrings; and that as the moiſture evaporates, they return to their former length, and the like may be ſaid of a fiddle-ſtring.

The weight therefore, in the preſent caſe, upon an increaſe of the moiſture of the air, will aſcend, and upon a diminution of the ſame will deſcend.

Hence, as the index will ſhew the ſpaces of aſcent and deſcent, and thoſe ſpaces are equal to the increments and decrements of the length of the cord or gut, the inſtrument will diſcover whether the air be more or leſs humid now, than it was at another given time.

The ordinary contrivance with whip-cord is one of the eaſieſt, for that will infallibly ſhorten and lengthen as the air grows moiſter and drier.

Some recommend a cat-gut as the beſt, which may be a yard in length ſuſpended, having a plumbet or piece of lead, with an index or pointer hanging at the lower end, by means of which the cat-gut will twiſt or untwiſt as the air dries or moiſtens, and ſhorten and lengthen ſo as to raiſe and ſink the plumbet with the index, and this index will point out the degree ſought for.

The weight of this lead or plumbet, ſhould be about two ounces.

Some perſons who approve a fine whip-cord inſtead of cat-gut, uſe a greater weight of lead; the twiſting and untwiſting of the cat gut or whip-cord, will make the lead with the index turn round, as well as riſe and fall. The degrees may be made upon an open ſcrew of braſs within, with which the plumbet and index has its motion.

When you are provided with a barometer and Hygrometer, compare the motions of the one with the other, in order to judge what proportion the riſe or fall of the quickſilver in the barometer bears to the twiſting of the cat-gut or whip-cord; the degrees of which motion may be obſerved by the index or pointer of the Hygrometer; and at the ſame time both theſe muſt be compared with the riſing and falling of the ſpirit in a thermometer, to know what degree of heat or cold attends every different change of weather.

HYGROSCOPE [of ὑγρὸς, moiſt, and σκοπέω, to view or conſider,] a machine the ſame as the hygrometer, and for the ſame uſes.

Theſe inſtruments are of good uſe in conſervatories, for meaſuring or ſhewing the dampneſs or drineſs of them in the winter ſeaſon.

HYMENÆA. Lin. Gen. Plant. 512. Courbaril. Plum. Nov. Gen. 49. tab. 14. Locuſt-tree.

The Characters are,

The outward involucrum of the flower is divided into two parts, the inward is of one leaf, indented in five parts; the flower hath five petals, which are equal in ſize, and ſpread open. It hath ten declining ſtamina, which are ſhort, terminated by oblong ſummits. In the center is ſituated an oblong germen, ſupporting a declining ſtyle, crowned by an acute ſtigma; the germen afterward becomes a large oblong pod, with a thick ligneous ſhell, divided into ſeveral partitions tranſverſly, in each of which is lodged one compreſſed large ſeed, ſurrounded with a farinaceous pulp.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, which includes the plants whoſe flowers have ten ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Hymenæa (*Courbaril.*) Hort. Cliff. 484. *Locuſt-tree.* Courbaril bifolia, flore pyramidato. Plum. Nov. Gen. 49. *Two-leaved Courbaril with a pyramidal flower, commonly called Locuſt-tree in America.*

This is a very large ſpreading tree in the Weſt-Indies, where it grows in great plenty: it hath a large ſtem, covered with a ruſſet bark, which divides into many ſpreading branches, garniſhed with ſmooth ſtiff leaves, which ſtand by pairs, their baſe joining at the foot-ſtalk, to which they ſtand oblique, one ſide being much broader than the other, the two outer ſides being rounded, and their inſide ſtrait, ſo that they reſemble a pair of ſheep-ſhears; they are pointed at the top, and ſtand alternately on the ſtalk. The flowers are produced in looſe ſpikes at the end of the branches, ſome of the ſhort ligneous foot-ſtalks ſupporting two, and others three flowers, which are compoſed of five yellow petals ſtriped with purple; the petals are ſhort and ſpread open; the ſtamina are much longer, and of a purpliſh colour; theſe flowers are ſucceeded by thick, fleſhy, brown pods, ſhaped like thoſe of the Garden Bean; they are ſix inches long, and two inches and a half broad, of a purpliſh brown colour, and a ligneous conſiſtence, with a large ſuture on both edges; theſe contain three or four roundiſh compreſſed ſeeds, divided by tranſverſe partitions.

The wood of this tree is eſteemed as good timber in the Weſt-Indies, and it yields a fine clear reſin which is called gum anime in the ſhops, which makes an excellent varniſh.

It is eaſily raiſed from the ſeeds if they are freſh; theſe muſt be ſown in pots, and plunged into a hot-bed of tanners bark: there ſhould be but one ſeed put into each pot, or if there is more, when the plants appear, they ſhould be all drawn out to one ſoon after they come up, before their roots entangle, when it will be hazardous doing it; for if great care is not taken, the plant intended to be left may be drawn out with the other. As the roots of this plant are but ſlender, ſo they are very difficult to tranſplant; for unleſs a ball of earth is preſerved to their roots, they ſeldom ſurvive their removal, therefore they muſt be ſeldom tranſplanted from one pot to another. The plants muſt conſtantly remain in the tan-bed in the ſtove, and ſhould be treated in the ſame way with other tender plants of the ſame country, giving but little water to them, eſpecially in the winter. When theſe plants firſt appear, they make conſiderable progreſs for two or three months, after which time they are at a ſtand perhaps a whole year without ſhooting, being in their growth very like the Anacardium, or Caſhew Nut, ſo is very difficult to preſerve long in this country.

HYOSCYAMUS. Tourn. Inſt. R. H. 117. tab. 42. Lin. Gen. Plant. 218. [of ὗς, a ſwine, and κύαμος, a Bean, q. d. Hog's-bean,] Henbane; in French, *Juſquaime.*

The Characters are,

The flower has a cylindrical empalement of one leaf, which is permanent, ſwelling at the bottom, and cut into five acute ſegments at the top. It hath one funnel-ſhaped petal, with a ſhort cylindrical tube, and an erect ſpreading rim, cut into five obtuſe parts, one being larger than the others; it hath five inclined ſtamina, terminated by roundiſh ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſlender ſtyle, crowned by a round ſtigma. The germen afterward becomes an oval obtuſe capſule ſitting in the empalement, divided in two cells by an intermediate partition, opening with a lid at the top, to let out the many ſmall ſeeds which adhere to the partition.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, in which he includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

The Species are,

1. Hyoscyamus (*Niger*) foliis amplexicaulibus ſinuatis, floribus ſeſſilibus. Hort. Cliff. 56. *Henbane with ſinuated leaves embracing the ſtalks, and ſeſſile flowers.* Hyoſcyamus vulgaris, vel niger. C. B. P. *Common Black Henbane.*
2. Hyoscyamus (*Major*) foliis petiolatis, floribus pedunculatis terminalibus. *Henbane with leaves having foot-ſtalks, and flowers with foot-ſtalks terminating the branches.* Hyoſcyamus major, albo ſimilis, umbilico floris atro-pupureo. T. Cor. *Great Henbane like the white, but with a dark purple bottom to the flower.*
3. Hyoscyamus (*Albus*) foliis petiolatis, floribus ſeſſilibus. Hort. Upſal. 56. *Henbane with leaves having foot-ſtalks, and flowers ſitting cloſe to the branches.* Hyoſcyamus major, albo ſimilis, umbilico floris virenti. Juſſieu. *Greater Henbane like the white, with a green bottom to the flower.*
4. Hyoscyamus (*Minor*) foliis petiolatis, floribus ſolitariis lateralibus. *Henbane with leaves having foot-ſtalks, and flowers proceeding ſingly from the ſides of the branches.* Hyoſcyamus minor albo ſimilis, umbilico floris atro purpureo. Tourn. Cor. 5. *Smaller Henbane like the white, with a dark purple bottom to the flower.*
5. Hyoscyamus (*Reticulatis*) foliis caulinis petiolatis cordatis ſinuatis acutis, floribus integerrimis, corollis ventricoſis. Lin. Sp. 257. *Henbane with heart-ſhaped,*

ſinuated, acute leaves upon foot-ſtalks, and entire ſwollen flowers. Hyoſcyamus rubello flore. C. B. P. *Henbane with a reddiſh coloured flower.*

6. HYOSCYAMUS (*Aureus*) foliis petiolatis eroſo-dentatis acutis, floribus pedunculatis fructibus pendulis. Lin. Sp. 257. *Henbane with acute indented leaves ſtanding on foot-ſtalks, the flower having foot-ſtalks, and the fruit hanging.* Hyoſcyamus Creticus luteus major. C. B. P. *Greater yellow Henbane of Candia.*
7. HYOSCYAMUS (*Puſillus*) foliis lanceolatis dentatis, floralibus inferioribus binis, calycibus ſpinoſis. Hort. Upſal. 44. *Henbane with ſpear-ſhaped indented leaves, and a prickly empalement.* Hyoſcyamus puſillus aureus Americanus, antirrhini foliis glabris. Pluk. Alm. 188. tab. 37. fol. 5. *Low, golden, American Henbane, with a ſmooth Snapdragon leaf.*

The firſt of theſe ſorts is very common in England, growing upon the ſides of banks and old dunghills almoſt every where. It is a biennial plant with long fleſhy roots, which ſtrike deep into the ground, ſending out ſeveral large ſoft leaves, which are deeply ſlaſhed on their edges, and ſpread on the ground; the following ſpring the ſtalks come out, which riſe about two feet high, garniſhed with leaves of the ſame ſhape, but ſmaller, which embrace the ſtalks with their baſe; the upper part of the ſtalk is garniſhed with flowers ſtanding on one ſide in a double row, ſitting cloſe to the ſtalks alternately; theſe are of a dark purpliſh colour with a black bottom, and are ſucceeded by roundiſh capſules, ſitting within the empalement; theſe open with a lid at the top, and have two cells filled with ſmall irregular ſeeds. This is a very poiſonous plant, and ſhould be rooted out in all places where children are ſuffered to come; for in the year 1729, there were three children poiſoned with eating the ſeeds of this plant, near Tottenham-court; two of which ſlept two days and two nights before they could be awakened, and were with difficulty recovered; but the third being older and ſtronger, eſcaped better.

The roots of this plant are uſed for anodyne necklaces to hang about children's necks, being cut to pieces and ſtrung like beads, to prevent fits and cauſe an eaſy breeding of their teeth, but they are very dangerous to uſe inwardly. For ſome years paſt there was a mixture of theſe roots brought over with Gentian, and uſed as ſuch, which was attended with very bad effects, as hath been mentioned under the article of Gentian, ſo I ſhall not repeat it here.

The ſecond ſort grows naturally in the iſlands of the Archipelago. This hath rounder leaves, which are obtuſely ſituated upon their borders, and ſtand upon foot-ſtalks; the ſtalks branch more than thoſe of the firſt, and the flowers grow in cluſters toward the end of the branches, ſtanding upon ſhort foot-ſtalks; they are of a pale yellow colour, with very dark purple bottoms.

The third ſort is much like the ſecond, but the flowers are in larger bunches, ſitting very cloſe on the ends of the branches; they are of a greeniſh yellow colour, with green bottoms. It grows naturally in the warm parts of Europe, and is the ſort whoſe ſeeds ſhould be uſed in medicine, being the white Henbane of the ſhops.

The fourth ſort was brought from the Levant by Dr. Tournefort. This hath a ſmaller ſtalk than either of the former, whoſe joints are further diſtant; the leaves are roundiſh, and deeply indented in obtuſe ſegments, ſtanding upon pretty long foot-ſtalks; the flowers come out ſingly from the ſide of the ſtalks, at a good diſtance from each other; they are of a yellow colour with dark bottoms.

The fifth ſort grows naturally in Syria; this riſes with a branching ſtalk two feet high, garniſhed with long ſpear-ſhaped leaves having foot-ſtalks; the lower leaves are regularly cut on both ſides into acute ſegments which are oppoſite, ſo are ſhaped like the winged leaves, but the upper leaves are entire; the flowers grow at the end of the ſtalks in bunches; they are of a worn-out red colour, and ſhaped like thoſe of the common ſort, but their tubes are ſwollen.

All theſe are biennial plants, which periſh ſoon after they have perfected their ſeeds. They flower in June and July, and their ſeeds ripen in the autumn, which, if permitted to ſcatter, will produce plenty of the plants the following ſpring; or if the ſeeds are ſown at that ſeaſon, they will ſucceed much better than in the ſpring; for when they are ſown in ſpring, the plants ſeldom come up the ſame year. They are all hardy except the fifth ſort, and require no other culture but to keep them clean from weeds, and thin the plants where they are too cloſe. The fifth ſort ſhould have a warm ſituation and a dry ſoil, in which it will live much better through the winter than in rich ground.

The ſixth ſort grows naturally in Candia; this is a perennial plant with weak ſtalks, which require a ſupport; the leaves are roundiſh, and acutely indented on their edges, ſtanding upon pretty long foot-ſtalks; the flowers come out at each joint of the ſtalk; they are large, of a bright yellow, with a dark purple bottom; the ſtyle of this ſort is much longer than the petal. It flowers moſt part of ſummer, and ſometimes ripens ſeeds in the autumn. If theſe ſeeds are ſown in pots as ſoon as they are ripe, and placed under a hot-bed frame in winter, the plants will come up in the ſpring; but if they are kept out of the ground till ſpring, they rarely ſucceed. This ſort will continue ſeveral years, if they are kept in pots and ſheltered in winter, for they will not live in the open air at that ſeaſon, but it only requires to be protected from froſt; therefore if theſe plants are placed under a common hot-bed in winter, where they may enjoy as much free air as poſſible in mild weather, they will thrive better than when they are more tenderly treated. This ſort may be eaſily propagated by cuttings, which, if planted in a ſhady border during any of the ſummer months, will take root in a month or ſix weeks, and may be afterward planted in pots, and treated like the old plants.

HYPECOUM. Tourn. Inſt. R. H. 230. tab. 115. Hypecoum; Lin. Gen. Plant. 157. We have no Engliſh name for this plant.

The CHARACTERS are,

The empalement of the flower is compoſed of two ſmall oval leaves, which are oppoſite and erect. The flower hath four petals; the two outer which are oppoſite, are broad, and divided into three obtuſe lobes; the two other which are alternate, are cut into three parts at their points. It hath four ſtamina ſituated between the petals, which are terminated by oblong ſummits. In the center is placed an oblong cylindrical germen, ſupporting two ſhort ſtyles, crowned by acute ſtigma. The germen afterward becomes a long, compreſſed, jointed pod, which is incurved, with one roundiſh compreſſed ſeed in each joint.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourth claſs, which contains the plants whoſe flowers have four ſtamina and two ſtyles.

The SPECIES are,

1. HYPECOUM (*Procumbens*) ſiliquis arcuatis compreſſis articulatis. Hort. Upſal. 31. *Hypecoum with compreſſed jointed pods bent inward.* Hypecoum latiore folio. Tourn. *Broad-leaved Hypecoum.*
2. HYPECOUM (*Pendulum*) ſiliquis cernuis teretibus cylyndricis. Hort. Upſal. 31. *Hypecoum with taper, cylindrical, nodding pods.* Hypecoum tenuiore folio. Tourn. *Narrow-leaved Hypecoum.*
3. HYPECOUM (*Erectum*) ſiliquis erectis teretibus toruloſis. Hort. Upſal. 32. *Hypecoum with taper, erect, wreathed pods.* Hypecoum ſiliquis erectis teretibus. Amm. Ruth. 58. *Hypecoum with erect taper pods.*

The firſt ſort hath many wing-pointed leaves of a grayiſh colour, which ſpread near the ground, and ſlender branching ſtalks, which lie proſtrate on the ſurface of the ground; theſe are naked below, and at the top are garniſhed with two or three ſmall leaves of the ſame ſhape and colour with the under ones; from between theſe leaves come out the foot-ſtalks of the flower, each ſuſtaining one yellow flower with four petals, and a pointal ſtretched out beyond the petals, which afterward turns to a jointed compreſſed pod about three inches long, which bends inward like a bow, having one roundiſh compreſſed ſeed in each joint. This flowers in June and July, and the ſeeds ripen in Auguſt.

The ſecond ſort hath ſlender ſtalks which ſtand more erect, and the ſegments of the leaves are longer and much narrower than thoſe of the firſt; the flowers are ſmaller, and come out at the diviſion of the branches; theſe are ſucceeded by narrow taper pods, which hang downward. It flowers and ſeeds at the ſame time with the firſt.

The third ſort grows in the eaſt; Dr. Amman received the ſeeds from Dauria, and I received the ſeeds from Iſtria, where it was found growing naturally. This hath much the appearance of the ſecond ſort in leaf and flower, but the pods grow erect, and are wreathed and twiſted about. It flowers and ſeeds at the ſame time with the others.

Theſe plants are all of them annual, ſo their ſeeds ſhould be ſown ſoon after they are ripe, otherwiſe it will be a year before the plants will appear, on a bed of light freſh earth where they are to remain, for they ſeldom ſucceed if they are tranſplanted. When the plants are come up, they ſhould be carefully cleared from weeds; and where the plants are too cloſe, they muſt be thinned, leaving them about ſix or eight inches apart; after this they will require no other culture, but to keep them conſtantly clear from weeds. In June theſe plants will flower, and their ſeeds will be ripe in Auguſt.

When the ſeeds are ſown in the ſpring, and the ſeaſon proves dry, the ſeeds will not grow the firſt year; but if the ground is kept clear from weeds and not diſturbed, the plants will come up the following ſpring. I have known the ſeeds of theſe plants remain in the ground two years, and the plants have come up the third ſpring very well; ſo that it will be very proper to ſow ſome of the ſeeds in autumn, ſoon after they are ripe, in a warm border, where the plants may come up early the following ſpring; and theſe will be ſtronger, and more likely to perfect ſeeds, than thoſe ſown in the ſpring, by which method the kinds may be preſerved.

If the ſeeds of theſe plants are permitted to ſcatter, the plants will come up the following ſpring without any care; and if they are treated in the ſame way as the others, they will thrive equally; but when the ſeeds are ſown in the ſpring, they ſhould be taken out of the pods, and diveſted of their fungous covering, which adheres cloſe to them, ſo prevents their growing, till that is rotted and decayed.

Theſe plants are ſeldom propagated but by thoſe who are curious in botany, though for the ſake of variety they may have a place in large gardens, becauſe they require very little trouble to cultivate them; and as they take up but little room, ſo they may be intermixed with other ſmall annual plants in large borders, where they will make a pretty appearance.

The juice of theſe plants is of a yellow colour, reſembling that of Celandine, and is affirmed by ſome eminent phyſicians to have the ſame effect as opium.

HYPERICUM. Tourn. Inſt. R. H. 254. tab. 131. Lin. Gen. Plant. 808. St. Johnſwort; in French, *Millepertuis*.

The Characters are,

The flower hath a permanent empalement, divided into five oval concave ſegments; it hath five oblong oval petals which ſpread open, and a great number of hairy ſtamina, which are joined at their baſe in three or five diſtinct bodies, terminated by ſmall ſummits. It hath in the center a roundiſh germen, ſupporting one, three, or five ſtyles, the ſame length of the ſtamina, crowned by ſingle ſtigmas. The germen afterward becomes a roundiſh capſule, having the ſame number of cells as there are ſtyles in the flower, which are filled with oblong ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's eighteenth claſs, intitled Polyadelphia Polygynia, which contains the plants whoſe flowers have many ſtamina joined in diſtinct bodies, and ſeveral ſtyles.

The Species are,

1. Hypericum (*Perfoliatum*) floribus trigynis, caule ancipiti, foliis obtuſis pellucido-punctatis. Hort. Cliff. 383. *St. Johnſwort with three ſtyles to the flower, and obtuſe leaves having pellucid punctures.* Hypericum vulgare. C. B. P. 279. *Common St. Johnſwort.*
2. Hypericum (*Quadrangulum*) floribus trigynis, caule quadrato herbaceo. Hort. Cliff. 380. *St. Johnſwort with three ſtyles to the flowers, and a ſquare herbaceous ſtalk.* Hypericum Aſcyron dictum, caule quadrangulo. J. B. 3. p. 382. *St. Johnſwort with a ſquare ſtalk, commonly called St. Peterſwort.*
3. Hypericum (*Hircinum*) floribus trigynis, ſtaminibus corollâ longioribus, caule fruticoſo ancipiti. Hort. Cliff. 331. *St. Johnſwort with three ſtyles to the flower, ſtamina longer than the petals, and a ſhrubby ſtalk with two ſides.* Hypericum fœtidum fruteſcens. Tourn. 255. *Stinking ſhrubby St. Johnſwort.*
4. Hypericum floribus trigynis, calycibus obtuſis, ſtaminibus corollâ longioribus caule fruticoſo. Hort. Cliff. 381. *St. Johnſwort with three ſtyles to the flower, obtuſe empalements, ſtamina longer than the petals, and a ſhrubby ſtalk.* Hypericum fruteſcens Canarienſe multiflorum. Hort. Amſt. 2. p. 135. *Shrubby St. Johnſwort from the Canaries, having many flowers.*
5. Hypericum (*Olympicum*) floribus trigynis, calycibus acutis, ſtaminibus corollâ brevioribus, caule fruticoſo. Hort. Cliff. 380. *St. Johnſwort with three ſtyles to the flower, acute empalements, ſtamina ſhorter than the petals, and a ſhrubby ſtalk.* Hypericum Orientale, flore magno. T. Cor. 19. *Eaſtern St. Johnſwort, with a large flower.*
6. Hypericum (*Inodorum*) floribus trigynis, calycibus obtuſis, ſtaminibus corollâ longioribus, capſulis coloratis, caule fruticoſo. *St. Johnſwort with three ſtyles to the flower, obtuſe empalements, ſtamina longer than the petals, coloured ſeed-veſſels, and a ſhrubby ſtalk.* Hypericum Orientale, fœtido ſimile, ſed inodorum. Tourn. Cor. 19. *Eaſtern St. Johnſwort, like the ſtinking kind, but without ſmell.*
7. Hypericum (*Aſcyron*) floribus pentagynis, caule tetragono herbaceo ſimplici, foliis lævibus integerrimis. Hort. Upſal. 236. *St. Johnſwort with five ſtyles to the flower, a ſquare, ſingle, herbaceous ſtalk, and ſmooth entire leaves.* Aſcyrum magno flore. C. B. P. 280. *Tutſan with a large flower.*
8. Hypericum (*Balearicum*) floribus pentagynis, caule fruticoſo, foliis ramiſque cicatriſatis. Lin. Sp. Plant. 783. *St. Johnſwort with five ſtyles to the flower, a ſhrubby ſtalk, and ſcarified leaves and branches.* Aſcyron Balearicum, fruteſcens, maximo flore luteo, foliis minoribus, ſubtus verrucoſis ſalvad. Boerh. Ind. alt. 1. 242. *Shrubby Balearick St. Peterſwort with a large yellow flower, and ſmaller leaves warted on their under ſide.*
9. Hypericum (*Androſæmum*) floribus trigynis pericarpiis baccatis, caule fruticoſo ancipiti. Hort. Upſal. 237. *St. Johnſwort with three ſtyles to the flower, a fleſhy ſeed-veſſel, and a ſhrubby ſtalk with two ſides.* Androſæmum maximum fruteſcens. C. B. P. 280. *Common Tutſan, or Park-leaves.*
10. Hypericum (*Bartramium*) floribus pentagynis calycibus obtuſis, ſtaminibus corollâ æquantibus, caule erecto herbaceo. *St. Johnſwort with five ſtyles to the flower, obtuſe empalements, ſtamina equalling the petals, and an erect herbaceeus ſtalk.*
11. Hypericum (*Monogynum*) floribus monogynis, ſtaminibus corollâ longioribus, calycibus coloratis, caule fruticoſo. *St. Johnſwort with one ſtyle to the flowers, ſtamina longer than the petals, coloured empalements, and a ſhrubby ſtalk.*

There are ſome other ſpecies of this genus, which are preſerved in botanic gardens for the ſake of variety, but as they are ſeldom admitted into other gardens, I have not enumerated them here, leſt the work ſhould ſwell too large.

The firſt and ſecond ſorts are both very common plants, growing in the fields in moſt parts of England; the firſt is uſed in medicine, but the ſecond is of no uſe: theſe are rarely propagated in gardens, but I chuſe to mention them, in order to introduce the other ſorts, which deſerve a place in every good garden.

The firſt ſort hath a perennial root, from which ariſe ſeveral round ſtalks a foot and a half high, dividing into many ſmall branches, which are garniſhed at each joint with two ſmall oblong leaves, ſtanding oppoſite, without foot-ſtalks; the branches alſo come out oppoſite. The leaves have many pellucid ſpots in them, which appear like ſo many holes when held up againſt the light. The flowers are numerous on the tops of the branches, ſtanding on ſlender foot-ſtalks; they are compoſed of five oval petals, of a yellow colour, with a great number of ſtamina, not quite ſo long as the petals, terminated by roundiſh ſummits. In the center is ſituated a roundiſh germen, ſupporting three ſtyles, crowned by ſingle ſtigmas. The germen afterward becomes an oblong angular capſule, with three cells, filled with ſmall brown ſeeds. It flowers in June and July, and the ſeeds ripen in autumn. The root is perennial, ſo will continue many years; and if the ſeeds are permitted to ſcatter, the plants will come up in too great plenty, ſo as to be very troubleſome weeds. The leaves and flowers of this are uſed in medicine; it is eſteemed an excellent vulnerary plant, and of great ſervice in wounds, bruiſes, and contuſions: there is a compound oil made from this plant, which is of great uſe in the foregoing accidents. From the ſtamina of the flower is expreſſed a red juice, which is ſometimes uſed in colouring, but fades very ſoon.

The ſecond ſort hath ſquare ſtalks, which riſe about the ſame height with the firſt, but do not branch ſo much. The leaves are ſhorter and broader than thoſe of the firſt, and have no pellucid ſpots. The flowers ſit upon ſhort foot-ſtalks at the end of the branches, which are ſhaped like thoſe of the other. This flowers and ſeeds at the ſame time with the other, and will propagate in as great plenty if the ſeeds are permitted to ſcatter.

The third ſort grows naturally in Sicily, Spain, and Portugal; this riſes with ſhrubby ſtalks about three feet high, ſending out ſmall branches at each joint oppoſite, which are garniſhed with oblong oval leaves, placed by pairs, ſitting cloſe to the ſtalks, which have a rank ſmell like a goat. The flowers are produced in cluſters at the end of the branches; they are compoſed of five oval yellow petals, with a great number of ſtamina which are longer than the petals, and three ſtyles which are longer than the ſtamina. The germen which ſupports theſe, afterward becomes an oval capſule with three cells, filled with ſmall ſeeds. It flowers in June, July, and Auguſt, and the ſeeds ripen in autumn.

The fourth ſort grows naturally in the Canary Iſlands, ſo was formerly preſerved in green-houſes during the winter ſeaſon, but is found to be hardy enough to reſiſt the greateſt cold of this country, ſo is now cultivated in the nurſeries as a flowering ſhrub; this riſes with a ſhrubby ſtalk ſix or ſeven feet high, dividing into branches upward, which are garniſhed with oblong leaves, ſet by pairs cloſe to the branches. The leaves of this have alſo a ſtrong odour, but not quite ſo bad as the former. The flowers are produced at the end of the ſtalks in cluſters, and are very like thoſe of the former ſort, having a great number of ſtamina which are longer than the petals; this flowers at the ſame time with the former, and perfects its ſeeds in autumn. Both theſe plants have a very ſtrong odour like that of a goat; ſo that where the plants grow in large quantities, the ſcent is carried by the wind to a great diſtance; or, if the leaves are handled, they emit the ſame odour.

Theſe two ſorts are propagated by ſuckers, which are plentifully ſent forth from the old plants. The beſt ſeaſon for taking off the ſuckers is in March, juſt before they begin to ſhoot; they ſhould be planted in a light dry ſoil, in which they will endure the ſevereſt cold of our climate very well. They may alſo be propagated by cuttings, which ſhould be planted at the ſame ſeaſon; or by ſeeds, which muſt be ſown in Auguſt or September, which is as ſoon as they are ripe; for if they are kept till ſpring, few of them will grow; but as they multiply ſo faſt by ſuckers, the other methods of propagating them are ſeldom practiſed in England.

The fifth ſort grows naturally on Mount Olympus, where it was diſcovered by Sir George Wheeler, who ſent the ſeeds to the Oxford garden; this riſes with many upright ligneous ſtalks about a foot high, garniſhed with ſmall ſpear-ſhaped leaves, ſitting cloſe to the ſtalks oppoſite. The flowers are produced at the the top of the ſtalks, three or four together; they are compoſed of five oblong petals, of a bright yellow colour, with a great number of ſtamina, which are of unequal lengths, ſome being longer, and others ſhorter than the petals, terminated by ſmall roundiſh ſummits. In the center is ſituated an oval germen, ſupporting three ſlender ſtyles, which are longer than the ſtamina. The germen afterward becomes an oval capſule with three cells, filled with ſmall ſeeds. This flowers in July and Auguſt, and in warm ſeaſons ripens its ſeeds in autumn.

This plant is uſually propagated by parting of the roots, becauſe the ſeeds ſeldom ripen in this country; the beſt time for doing of this is in September, that the plants may have time to get root before winter; this will live in the open air, if it is planted in a warm ſituation and a dry ſoil, but it will be proper to keep a plant or two in pots, to be ſheltered under a frame in winter, leſt in very ſevere winters, thoſe in the open air ſhould be deſtroyed. If this is propagated by ſeeds, they ſhould be ſown ſoon after they are ripe, in pots filled with light earth, and placed under a frame in the winter, to ſhelter them from froſt, and in the ſpring the plants will appear; when theſe are fit to remove, ſome of them may be planted in a warm border, and others in pots, and treated in the ſame way as the old plants.

The ſixth ſort riſes with a ſhrubby ſtalk ſeven or eight feet high, with a reddiſh bark, and ſends out many ſmaller branches, garniſhed with oval heart-ſhaped leaves, whoſe baſe ſits cloſe to the ſtalks; they are placed oppoſite. The flowers are produced at the end of the ſtalks in cluſters; they are ſmaller than thoſe of the third ſort, and have obtuſe empalements. The ſtamina are longer than the petals, and are of a deeper colour. The flowers are ſucceeded by conical capſules of a purpliſh red colour, having three cells, filled with ſmall ſeeds. It flowers in May, June, and July, and the ſeeds ripen in autumn. This is now propagated in the nurſeries as a flowering ſhrub, and may be treated in the ſame way as the third and fourth ſorts.

The ſeventh ſort was firſt brought to England from Conſtantinople, but has long been very common in the Engliſh gardens, for the roots ſpread and increaſe very faſt, where it is permitted to ſtand long unremoved. The ſtalks of this are ſlender, and incline downward; they are garniſhed with oval, ſpear-ſhaped, ſmooth leaves, placed by pairs, ſitting cloſe to the ſtalks. The flowers are produced at the end of the ſtalks; theſe are very large, and of a bright yellow colour, with a great number of ſtamina, which ſtand out beyond the petals; there are five ſtyles in each flower, which are of the ſame length with the ſtamina. The flowers are ſucceeded by pyramidal ſeed-veſſels with five cells, containing many ſmall ſeeds. It flowers in June and July.

This plant is eaſily propagated by parting of the root; the beſt time for this is in October, that the plants may be well eſtabliſhed before the drought of ſpring, otherwiſe they will not produce many flowers. As this will grow under trees, ſo it is a very proper plant to place under ſhrubs and trees to cover the ground, where they will make a good appearance during the ſeaſon of their flowering.

The eighth ſort grows naturally in the iſland of Minorca, from whence the ſeeds were ſent to England, by Mr. Salvador, an apothecary at Barcelona, in the year 1718; this riſes with a ſlender ſhrubby ſtalk in this country about two feet high, but in its native ſoil riſes ſeven or eight feet high, ſending out ſeveral weak branches of a reddiſh colour, which are marked where the leaves have fallen off with a cicatrice. The leaves are ſmall, oval, and waved on their edges, having ſeveral ſmall protuberances on their under ſide, ſitting cloſe to the ſtalks, half embracing them with their baſe. The flowers are produced at the top of the ſtalks; they are large, of a bright yellow colour, with a great number of ſtamina, which are a little ſhorter than the petals; theſe flowers have five ſtyles, and are ſucceeded by pyramidal capſules with five cells, which have a ſtrong ſmell of turpentine, and are filled with ſmall brown ſeeds: this plant has a ſucceſſion of flowers great part of the year, which renders it valuable; it is too tender to live through the winter in the open air in England, but requires no artificial heat: if the plants are placed in a dry airy glaſs-caſe in winter, where they may be protected from froſt, and enjoy a good ſhare of freſh air in mild weather, they will thrive better than in a warmer ſituation; but they muſt by no means be placed in a damp air, for their ſhoots ſoon grow mouldy and decay with damp, nor ſhould the plants have much water during the winter; but in ſummer they ſhould be expoſed in the open air, and in warm weather they ſhould be gently watered three times a week; they ſhould have a looſe ſandy ſoil, not over rich. This is propagated by cuttings, which ſhould be planted in June, in pots filled with light earth, and plunged into a very moderate hot-bed, whoſe heat is declining, ſhading them from the ſun in the heat of the day, and now and then refreſhing them with water; theſe cuttings, ſo managed, will put out roots in ſix or ſeven weeks, when they ſhould be carefully taken up, and each planted into a ſeparate ſmall pot, placing them in the ſhade till they have taken new root; then they may be removed to a ſheltered ſituation, where they may remain till the froſt comes, when they ſhould be removed into ſhelter.

If theſe are propagated by ſeeds, they ſhould be ſown in autumn, in the ſame way as is before directed for the fifth ſort, and the plants treated in the ſame manners as thoſe raiſed from cuttings.

The ninth ſort is the common Tutſan, or Park-leaves, which is ſometimes uſed in medicine. It grows naturally in woods in ſeveral parts of England, ſo is not often admitted into gardens; this hath a ſhrubby ſtalk, which riſes two feet high, ſending out ſome ſmall branches toward the top; theſe, and alſo the ſtalks, are garniſhed with oval heart-ſhaped leaves, ſitting cloſe to them with their baſe, they are placed by pairs at every joint. The flowers are produced in ſmall cluſters at the end of the ſtalk; theſe are yellow, but ſmaller than either of the ſorts here mentioned; they have many long ſtamina, which ſtand out beyond the flower, and three ſtyles. The germen afterward turns to a roundiſh fruit, covered with a moiſt pulp, which, when ripe, is black. The capſule has three cells, containing ſmall ſeeds. It flowers in June, and the ſeeds are ripe in autumn. It hath a perennial root, and may be propagated by parting it in autumn; it loves ſhade and a ſtrong ſoil.

The tenth ſort grows naturally in North America; this riſes with an upright herbaceous ſtalk three feet and a half high, ſending out ſeveral ſmall branches upward, which come out oppoſite, and are garniſhed with oblong leaves placed oppoſite, which half embrace the ſtalk with their baſe. At the end of each ſtalk is produced one pretty large yellow flower, with an obtuſe empalement, having many ſtamina, which are equal in length with the petals, and five ſtyles which are ſo cloſely joined as to appear but one. The ſtigmas are reflexed, which denote their number. This ſort ſeldom ripens ſeeds here, ſo is propagated by parting the roots. The beſt time for this is in autumn; it ſhould have a light ſoil and an open ſituation. The flowers appear the latter end of July, and in Auguſt.

The eleventh ſort grows naturally in China, from whence the ſeeds were brought to the Right Hon. the Earl of Northumberland, and the plants were raiſed in his Lordſhip's curious garden at Stanwick, and by his Lordſhip's generoſity the Chelſea garden was furniſhed with this plant.

The root of this plant is compoſed of many ligneous fibres, which ſtrike deep in the ground; from which ariſe ſeveral ſhrubby ſtalks near two feet high, covered with a purpliſh bark, and garniſhed with ſtiff ſmooth leaves about two inches long, and a quarter of an inch broad, placed by pairs, ſitting cloſe to the ſtalk; they are of a lucid green on their upper ſide, and gray on their under, having many tranſverſe veins running from the midrib to the border. The flowers are produced at the top of the ſtalks, growing in ſmall cluſters, each ſtanding upon a ſhort diſtinct foot-ſtalk; theſe have an empalement of one leaf, divided into five obtuſe ſegments almoſt to the bottom, which is of a deep purple colour. The flower is compoſed of five large obtuſe petals, of a bright yellow colour; theſe are concave, and in the center is ſituated an oval germen ſupporting a ſingle ſtyle, crowned by five ſlender ſtigmas, which bend on one ſide; the ſtyle is attended by a great number of ſtamina which are longer than the petals, and terminated by roundiſh ſummits.

This plant continues in flower great part of the year, which renders it the more valuable; and if it is planted in a very warm ſituation, it will live in the open air; but thoſe plants which ſtand abroad will not flower in winter, as thoſe do which are removed into ſhelter in autumn.

It may be propagated by ſlips from the root, or by laying down of the branches; if by ſlips, they ſhould be planted in the ſpring on a moderate hot-bed, which will forward their putting out new roots; the layers ſhould alſo be laid down at the ſame time, which will have taken root by autumn, when they may be tranſplanted into pots, and ſheltered under a frame in winter; and in the ſpring, part of theſe may be planted in a warm border, and the others continued in pots to be ſcreened in winter, leſt thoſe in the open air ſhould be killed.

HYPERICUM FRUTEX. See Spiræa.

HYPOCHÆRIS, a ſort of Hawkweed, of which there are two or three ſpecies, which grow naturally in England; the others are ſeldom admitted into gardens, therefore I ſhall not enumerate them.

HYPOPHYLLOSPERMOUS PLANTS [of ὑπὸ, under, φύλλον, a leaf, and σπέρμα, ſeed,] are ſuch plants as bear their ſeeds on the backſides of their leaves.

HYSSOPUS. Tourn. Inſt. R. H. 200. tab. 95. Lin. Gen. Plant. 628. [takes its name from the Hebrew word אזוב, in which language Hyſſop ſignifies a holy herb, or for purging or cleanſing ſacred places, as it is ſaid in the Pſalms, Purge me with Hyſſop. But what plant the Hyſſop of the antients was, is not known, but that it ſeems to have been a low plant, becauſe Solomon is ſaid to have deſcribed the plants from the Cedar to the Hyſſop.] Hyſſop; in French, *Hiſope.*

The Characters are,

The empalement of the flower is oblong, cylindrical, ſtreaked, and permanent. It is of one leaf, cut into five acute parts at the top. The flower is of one petal, of the grinning kind, with a narrow cylindrical tube the length of the empalement. The chaps are inclining. The upper lip is ſhort, plain, roundiſh, erect, and indented at the top. The under lip is trifid, the two ſide ſegments being ſhorter than the middle one, which is crenated. It hath four ſtamina, which ſtand apart; two of them are longer than the petal, the other two are ſhorter, terminated by ſingle ſummits. It hath four germen, with a ſingle ſtyle ſituated

ſituated under the upper lip, crowned by a bifid ſtigma. The germen afterward becomes ſo many oval ſeeds ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, which contains thoſe plants whoſe flowers have two long and two ſhort ſtamina, and are ſucceeded by naked ſeeds in the empalement.

The Species are,

1. Hyssopus (*Officinalis*) ſpicis fecundis. Hort. Cliff. 304. *Hyſſop with fruitful ſpikes.* Hyſſopus officinarum cœrulea ſeu ſpicata. C. B. P. 217. *Hyſſop of the ſhops with blue ſpikes, or the common Hyſſop.*
2. Hyssopus (*Rubra*) ſpicis brevioribus, verticillis compactis. *Hyſſop with ſhorter ſpikes, and whorls more compact.* Hyſſopus rubro flore. C. B. P. 217. *Hyſſop with a red flower.*
3. Hyssopus (*Altiſſimis*) ſpicis longiſſimis verticillis diſtantibus. *Hyſſop with the longeſt ſpikes, and whorls at a greater diſtance.* Hyſſopus verticillis florum rarioribus. Houſt. *Hyſſop with the whorls of flowers thinly ranged.*
4. Hyssopus (*Nepetoides*) caule acuto quadrangulo. Hort. Upſal. 163. *Hyſſop with an acute ſquare ſtalk.* Sideritis Canadenſis altiſſima, ſcrophulariæ folio, flore flaveſcente. Tourn. Inſt. 192. *Talleſt Canada Ironwort, with a Figwort leaf and a yellowiſh flower.*
5. Hyssopus (*Lophanthus*) corollis ſubreſupinatis ſtaminibus corollâ brevioribus. Hort. Upſal. 162. *Hyſſop with tranſverſe petals, and the lower ſtamina ſhorter than the petal.* Nepeta floribus obliquis. Dill. *Catmint with oblique flowers.*

The firſt ſort, which is the only one cultivated for uſe, grows a foot and a half high. The ſtalks are firſt ſquare, but afterward become round; their lower parts are garniſhed with ſmall ſpear-ſhaped leaves placed oppoſite, without foot-ſtalks, and ſeven or eight very narrow erect leaves (or bractæa) riſing from the ſame joint. The upper part of the ſtalk is garniſhed with whorls of flowers, the lower ones ſtanding half an inch apart, but the upper are almoſt joined together. The upper lip of the flower is indented at the top, and the under is cut into three parts, the middle being deeply indented at the point. There are four ſtamina in each flower, which ſpread at a diſtance from each other; the two upper are the ſhorteſt, which are ſituated on each ſide the upper lip; the two longer ſtand cloſe to the two ſide ſegments, and are terminated by twin ſummits. At the bottom of the tube are ſituated four naked germen, ſupporting a ſlender ſtyle, ſitting cloſe to the upper lip, crowned by a bifid ſtigma; theſe germen afterward become four oblong black ſeeds, ſitting in the empalement. The whole plant has a ſtrong aromatic ſcent. It flowers in July and Auguſt, and the ſeeds ripen in September, but the roots will abide many years; it grows naturally in the Levant. There is a variety of this with white flowers, but doth not differ from the blue in any other particular.

The ſecond ſort doth not grow ſo tall as the firſt; the ſtalks branch more, and the ſpikes of flowers are much ſhorter than thoſe of the firſt. The whorls are cloſer together, and have long narrow leaves ſituated under each. The flowers are of a fine red colour, and appear at the ſame time with the former. This ſort is not quite ſo hardy as the common, for in 1739 the plants were all deſtroyed by the cold; this is certainly a diſtinct ſpecies, for I cultivated it from ſeeds twenty years, and never obſerved it to vary.

The third ſort grows much taller than either of the other. The leaves are narrower, the whorls of flowers are farther aſunder, the ſpikes of flowers are much longer, the flowers are larger, and of a deeper blue than thoſe of the common ſort, and the plant hath not ſo ſtrong an odour. It flowers at the ſame time as the firſt.

Theſe three ſorts of Hyſſop are propagated either by ſeeds or cuttings; if by the ſeeds, they muſt be ſown in March, upon a bed of light ſandy ſoil; and when the plants come up, they ſhould be tranſplanted out to the places where they are to remain, placing them at leaſt a foot aſunder each way; but if they are deſigned to abide in thoſe places for a long time, two feet diſtance will be ſmall enough, for they grow pretty large, eſpecially if they are not frequently cut, to keep them within compaſs; they thrive beſt upon a poor dry ſoil, in which ſituation they will endure the cold of our climate better than when they are planted on a richer ſoil. If you would propagate them by cuttings, they ſhould be planted in April or May, in a border where they may be defended from the violent heat of the ſun; and being frequently watered, they will take root in about two months; after which, they may be tranſplanted where they are to continue, managing them as was before directed for the ſeedling plants.

The firſt ſort was formerly more cultivated than at preſent in England, that being the ſort commonly uſed in medicine. The other ſpecies are preſerved in curious gardens for their variety, but they are ſeldom cultivated for uſe.

They are very hardy plants, which will endure the cold of our winters in the open air, provided they are planted in a dry undunged ſoil; for when they are planted in a rich ſoil, they grow very luxuriant in ſummer, and are leſs able to reſiſt the cold in winter; ſo that when any of theſe plants grow out of the joints of old walls, (as they frequently do) they will reſiſt the moſt ſevere froſt, and will be much more aromatic than thoſe which grow in a rich ſoil.

The fourth ſort grows naturally in North America; this hath a perennial root and an annual ſtalk, which decays in autumn. It riſes with an upright ſquare ſtalk near four feet high, garniſhed with oblique heart-ſhaped leaves, which are ſawed on their edges, and end in acute points; they are placed oppoſite on ſhort foot-ſtalks. The flowers grow in cloſe thick ſpikes four or five inches long, at the top of the ſtalks. The upper lip is divided into two roundiſh ſegments, the lower one is divided into three, the two ſide ſegments ſtanding erect, and the middle one is reflexed, and acutely ſawed at the end. The two upper ſtamina, which are ſituated on each ſide the upper lip are the longeſt, the other two ſhorter join the two ſide ſegments of the lower lip; they are terminated by ſmall ſummits. The germen are ſituated at the bottom of the tube, having a ſlender ſtyle under the upper lip, crowned by a bifid ſtigma. The germen afterward becomes four oblong brown ſeeds, ſitting in the tubulous empalement. This ſort flowers in July, and the ſeeds ripen in September.

There is a variety of this ſort with purple ſtalks and purpliſh flowers. The leaves ſtand upon longer foot-ſtalks, and the ſpikes of flowers are thicker, but I cannot ſay if it is a diſtinct ſpecies or only a variety. It grows naturally in the ſame country with the other. It is titled, Betonica maxima, folio ſcrophulariæ, floribus incarnatis, by Herman. Par. Bat. 106.

The fifth ſort grows naturally in Siberia. The ſeeds of this were ſent me from the Imperial garden at Peterſburgh, by the title of Lophanthus, and afterward I received ſome from Holland, which were titled, Nepeta floribus obliquis. Dill. This is a perennial plant with a ſtrong fibrous root, ſending out many ſquare ſtalks, which divide into ſmaller branches, garniſhed with oblong leaves, crenated on their edges, ſet on by pairs. The flowers are produced at each joint in ſmall cluſters, two foot-ſtalks ariſing from the baſe of the leaves, about half an inch long, both inclining to one ſide of the ſtalk; each of theſe foot-ſtalks divide again into two ſmaller, and theſe do each ſupport a cluſter of four or five flowers, which have ſwelling tubulous empalements, cut into five acute ſegments at the top. The tube of the petal is longer than the empalement. The lips of the flower are oblique to it, being ſituated horizontally. The two upper ſtamina and the ſtyle ſtand out beyond the petal, but the other are ſhorter. The flowers are blue, and appear in June and July, and the ſeeds ripen in September.

Both theſe ſorts are very hardy, and may be eaſily propagated by ſeeds, which ſhould be ſown in autumn; for thoſe ſown in the ſpring, often lie a year in the ground before they vegetate; when the plants come up, they muſt be kept clean from weeds, and thinned where they are too cloſe. The following autumn they ſhould be tranſplanted where they are to remain, and the plants will flower in ſummer, and produce ſeeds, but the roots will abide ſome years.

It hath been a diſpute amongſt modern writers, whether the Hyſſop now commonly known is the ſame which is mentioned in ſcripture; about which there is great room to doubt, there being very little grounds to aſcertain that plant, though it is moſt generally thought to be the Winter Savory, which plant is now in great requeſt amongſt the inhabitants of the eaſtern countries, for outward waſhings or purification.

J.

JACEA. See Centaurea.

JACOBÆA. See Senecio and Othonna.

JACQUINIA. Lin. Gen. 254.

The Characters are,

The empalement of the flower is compoſed of five roundiſh concave leaves, and is permanent. The flower has one bell-ſhaped petal, which is bellied, cut into ten ſegments. It hath five awl-ſhaped ſtamina ariſing from the receptacle, terminated by halbert-ſhaped ſummits, and an oval germen ſupporting a ſtyle the length of the ſtamina, crowned by a headed ſtigma. The germen afterward becomes a roundiſh berry with one cell, containing one ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flowers having five ſtamina and one ſtyle.

The Species are,

1. Jacquinia (*Ruſcifolia*) foliis lanceolatis acuminatis. Jacq. Amer. 15. Lin. Sp. 271. *Jacquinia with ſpear-ſhaped acute-pointed leaves.* Fruticulus foliis ruſci ſtellatis. Hort. Elth.
2. Jacquinia (*Armillaris*) foliis obtuſis cum acumine. Jacq. Amer. 15. Lin. Sp. 272. *Jacquinia with blunt leaves ending in acute points.* Chryſophyllum Barbaſco. Lœfl. it. 204.
3. Jacquinia (*Linearis*) foliis linearibus acuminatis. Jacq. Amer. 15. Lin. Sp. 272. *Jacquinia with linear ſharp-pointed leaves.*

The firſt ſort grows naturally in the iſland of Cuba, and in ſome other warm parts of America; it riſes with a ſhrubby ſtalk about a foot high, which is ligneous at the bottom, and about the ſize of a ſwan's quill, covered with a dark brown bark, ſending out a few ſlender branches, garniſhed at intervals with hand-ſhaped ſtiff leaves, placed in whorls round them; theſe are ſtiff like thoſe of Butcher's Broom, ending with ſharp points, of a deep green on their upper ſide, but pale on their under; the flowers are (according to Plumier's figure) produced from between the leaves on the top of the branches; but having ſeen no flowers in England, ſo I can give no farther account of them.

The ſecond ſort grows naturally at Carthagena, Martinico, and other parts of South America, where it riſes with a ſhrubby ſtalk four or five feet high, dividing toward the top into four branches, which are ſituated in whorls round the principal ſtalk, garniſhed with oblong blunt leaves, placed alſo in whorls, having a ſhort ſlender apex. The flowers are produced in a racemus on the end of the branches, each containing five or ſix white flowers of a thick conſiſtence, which have a ſcent like Jaſmine flowers, which they retain after they decay, ſo are worn by the ladies of thoſe countries for ornament.

The third ſort grows naturally on the borders of the ſea, in the iſland of Dominica; this is an under-ſhrub, of a very low growth, rarely riſing about two feet high, dividing into ſeveral branches, garniſhed with linear ſtiff leaves, ending with a thorn; theſe are placed in whorls round the branches, and from the middle of the whorls come out the foot-ſtalks of the flowers, each being terminated by one ſmall white flower without ſcent.

As theſe plants are natives of hot countries, ſo they will not live in England, unleſs they are placed in a warm ſtove, and treated in the manner directed for other plants from the ſame countries, giving them little water in winter, and in warm weather plenty of freſh air. They are raiſed from ſeeds, when they can be procured from the countries where they naturally grow; which muſt be ſown on a hot-bed, and may afterward be propagated by cuttings, though it is with difficulty they take root.

JALAPA. See Mirabilis.

JASIONE. Lin. Gen. Plant. 896. This is the Rapunculus ſcabioſæ capitulo cœruleo. C. B. P. 22. Rampions with Scabious heads. This plant grows naturally on ſterile ground in moſt parts of England, and is rarely admitted into gardens.

JASMINOIDES. See Cestrum and Lycium.

JASMINUM. Tourn. Inſt. R. H. 597. tab. 368. Lin. Gen. Plant. 17. [This name is Arabic.] The Jaſmine, or Jeſſamine-tree; in French, *Jaſmin.*

The Characters are,

The flower hath a tubulous empalement of one leaf, which is permanent, and cut into five ſegments at the brim, which are erect. The flower is of one petal, having a long cylindrical tube, cut into five ſegments at the top, which ſpread open. It hath two ſhort ſtamina, which are terminated by ſmall ſummits, and are ſituated within the tube of the petal. In the center is ſituated a roundiſh germen, ſupporting a ſlender ſtyle, crowned by a bifid ſtigma. The germen afterward turns to an oval berry, with a ſoft ſkin incloſing two ſeeds, which are flat on thoſe ſides which join, and convex on the other.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, intitled Diandria Monogynia, in which he ranges thoſe plants whoſe flowers have two ſtamina and one ſtyle.

The Species are,

1. Jasminum (*Officinale*) foliis oppoſitis pinnatis, foliolis acuminatis. *Jaſmine with winged leaves placed oppoſite,*

poſite, whoſe lobes end in acute points. Jaſminum vulgatius, flore albo. C. B. P. 397. *The common white Jaſmine.*

2. Jasminum (*Humile*) foliis alternis ternatis ſimplicibuſque, ramis angulatis. Hort. Upſal. 5. *Jaſmine with trifoliate winged leaves placed alternate, and angular branches.* Jaſminum humile luteum. C. B. P. 397. *Dwarf yellow Jaſmine, commonly called the Italian yellow Jaſmine.*
3. Jasminum (*Fruticans*) foliis alternis ternatis ſimplicibuſque, ramis angulatis. Hort. Cliff. 5. *Jaſmine with trifoliate ſingle leaves placed alternate, and angular branches.* Jaſminum luteum, vulgò dictum bacciferum. C. B. P. 398. *The common yellow Jaſmine.*
4. Jasminum (*Grandiflorum*) foliis oppoſitis pinnatis, foliolis brevioribus obtuſis. *Jaſmine with winged leaves placed oppoſite, whoſe lobes are ſhorter and obtuſe.* Jaſminum humilis, magno flore. C. B. P. 398. *The Spaniſh white, or Catalonian Jaſmine with a larger flower.*
5. Jasminum (*Odoratiſſimum*) foliis alternis ternatis, foliolis ovatis, ramis teretibus. *Jaſmine with trifoliate leaves placed alternate, whoſe lobes are oval, and taper branches.* Jaſminum Indicum flavum odoratiſſimum. Fer. Flor. *The ſweet-ſcented yellow Indian Jaſmine.*
6. Jasminum (*Azoricum*) foliis oppoſitis ternatis, foliolis cordato-acuminatis. *Jaſmine with trifoliate leaves placed oppoſite, whoſe lobes are heart-ſhaped and pointed.* Jaſminum Azoricum trifoliatum, flore albo, odoratiſſimum. Hort. Amſt. *The three-leaved Azorian Jaſmine, with very ſweet white flowers, commonly called the Ivy-leaved Jaſmine.*
7. Jasminum (*Capenſe*) foliis lanceolatis oppoſitis integerrimis, floribus triandris. *Jaſmine with ſpear-ſhaped entire leaves placed oppoſite, and flowers with three ſtamina.*

The firſt ſort is the common white Jaſmine, which is a plant ſo generally known as to need no deſcription. This grows naturally at Malabar, and in ſeveral parts of India, yet has been long inured to our climate, ſo as to thrive and flower extremely well, but never produces any fruit in England; this hath weak trailing branches, ſo requires the aſſiſtance of a wall or pale to ſupport them. It is eaſily propagated by laying down the branches, which will take root in one year, and may then be cut from the old plant, and planted where they are deſigned to remain: it may alſo be propagated by cuttings, which ſhould be planted early in the autumn, and if the winter ſhould prove ſevere, the ſurface of the ground between them ſhould be covered with tan, ſea-coal aſhes, or ſaw-duſt, which will prevent the froſt from penetrating deep into the ground, and thereby preſerve the cuttings; or where theſe are wanting, ſome Peas-haulm, or other light covering ſhould be laid over the cuttings in hard froſt; but theſe muſt be removed when the weather is mild, for they will keep off the air and occaſion damps, which often deſtroy them.

When theſe plants are removed, they ſhould be planted where they are deſigned to be continued, which ſhould be either againſt ſome wall, pale, or other fence, where the flexible branches may be ſupported; for although it is ſometimes planted as a ſtandard, and formed into a head, yet it will be very difficult to keep it in any handſome order; or if you do, you muſt cut off all the flowering branches; for the flowers are always produced at the extremity of the ſame year's ſhoots, which, if ſhortened before the flowers are blown, will entirely deprive the trees of flowers. Theſe plants ſhould be permitted to grow rude in the ſummer, for the reaſon before given; nor ſhould you prune and nail them until the middle or latter end of March, when the froſty weather is paſt; for if it ſhould prove ſharp froſty weather after their rude branches are pruned off, and the ſtrong ones are expoſed thereto, they are very often deſtroyed; and this plant being very backward in ſhooting, there will be no danger of hurting them by late pruning.

There are two varieties of this with variegated leaves, one with white, and the other yellow ſtripes, but the latter is the moſt common: theſe are propagated by budding them on the plain Jaſmine, and it often happens, that the buds do not take, but yet they have communicated their gilded miaſma to the plants; ſo that in a ſhort time after, many of the branches both above and below the places where the buds have been inſerted have been thoroughly tinctured; and the following year I have often found very diſtant branches, which had no other communication with thoſe which were budded than by the root, have been as compleatly tinged as any of the nearer branches, ſo that the juices muſt have deſcended into the root.

The two ſtriped ſorts ſhould be planted in a warm ſituation, eſpecially the white ſtriped; for they are much more tender than the plain, and are very ſubject to be deſtroyed by great froſts, if they are expoſed thereto; therefore the white ſtriped ſhould be planted to a ſouth or ſouth-weſt aſpect, and in very ſevere winters their branches ſhould be covered with mats or ſtraw, to prevent their being killed: the yellow ſtriped is not ſo tender, ſo may be planted againſt walls to eaſt or weſt aſpects; but theſe plants with variegated leaves, are not ſo much in eſteem as formerly.

The ſecond ſort is frequently called Italian yellow Jaſmine by the gardeners, the plants being annually brought from thence by thoſe who come over with Orange-trees. Theſe plants are generally grafted upon the common yellow Jaſmine ſtocks, ſo that if the graft decays, the plants are of no value. This ſort is ſomewhat tenderer than the common, yet it will endure the cold of our ordinary winters, if it is planted in a warm ſituation. The flowers of this kind are generally larger than thoſe of the common yellow ſort, but have very little ſcent, and are ſeldom produced ſo early in the ſeaſon. It may be propagated by laying down the tender branches, as was directed for the common white ſort; or by budding or inarching it upon the common yellow Jaſmine, the latter of which is preferable, as making the plants hardier than thoſe which are obtained from layers: they ſhould be planted againſt a warm wall, and in very ſevere winters will require to be ſheltered with mats, or ſome other covering, otherwiſe they are ſubject to be deſtroyed. The manner of dreſſing and pruning being the ſame as was directed for the white Jaſmine, I ſhall not repeat it.

The third ſort was formerly more cultivated in the gardens than at preſent, for as the flowers have no ſcent, ſo few perſons regard them. This hath weak angular branches which require ſupport, and will riſe to the height of eight or ten feet, if planted againſt a wall or pale; but the plants do often produce a great number of ſuckers from their roots, whereby they become troubleſome in the borders of the pleaſure-garden; and as they cannot be kept in any order as ſtandards, ſo there are few of the plants at preſent introduced into gardens. It is eaſily propagated by ſuckers or layers.

The fourth ſort grows naturally in India, and alſo in the iſland of Tobago, where the woods are full of it; the late Mr. Robert Millar ſent me over a great quantity of it from thence. This hath much ſtronger branches than the common white ſort; the leaves are winged, and are compoſed of three pair of ſhort obtuſe lobes, terminated by an odd one, ending in an acute point; theſe lobes are placed cloſer than thoſe of the common Jaſmine, and are of a lighter green; the flowers come out from the wings of the ſtalks, ſtanding on foot-ſtalks which are two inches long, each ſuſtaining three or four flowers, which are of a bluſh red on their outſide, but white within; the tube of the flower is longer, the ſegments are obtuſe, twiſted at the mouth of the tube, and are of a much thicker texture than thoſe of the common ſort, ſo that there is no doubt of its being a diſtinct ſpecies: the reaſon for Dr. Linnæus's ſuppoſing it to be ſo, was by miſtake; for as theſe plants are generally grafted upon ſtocks of the common Jaſmine, ſo there are always ſhoots coming out from the ſtocks of that ſort, which, if permitted to ſtand, will produce flowers; and theſe often ſtarve and kill the grafts, ſo that there will be only the common ſort left; and this has been the caſe with ſome plants which he examined, therefore ſuppoſed the difference of the other ſort was wholly owing to culture; whereas, if he had only obſerved the difference of their leaves, he would have certainly made two diſtinct ſpecies of them, which he has now done in the laſt edition of his ſpecies.

This plant is propagated by budding or inarching it upon the common white Jaſmine, on which it takes very well, and is rendered hardier than thoſe which are upon their own ſtocks. But the plants of this kind being brought over from Italy every ſpring in ſo great plenty, they are ſeldom raiſed here: I ſhall therefore proceed to the management of ſuch plants as are uſually brought into England from the place above-mentioned, which are generally tied up in ſmall bunches, containing four plants, and their roots wrapped about with moſs, to preſerve them from drying; which, if it happen that the ſhip has a long paſſage, will often occaſion them to puſh out ſtrong ſhoots from their roots, which muſt always be taken off before they are planted, otherwiſe they will exhauſt the whole nouriſhment of the plant, and deſtroy the graft.

In the making choice of theſe plants, you ſhould carefully obſerve if their grafts are alive, and in good health: for if they are brown and ſhrunk, they will not puſh out, ſo that there will be only the ſtock left, which is of the common ſort.

When you receive theſe plants, you muſt clear the roots of the moſs, and all decayed branches ſhould be taken off; then place their roots into a pot or tub of water, which ſhould be ſet in the green-houſe, or ſome other room, where it may be ſcreened from the cold; in this ſituation they may continue two days, after which you muſt prune off all the dry roots, and cut down the branches within four inches of the place where they were grafted, and plant them into pots filled with freſh light earth; then plunge the pots into a moderate hot-bed of tanners bark, obſerving to water and ſhade them, as the heat of the ſeaſon may require. In about a month or ſix weeks after they will begin to ſhoot, when you muſt carefully rub off all ſuch as are produced from the ſtock below the graft; and you muſt now let them have a great ſhare of air, by raiſing the glaſſes in the heat of the day; and as the ſhoots extend, they ſhould be topped, to ſtrengthen them, and by degrees ſhould be hardened to endure the open air, into which they ſhould be removed the beginning of June, but muſt have a warm ſituation the firſt ſummer; for if they are too much expoſed to the winds, they will make but indifferent progreſs, being rendered ſomewhat tender by the hot-bed. If the ſummer proves warm, and the trees have ſucceeded well, they will produce ſome flowers in the autumn following, though they will be few in number, and not near ſo ſtrong as they will be the ſucceeding years, when the trees are ſtronger and have better roots.

Theſe plants are commonly preſerved in green-houſes, with Oranges, Myrtles, &c. and during the winter ſeaſon, will require to be frequently watered; which ſhould be performed ſparingly each time, eſpecially in cold weather, for too much wet at that ſeaſon will be apt to rot the fibres of their roots; they ſhould alſo have a great ſhare of freſh air when the weather will permit, for which purpoſe they ſhould be placed in the cooleſt part of the green-houſe, among plants that are hardy, where the windows may be opened every day, except in froſty weather; nor ſhould they be crowded too cloſe among other plants, which often occaſions the tender part of their ſhoots to grow mouldy and decay. In April the ſhoots of theſe plants ſhould be ſhortened down to four eyes, and all the weak branches ſhould be cut off; and if you have the conveniency of a glaſs-ſtove, or a deep frame, to place the pots in at that ſeaſon, to draw them out again, it will be of great ſervice in forwarding their flowering; yet ſtill you ſhould be careful not to force them too much; and as ſoon as they have made ſhoots three or four inches long, the glaſſes ſhould be opened in the day time, that the plants may, by degrees, be inured to the open air, into which they ſhould be removed by the latter end of May, or the beginning of June; otherwiſe their flowers will not be ſo fair, nor continue ſo long. If the autumn prove favourable, theſe plants will continue to produce freſh flowers until November; and ſometimes when they are ſtrong, they will continue flowering later; but then they muſt have a great ſhare of air when the weather is mild and will admit of it, otherwiſe the flower-buds will grow mouldy and decay.

But notwithſtanding moſt people preſerve theſe plants in green-houſes, yet they will endure the cold of our ordinary winters in the open air, if planted againſt a warm wall, and covered with mats in froſty weather; they will alſo produce ten times as many flowers in one ſeaſon as thoſe kept in pots, and the flowers will likewiſe be much larger; but they ſhould not be planted abroad till they have acquired ſtrength, ſo that it will be neceſſary to keep them in pots three or four years, whereby they may be ſheltered from the froſt in winter; and when they are planted againſt the wall, which ſhould be in May, that they may take good root in the ground before the ſucceeding winter, you muſt turn them out of the pots, preſerving the earth to their roots; and having made holes in the border where they are to be planted, you ſhould place them therein, with their ſtems cloſe to the wall; then fill up the holes round their roots with good, freſh, rich earth, and give them ſome water to ſettle the ground about them, and nail up their ſhoots to the wall, ſhortening ſuch of them as are very long, that they may puſh out new ſhoots below to furniſh the wall, continuing to nail up all the ſhoots as they are produced. In the middle, or toward the latter end of July, they will begin to flower, and continue to produce new flowers until the froſt prevents them; which, when you obſerve, you ſhould carefully cut off all the tops of ſuch ſhoots as have buds formed upon them, as alſo thoſe which have the remains of faded flowers left; for if theſe are ſuffered to remain on, they will ſoon grow mouldy, eſpecially when the trees are covered, and thereby infect many of the tender branches, which will greatly injure the trees.

Toward the middle of November, if the weather proves cold and the nights froſty, you muſt begin to cover your trees with mats, which ſhould be nailed over them pretty cloſe; but this ſhould be done when the trees are perfectly dry, otherwiſe the wet being lodged upon the branches, will often cauſe a mouldineſs upon them, and the air being excluded therefrom, will rot them in a ſhort time: it will alſo be very neceſſary to take off the mats as ſoon as the weather will permit, to prevent this mouldineſs, and only keep them cloſe covered in froſty weather, and in the nights; at which time you ſhould alſo lay ſome mulch upon the ſurface of the ground about their roots, and faſten ſome bands of hay about their ſtems, to guard them from the froſt; and in very ſevere weather, you ſhould add a double or treble covering of mats over the trees; by which method, carefully performed, you may preſerve them through the hardeſt winters. In the ſpring, as the weather is warmer, you ſhould by degrees take off the covering; but you ſhould be careful not to expoſe them too ſoon to the open air, as alſo to guard them againſt the morning froſts and dry eaſterly winds, which often reign in March, to the no ſmall deſtruction of tender plants if they are expoſed thereto; nor ſhould you quite remove your covering until the middle of April, when the ſeaſon is ſettled; at which time you ſhould prune the trees, cutting out all decayed and weak branches, ſhortening the ſtrong ones to about two feet long, which will cauſe them to ſhoot ſtrong, and produce many flowers.

There is a variety of this with ſemi-double flowers, which is at preſent more rare in England, and only to be found in ſome curious gardens; though in Italy it is pretty common, from whence it is ſometimes brought over amongſt the ſingle; the flowers of this kind have only two rows of leaves, ſo that it is rather cultivated for its curioſity, than for any extraordinary beauty in the flowers. This may be propagated by budding it upon the common white Jaſmine, as hath been directed for the ſingle, and muſt be treated in the ſame manner.

The fifth ſort grows naturally in India; this riſes with an upright woody ſtalk eight or ten feet high, covered with a brown bark, ſending out ſeveral branches which want no ſupport; theſe are cloſely garniſhed with trifoliate leaves of a lucid green, which are placed alternate on the branches; the two ſide lobes of theſe leaves which grow oppoſite, are much leſs than the end one; they are oval and entire, continuing green all the year: the flowers are produced at the end of the ſhoots in bunches, which have long ſlender tubes, and are divided at the top into five obtuſe ſegments which ſpread open; theſe flowers are of a bright yellow, and have a moſt grateful odour. They come out in July, Auguſt, September, and October, and ſometimes continue to the end of November; they are frequently ſucceeded by oblong oval berries, which turn black when ripe, and have each two ſeeds.

This ſort of Jaſmine is propagated either by ſeeds, or laying down the tender branches; if you would propagate them by ſeeds, which they ſometimes produce in England, you ſhould make a moderate hot-bed in the ſpring, into which you ſhould plunge ſome ſmall pots, filled with freſh light earth; and in a day or two after, when you find the earth in the pots warm, you muſt put your ſeeds therein; about four in each pot will be ſufficient, covering them about an inch thick with the ſame light earth, and obſerve to refreſh the pots with water as often as you ſhall perceive the earth dry; but do not give them too much at each time, which would be apt to rot the ſeeds.

In about ſix or eight weeks after ſowing, the plants will appear above ground, at which time it will be neceſſary to remove the pots into another freſh hot-bed, of a moderate temperature, in order to bring the plants forward; you muſt alſo be careful to water them as often as is neceſſary, and in the great heat of the day the glaſſes ſhould be tilted pretty high, and ſhaded with mats, to prevent the plants from being ſcorched with heat. About the middle of May you ſhould begin to harden them to the open air, by taking off the glaſſes when the weather is warm; but this muſt be done cautiouſly, for you ſhould not expoſe them to the open ſun in a very hot day at firſt, which would greatly injure them; but rather take off the glaſſes in warm cloudy weather at firſt, or in gentle ſhowers of rain, and ſo by degrees inure them to bear the ſun; and in June you ſhould take the pots out of the hot-bed, and carry them to ſome well ſheltered ſituation, where they may remain until the beginning of October; at which time they muſt be carried into the green-houſe, obſerving to place them where they may enjoy as much free air as poſſible when the windows are opened, as alſo to be clear from the branches of other plants.

During the winter ſeaſon they will require to be often watered, but you muſt be careful not to give them too much at each time; and in March you muſt remove theſe plants each into a ſeparate pot, being careful not to take the earth from their roots; and if at this time you plunge them into a freſh moderate hot-bed, it will greatly facilitate their rooting again, and be of great ſervice to the plants; but when they are rooted, you muſt give them a great deal of air; for if you draw them too much, they will become weak in their ſtems, and incapable to ſupport their heads, which is a great defect in theſe trees.

You muſt alſo harden them to the open air, into which they ſhould be removed about the middle of May, obſerving, as was before directed, to place them in a ſituation that is defended from ſtrong winds, which are injurious to theſe plants, eſpecially while they are young. In winter houſe them as before, and continue the ſame care, with which they will thrive very faſt, and produce annually great quantities of flowers.

Theſe plants are pretty hardy, and will require no other care in winter, than only to defend them from hard froſts; nor do I know whether they would not live in the open air, if planted againſt a warm wall, which is what ſhould be tried by planting ſome againſt a wall for that purpoſe; and I think we have little reaſon to doubt of the ſucceſs, ſince they are much hardier than the Spaniſh; but there is this difference between them, viz. theſe plants have large, thick, Evergreen leaves, ſo that if they were covered with mats, as was directed for the Spaniſh Jaſmine, the leaves would rot and decay the ſhoots; but as theſe will only require to be covered in extreme froſt, ſo if their roots are well mulched, and a mat or two looſely hung over them in ordinary froſts, it will be ſufficient; and theſe mats being either rolled up, or taken quite off in the day, there will be no great danger of their being hurt, which only can proceed from being too long cloſe covered.

In the ſpring theſe ſhould be pruned, when you ſhould cut off all decayed branches; but you muſt not ſhorten any of the other branches, as was directed for the Spaniſh ſort, for the flowers of this kind are produced only at the extremity of the branches, which, if ſhortened, they would be cut off; and theſe growing of a more ligneous ſubſtance than the other, will not produce ſhoots ſtrong enough to flower the ſame year.

If you would propagate this plant from layers, the ſhoots ſhould be laid down in March; and if you give them a little cut at the joint, as is practiſed in laying of Carnations, it will promote their rooting: you ſhould always obſerve to refreſh them often with water, when the weather is dry; which, if carefully attended to, the plants will be rooted by the ſucceeding ſpring, fit to be tranſplanted, when they muſt be planted in pots filled with light earth, and managed as was before directed for the ſeedling plants.

This ſort is frequently propagated, by inarching the young ſhoots into ſtocks of the common yellow Jaſmine, but the plants ſo raiſed do not grow ſo ſtrong as thoſe which are upon their own ſtock; beſides, the common yellow Jaſmine is very apt to ſend out a great number of ſuckers from the root, which renders the plants unſightly; and if theſe ſuckers are not conſtantly taken off as they are produced, they will rob the plants of their nouriſhment.

The ſixth ſort grows naturally in the Azores; this hath long ſlender branches which require ſupport, and may be trained twenty feet high; they are garniſhed with trifoliate leaves, whoſe lobes are large and heart-ſhaped, of a lucid green, and are placed oppoſite on the branches; they continue all the year. The flowers are produced at the end of the branches, in looſe bunches; they have long narrow tubes, which at the top are cut into five ſegments ſpreading open; they are of a clear white, and have a very agreeable ſcent. This flowers at the ſame time with the former; the gardeners call it frequently the Ivy-leaved Jaſmine.

The Azorian Jaſmine is alſo pretty hardy, and requires no more ſhelter than only from hard froſts; and I am apt to think, if this ſort was planted againſt a warm wall, and managed as hath been directed for the yellow Indian Jaſmine, it would ſucceed very well; for I remember to have ſeen ſome plants of this kind growing againſt a wall in the gardens at Hampton Court, where they had endured the winter, and were in a more flouriſhing ſtate than ever I ſaw any of the kind in pots, and produced a greater quantity of flowers. Theſe plants are propagated in the ſame manner as the yellow Indian, and require the ſame management.

Theſe plants are as deſerving of a place in all green-houſes, as any which are there preſerved; for their leaves being of a ſhining green, make a good appearance all the year; and their flowers having a fine ſcent, and continuing ſo long in ſucceſſion, renders them very valuable.

The ſeventh ſort was brought from the Cape of Good Hope, by Captain Hutchinſon of the Godolphin, who diſcovered it growing naturally, a few miles up the land from the ſea, being drawn to it by the great fragrancy of its flowers, which he ſmelt at ſome diſtance from the plant, which was then in full flower; and after having viewed the plant, and remarked the place of its growth, he returned thither the following day with proper help, and a tub to put it in, and cauſed it to be carefully taken up, and planted in the tub with ſome of the earth on the ſpot, and conveyed on board his ſhip, where it continued flowering great part of the voyage to England, where it arrived in good health, and has for ſome years continued flowering, in the curious garden of Richard Warner, Eſq; at Woodford in Eſſex, who was ſo obliging as to favour me with branches of this curious plant in flower, to embelliſh one of the numbers of my figures of plants, where it is repreſented in the 180th plate.

This plant ſeems not to have been known to any of the botaniſts, for I have not met with any figure or deſcription of it in any of the books; there is one ſort which is figured in the Malabar garden, and alſo in Burman's plants of Ceylon, which approaches near this; it is titled Nandi ervatum major. Hort. Mal. But it differs from this, in having longer and narrower leaves; the tube of the flower is larger, and the ſegments do not ſpread ſo much as this; the flowers alſo of the Cape Jaſmine fade to a buff colour before they decay, therefore there is no doubt of its being a different ſpecies from that of Dr. Burman; but it is ſurprizing that this plant ſhould be unknown to the people at the Cape of Good Hope, for there was not one plant of it in their curious garden, nor could the captain ſee any other plant of it but that which he brought away.

The ſtem of this plant is large and woody, ſending out many branches, which are firſt green, but afterward the bark becomes gray and ſmooth; the branches come out by pairs oppoſite, and have ſhort joints; the leaves are alſo ſet oppoſite, cloſe to the branches; they are five inches long, and two inches and a half broad in the middle, leſſening to both ends, terminating in a point; they are of a lucid green, having ſeveral tranſverſe veins from the midrib to the borders; they are entire, and of a thick conſiſtence. The flowers are produced at the end of the branches, ſitting cloſe to the leaves; they have a tubulous empalement, with five corners or angles, cut deep at the brim, into five long narrow ſegments, ending in acute points: the flower hath but one petal, for although it is cut into many deep ſegments at the top, yet theſe are all joined in one tube below; ſome of theſe flowers are much more double than others, having three or four orders of petals; theſe which have ſo many, have only a bifid ſtigma, but thoſe which are leſs double have trifid ſtigmas. All thoſe flowers which I have examined have but one or two ſtamina, which may be occaſioned by the fulneſs of the flowers; as is often obſerved in many kinds of plants, whoſe flowers have a greater number of petals than uſual, many of which want both parts of generation, and ſome of them have no male parts. This flower, when fully blown, is as large as a middling Roſe, and ſome of them are as double as the Damaſk Roſe; they have a very agreeable odour; on the firſt approach it is ſomething like that of the Orange flower, but when more cloſely ſmelt to, has the odour of the common double white Narciſſus. The ſeaſon of this plant flowering in England, is in July and Auguſt, but in its native country it is ſuppoſed to flower great part of the year; for Captain Hutchinſon, who brought the plant over, ſaid there was a ſucceſſion of flowers on it, till the ſhip arrived in a cold climate, which put a ſtop to its growth.

Dr. Linnæus has been induced from what has been printed in the Tranſactions of the Royal Society, to alter the title of this plant to Gardenia; but as the deſcription of the plant with its characters as there printed, was taken from a double flower by ſome haſty people, who ſhould have remembred what Linnæus has written to caution perſons againſt regarding the double flowers of all kinds, in ranging them in their claſſes and genera, which if they had adhered to, they would not have made this miſtake; for I have ſince raiſed ſeveral of the plants from ſeeds, ſome of which have produced flowers which were ſingle, having all the marks of the double, the flowers altering to a buff colour before they faded; and all theſe flowers had each but three ſtamina and a trifid ſtigma; whereas in the characters ſet down by Linnæus, there is no ſtamina, but five linear antheræ, by which it is plain from the increaſe of the number of petals (or rather their ſegments) has occaſioned an alteration in the parts of generation; which is alſo very conſpicuous in the double flowers of Dianthus, where ſome flowers have but two or three ſtamina, when the ſame ſpecies with ſingle flowers have uſually ten. Linnæus alſo ſuppoſes the capſule of the ſeed to have two cells full of ſmall ſeeds; but the perſons who led him into this miſtake, have ſince ſuppoſed the figure given by Dr. Plukenet in his 448th plate, under the title of Um-ky, to be the fruit of this plant; whereas this has three cells filled with angular ſweet-ſcented ſeeds, as the ſpecimens I have of that demonſtrate, by which it is certain they are the fruit of a different plant; for the ſeeds which I ſowed of this Jaſmine, were a berry compoſed of two ſeeds like the other Jaſmines; therefore I have continued it under the ſame genus, with an addition to the title of its having three ſtamina.

This plant is eaſily propagated by cuttings during the ſummer ſeaſon; the cuttings ſhould be planted in pots, and plunged into a moderate hot-bed, covering them cloſe with either bell or hand-glaſſes to exclude the external air, being careful to ſcreen them from ſun in the day time; when they have taken root they ſhould be carefully parted, and put each into a ſeparate ſmall pot, plunging them again into the hot-bed, and ſhading them until they have taken new root, after which they ſhould be gradually inured to the open air.

Though the cuttings of this plant take root freely, and make ſtrong ſhoots a year or two after, yet in three or four years they are very apt to ſtint in their growth, their leaves turning pale and ſickly, and frequently die ſoon after; this has happened every where within my knowledge, although the plants have been kept in various degrees of heat in winter; and in ſummer when they have been differently managed, they have frequently failed. I have alſo been informed by a gentleman who lived ſome years in India, where he had the plants in his garden, they frequently went off in the ſame manner. This has greatly leſſened the value of the plants in England.

JASMINUM ARABICUM. See COFFEE.

JASMINUM ILICIS FOLIO. See LANTANA.

JASMINE, the Arabian. See NYCTANTHES.

JASMINE, the Perſian. See SYRINGA.

JATROPHA. Lin. Gen. Plant. 961. Manihot. Tourn. Inſt. R. H. 958. tab. 438. Caſſada, or Caſſava; in French *Caſſave.*

The CHARACTERS are,

It hath male and female flowers in the ſame plant; the male flowers have a ſcarce viſible empalement; they are ſalver-ſhaped, of one petal, with a ſhort tube, whoſe brim is cut into five roundiſh ſegments which ſpread open; they have ten awl-ſhaped ſtamina, five being alternately ſhorter than the other, and are joined cloſe together, ſtanding erect in the center of the flower, terminated by roundiſh looſe ſummits. The female flowers which are ſituated in the ſame umbel have no empalement, but have five petals ſpread open like a Roſe. In the center is a roundiſh germen with three deep furrows, ſupporting three ſtyles, crowned by ſingle ſtigmas. The germen afterward becomes a roundiſh capſule with three cells, each containing one ſeed.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Monodelphia,

nodelphia, which includes thoſe plants which have male and female flowers on the ſame plant, and the ſtamina are collected in one body.

The Species are,

1. JATROPHA (*Manihot*) foliis palmatis, lobis lanceolatis integerrimis lævibus. Lin. Sp. Plant. 1007. *Jatropha with hand-ſhaped leaves, whoſe lobes are ſpear-ſhaped, entire, and ſmooth.* Manihot Theveti, juca & caſſavi. J. B. 2. 794. *The Manihot of Thevet, and the Juca or Caſſava of John Bauhin.*
2. JATROPHA (*Quinquelobatus*) foliis quinquelobatis, lobis acuminatis, acutè dentatis lævibus, caule fruticoſo. *Jatropha with leaves compoſed of five ſmooth lobes ending in points, which are ſharply indented on their edges, and a ſhrubby ſtalk.* Juſſievia fruteſcens, non ſpinoſa, foliis glabris & minus laciniatis. Houſt. MSS. *Shrubby Juſſievia without ſpines, and ſmooth leaves leſs divided.*
3. JATROPHA (*Urens*) aculeata, foliis quinquelobatis acutè inciſis, caule herbaceo. *Prickly Jatropha, with leaves having five lobes which are ſharply cut on their edges, and an herbaceous ſtalk.* Juſſievia herbacea, ſpinoſiſſima, urens, foliis digitatis & laciniatis. Houſt. MSS. *The moſt prickly ſtinging and herbaceous Juſſievia, with fingered leaves which are jagged.*
4. JATROPHA (*Herbacea*) aculeata, foliis trilobis, caule herbaceo. Lin. Sp. Plant. 1007. *Prickly Jatropha, with leaves having three lobes and an herbaceous ſtalk.* Juſſievia herbacea ſpinoſiſſima, urens, foliis trilobatis minimè inciſis. Houſt. MSS. *Prickly ſtinging herbaceous Juſſievia, with leaves having three lobes, which are very ſlightly indented.*
5. JATROPHA (*Vitifolius*) foliis palmatis dentatis aculeatis. Hort. Cliff. 445. *Jatropha with hand-ſhaped, indented, prickly leaves.* Manihot ſpinoſiſſima, folio vitigineo. Plum. Cat. 20. *The moſt prickly Caſſava with a Vine leaf.*
6. JATROPHA (*Aconitifolius*) foliis lobatis dentatis acuminatis, urentibus, caule arboreo. *Jatropha with lobated leaves which are indented, acute-pointed, and ſtinging, and a tree-like ſtalk.* Juſſievia arborea, minùs ſpinoſa, floribus albis umbellatis, foliis aconiti urentibus. Houſt. MSS. *Tree Juſſievia which is leſs prickly, with white flowers growing in umbels, and ſtinging leaves like thoſe of Wolfsbane.*
7. JATROPHA (*Multifida*) foliis multipartitis lævibus, ſtipulis ſetaceis multifidis. Hort. Cliff. 445. *Jatropha with ſmooth leaves divided into many parts, and briſtly ſtipulæ with many points.* Ricinoides arbor Americana, folio multifido. 656. *Tree American Baſtard Ricinus with a many pointed leaf, commonly called French Phyſic Nut in America.*
8. JATROPHA (*Curcas*) foliis cordatis angulatis. Hort. Cliff. 445. *Jatropha with angular heart-ſhaped leaves.* Ricinoides Americana goſſypii folio. Tourn. Inſt. 656. *American Baſtard Ricinus with a Cotton leaf, commonly called Phyſic Nut in America.*
9. JATROPHA (*Staphyſagrifolia*) foliis quinquepartitis, lobis ovatis integris, ſetis glanduloſis ramoſis. Flor. Leyd. Prod. 202. *Jatropha with leaves divided into five parts, the lobes whereof are oval and entire, and branching briſtles ariſing from the glands.* Ricinoides Americana ſtaphyſagriæ folio. Tourn. Inſt. 656. *American Baſtard Ricinus, with a Staveſacre leaf, commonly called Belly-ach Weed in America.*

The firſt ſort here mentioned, is the common Caſſada or Caſſava, which is cultivated for food in the warm parts of America, where, after the juice is expreſſed out of the root (which has a poiſonous quality) it is ground into a kind of flour, and made up in cakes or puddings, and is eſteemed a wholeſome food.

This riſes with a ſhrubby ſtalk ſix or ſeven feet high, garniſhed with ſmooth leaves, ſtanding upon long foot-ſtalks alternately; they are compoſed of ſeven lobes, which are joined at their baſe in one center, where they are narrow, but increaſe in their breadth till within an inch and a half of the top, where they diminiſh to an acute point; the three middle lobes are about ſix inches long, and two broad in their broadeſt part; the two next are about an inch ſhorter, and the two outſide lobes are not more than three inches long; the middle lobes are ſinuated on each ſide near the top, but the two outer are entire. The flowers are produced in umbels at the top of the ſtalks, thoſe are ſome male and others female in the ſame umbel; they are compoſed of five roundiſh petals which ſpread open; the male flowers have their ten ſtamina joined together in a column, and the female flowers have a roundiſh germen with three furrows in the center, ſupporting three ſtyles; two are ſeparated at a diſtance, and the third ariſes between them, but is not ſo long; they are crowned by ſingle ſtigmas. The germen afterward turns to a roundiſh capſule with three lobes, each having a diſtinct cell, containing one ſeed.

The ſecond ſort was diſcovered by the late Dr. Houſtoun at the Havanna, from whence he ſent the ſeeds. This riſes with an upright ſtalk ten or twelve feet high, which is firſt green and herbaceous, but afterward becomes ligneous, ſending out a few branches at the top, which are garniſhed with ſmooth leaves, compoſed of five oval lobes, which end in acute points; the edges are alſo indented in ſeveral irregular points, which are acute. The flowers are produced in an umbel at the extremity of the ſtalks, they are of an herbaceous white colour, and are male and female in the ſame umbel, as the other ſort; the capſule is ſmooth and has three cells, each including a ſingle ſeed.

The third ſort was diſcovered by the late Dr. Houſtoun, growing naturally in the ſandy grounds about the town of La Vera Cruz, from whence he ſent the ſeeds, which ſucceeded in the Chelſea garden. This hath a very thick fleſhy root, in ſhape like the white Spaniſh Radiſh; the ſtalk riſes from one to two feet high, it is taper, herbaceous, and branching, and cloſely armed on every ſide with long white ſpines, which are not very ſtiff, but are pungent and ſtinging; the leaves are divided into five lobes, the middle being the longeſt; the others are ſhortened, the two next being about an inch ſhorter, but the two outer are not more than half the length of the middle; theſe are deeply jagged on both ſides, and are waved on their edges; all the veins of the leaves are cloſely armed with ſtinging ſpines, ſo that it is dangerous handling them; for all the intermediate parts of the leaves have ſmall ſtinging ſpines like thoſe of the Nettle, but they do not appear ſo viſible. At the end of the branches the flowers are produced in umbels; they are white, and have empalements cloſely armed with the ſame ſpines as the ſtalks and leaves: there are male and female flowers in the ſame umbel; the female flowers are ſucceeded by tricapſular veſſels, containing three ſeeds.

The fourth ſort riſes with an herbaceous ſtalk about a foot high, dividing into two or three branches, which are garniſhed with leaves ſtanding alternate upon long foot-ſtalks; they are compoſed of three oblong lobes which are ſlightly ſinuated on their edges, ending in acute points; the whole plant is cloſely armed with long, briſtly, ſtinging ſpines. The flowers grow in an umbel at the end of the branches; they are ſmall, of a dirty white colour, and are male and female in the ſame umbel: the female flowers are ſucceeded by oval capſules with three lobes, which are covered with the ſame ſpines as the plant; theſe have three cells, each containing a ſingle ſeed. This plant is annual.

The fifth ſort was found growing naturally at Carthagena in New Spain, by the late Mr. Robert Millar, who ſent the ſeeds to England, which ſucceeded in ſeveral curious gardens. This hath a thick, ſwelling, fleſhy root, from which ariſes an herbaceous ſtalk as big as a man's thumb, which is four or five feet high, and divides into ſeveral branches; theſe are very cloſely armed with long brown ſpines; the foot-ſtalks of the leaves are ſix or ſeven inches long, which are alſo armed with ſpines, but not ſo cloſely, nor are the ſpines ſo long as thoſe on the ſtalk and branches; the leaves are deeply cut into five lobes, which are jagged deeply on their ſides, and the nerves are armed with ſtinging ſpines; the flowers are produced in umbels at the top of the branches, ſtanding upon long naked foot-ſtalks; they are of a pure white colour, and are male and female in the ſame umbel: the male flowers appear firſt, which are compoſed of five petals, forming a ſhort tube at bottom, and the ſtamina ariſe the length of the tube, joined in a column: the petals ſpread open flat above, and the ſtamina fills the mouth of the tube, ſhutting it up: the female flowers are ſmaller, but of the ſame ſhape, having no ſtamina, but an oval three-cornered germen, which afterwards becomes a capſule with three lobes, each having a diſtinct cell, with one ſeed incloſed.

The ſixth ſort was diſcovered by the late Dr. Houſtoun at La Vera Cruz, where it is frequently permitted to grow about the town by way of ornament; this riſes with a ſtrong, brittle, ligneous ſtalk, ten or twelve feet high, covered with a gray bark, and divides into many branches, which are garniſhed with leaves, that are divided into parts like thoſe of the common Woolfsbane, but are armed with ſmall ſtinging ſpines like thoſe of the Nettle; at the end of the branches come out the flower-ſtalks, which are five or ſix inches long, ſuſtaining an umbel of white flowers. The male flowers are of one petal, having a pretty long tube, which is divided at the top into five ſegments. The female flowers expand in form of a Roſe, having the germen in the center, which afterward becomes a globular prickly fruit with three lobes, opening in three cells, each containing a ſingle ſeed.

The ſeventh ſort is now very common in moſt of the iſlands in the Weſt-Indies, but was introduced from the continent, firſt into the French iſlands, and from thence it was brought into the Britiſh iſlands, where it is titled French Phyſic Nut, to diſtinguiſh it from the following ſort, which is called Phyſic Nut, from its purging quality.

This riſes with a ſoft thick ſtem eight or ten feet high, dividing into ſeveral branches, covered with a grayiſh bark. The leaves come out on every ſide the branches on ſtrong foot-ſtalks, which are ſeven or eight inches long; they are divided into nine or ten lobes in form of a hand, which are joined at their baſe; theſe are ſeven inches long, and about two inches broad, with many jagged points on their borders ſtanding oppoſite. The upper ſide of the leaves are of a lucid green, but their under ſide gray, and a little cottony. The flowers come out upon long foot-ſtalks from the end of the branches, formed into an umbel, in which there are male and female flowers, as in the other ſpecies; theſe umbels are large, and the flowers being of a bright ſcarlet, they make a fine appearance; and the leaves being very remarkable for their beauty, has occaſioned the plant being cultivated for ornament in moſt of the iſlands of the Weſt-Indies.

The eighth ſort grows naturally in all the iſlands of the Weſt-Indies; this riſes with a ſtrong ſtalk twelve or fourteen feet high, which divides into ſeveral branches; theſe are garniſhed with angular heart-ſhaped leaves, which end in acute points. The flowers come out in umbels at the end of the branches; they are male and female, of an herbaceous colour, ſo make but little appearance; the female flowers are ſucceeded by oblong oval capſules with three cells, each containing one oblong black ſeed.

The ſeeds of the two laſt ſorts have been uſed as a purgative by the inhabitants of the Weſt-Indies, but they operate ſo violently, that now they are ſeldom uſed; three or four of theſe nuts have worked upward and downward near forty times, on a perſon who was ignorant of their effects; but it is affirmed that this purgative quality is contained in a thin film, ſituated in the center of the nut, which, if taken out, the nuts are harmleſs, and may be eaten with ſafety. The leaves of the laſt ſort are uſed in baths and fomentations.

The ninth ſort grows naturally in all the iſlands of the Weſt-Indies, where it is ſometimes called wild Caſſada, or Caſſava, and at others Belly-ach Weed, the leaves of this plant being accounted a good remedy for the dry belly-ach. This plant riſes with a ſoft herbaceous ſtalk to the height of three or four feet, covered with a purple bark, and at the joints have branching briſtly hairs riſing in ſmall bunches, not only upon the principal ſtalk, but alſo on the branches, and the foot-ſtalks of the leaves. The ſtalk divides upward into two or three branches; theſe are garniſhed with leaves ſtanding on very long foot-ſtalks, divided into five lobes which are oval, entire, and end in acute points. The flowers are produced at the end of the branches, upon ſlender naked foot-ſtalks, in ſmall umbels; they are ſmall, of a dark purple colour, having male and female flowers in the ſame umbel; the female flowers are ſucceeded by oblong tricapſular veſſels, ſmooth, and covered with a dark ſkin, when ripe; in each of the cells is lodged one oblong brown ſeed.

All theſe plants are natives of the warm parts of America, ſo are too tender to thrive in the open air in England. The firſt ſort is cultivated in the Weſt-Indies for food, where it is propagated by cutting the ſtalks into lengths of ſeven or eight inches, which, when planted, put out roots; the method of doing this having been mentioned in various books, I ſhall not repeat it here.

The other ſorts are eaſily propagated by ſeeds, which ſhould be ſown on a good hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each tranſplanted into a ſmall pot filled with light earth, and then plunged into a freſh hot-bed of tanners bark, carefully ſhading them till they have taken freſh root; after which they muſt be treated in the ſame manner as other tender plants from hot countries, admitting freſh air to them daily, in proportion to the warmth of the ſeaſon; but as many of the ſorts have ſucculent ſtalks, ſome of which have a milky juice, they ſhould have but little water given them, for they are ſoon deſtroyed by wet.

The fourth ſort is an annual plant, ſo if the ſeeds are ſown early in the ſping, and the plants are brought forward, they will perfect their ſeeds the ſame year; but the other ſorts are perennial, ſo do not flower till the ſecond or third year; therefore the plants ſhould be plunged into the tan-bed in the ſtove, where they ſhould conſtantly remain, giving them a large ſhare of air in warm weather; but in winter they muſt be tenderly treated, and in that ſeaſon muſt have very little water. With this management the plants will continue ſeveral years, and produce their flowers, and frequently perfect their ſeeds in England.

IBERIS. Dillen. Nov. Gen. 6. Lin. Gen. Plant. 721. Thlaſpidium. Tourn. Inſt. R. H. 214. tab. 101. Sciatica Creſs.

The Characters are,

The flower hath an empalement of four oval leaves, which ſpread open, are hollowed and fall away. It hath four unequal petals, which are oval, obtuſe, and ſpread open, having oblong erect tails; the two outer petals are longer than the other. It hath ſix awl-ſhaped erect ſtamina, the two on the ſides being ſhorter than the reſt, terminated by roundiſh ſummits. In the center of the tube is ſituated a round compreſſed germen, ſupporting a ſhort ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a roundiſh compreſſed veſſel, having two cells, each containing one oval ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliculoſa, which includes thoſe plants whoſe flowers have four long and two ſhort ſtamina, and the ſeeds grow in ſhort pods.

The Species are,

1. Iberis (*Semperflorens*) fruteſcens, foliis cuneiformibus obtuſis integerrimis. Lin. Hort. Cliff. 330. *Shrubby Sciatica Creſs with entire, wedge-ſhaped, blunt leaves, commonly called the Tree Candy Tuft.* Thlaſpidium fruticoſum, leucoii folio, ſemperflorens. Tourn. Inſt. 214. *Shrubby Thlaſpidium with a Gilliflower leaf, always flowering.*

2. Iberis (*Sempervirens*) fruteſcens foliis linearibus acutis integerrimis. Lin. Hort. Cliff. 330. *Shrubby Sciatica Creſs with narrow-pointed whole leaves, commonly called Perennial Candy Tuft.* Thlaſpi montanum, ſempervirens. C. B. P. 106. *Evergreen Mountain Candy Tuft.*

3. Iberis (*Umbellata*) herbacea foliis lanceolatis acuminatis, inferioribus ſerratis, ſuperioribus integerrimis. Lin. Hort. Cliff. 330. *Herbaceous Sciatica Creſs with ſpear-ſhaped pointed leaves, the under ones being ſawed, but the upper entire, commonly called Candy Tuft.* Thlaſpi Creticum quibuſdam, flore rubente & albo. J. B. 2. 924. *True Cretan Treacle Muſtard with a red and white flower.*

4. Iberis (*Odorata*) foliis linearibus ſupernè dilatatis ſerratis. Flor. Leyd. 330. *Sciatica Creſs with narrow leaves dilated at their top, and ſawed.* Thlaſpi umbellatum Creticum, flore albo odoro, minus. C. B. P. 106. *Small umbellated Treacle Muſtard of Crete with a white ſweet flower.*

5. Iberis (*Nudicaulis*) herbacea foliis ſinuatis, caule nudo ſimplici. Lin. Hort. Cliff. 328. *Sciatica Creſs with ſinuated leaves, and a ſingle naked ſtalk.* Naſturtium petræum. Tab. Ic. 451. *Rock Creſs.*

6. Iberis (*Amara*) herbacea foliis lanceolatis acutis ſubdentatis, floribus racemoſis. Lin. Hort. Upſal. 184. *Sciatica Creſs with acute, ſpear-ſhaped, indented leaves, and flowers growing in bunches.* Thlaſpi avenſe umbellatum amarum. J. B. 2. 925. *Bitter, umbellated, Field Treacle Muſtard.*

7. Iberis (*Rotundifolia*) foliis ſubrotundis crenatis. Royen. Lin. Sp. Plant. 49. *Iberis with roundiſh crenated leaves.* Thlaſpi Alpinum, folio rotundiore carnoſo, flore purpuraſcente. Tourn. Inſt. 112. *Alpine Treacle Muſtard with a rounder fleſhy leaf, and a purpliſh flower.*

8. Iberis (*Linifolia*) fruteſcens, foliis linearibus acutis, corymbis hemiſphæricis. *Shrubby Sciatica Creſs with narrow acute leaves, and hemiſpherical bunches of flowers.* Thlaſpi Luſitanicum umbellatum, gramineo folio, purpuraſcente flore. Tourn. Inſt. R. H. 213. *Portugal, umbellated, Treacle Muſtard, with a Graſs leaf and a purpliſh flower.*

The firſt ſort here mentioned is a low ſhrubby plant, which ſeldom riſes above a foot and a half high, having many ſlender branches, which ſpread on every ſide, and fall toward the ground if they are not ſupported. Theſe branches are well furniſhed with leaves toward their extremity, which continue green all the year; and in ſummer the flowers are produced at the end of the ſhoots, which are white, and grow in an umbel. Theſe flowers continue long in beauty, and are ſucceeded by others, ſo that the plants are rarely deſtitute of flowers for near eight months, from the end of Auguſt to the beginning of June, which renders the plant valuable.

This plant is ſomewhat tender, therefore is generally preſerved in green-houſes in winter, where, being placed among other low plants toward the front of the houſe, it makes an agreeable variety, as it continues flowering all the winter. But although it is commonly ſo treated, yet in moderate winters this plant will live in the open air, if it be planted in a warm ſituation and on a dry ſoil; and if, in very hard froſt, they are covered either with mats, Reeds, Straw, or Peas-haulm, they may be preſerved very well; and theſe plants which grow in the full ground, will thrive better, and produce a greater number of flowers, than thoſe which are kept in pots; but the ſoil in which theſe are planted, ſhould not be over rich, nor too wet, for in either of theſe they will grow too vigorous in ſummer, ſo will be in greater danger of ſuffering by the froſt in winter; but when they grow on a gravelly ſoil, or among lime rubbiſh, their ſhoots will be ſhort, ſtrong, and not ſo replete with moiſture, ſo will better reſiſt the cold.

This plant very rarely produces ſeeds in England, therefore is only propagated by cuttings, which, if planted during any of the ſummer months, and ſhaded from the ſun, and duly watered, will be rooted in two months, and may afterward be either planted in pots, or into the borders where they are deſigned to ſtand.

There is a variety of this with variegated leaves, which is preſerved in ſome of the gardens where perſons delight in theſe ſtriped-leaved plants. This is not ſo hardy as the plain ſort, therefore muſt be treated more tenderly in winter; this is alſo increaſed by cuttings in the ſame manner as the other.

The ſecond ſort is a plant of humbler growth than the firſt; this ſeldom riſes more than ſix or eight inches high, nor do the branches grow woody, but are rather herbaceous; the leaves of this plant continue green through the year, and the flowers are of as long duration as thoſe of the firſt ſort, which renders it valuable. This rarely produces ſeeds in England, but is propagated by ſlips, which in ſummer eaſily take root, and the plants may be treated in the ſame manner as hath been directed for the firſt ſort, and will thrive in the open air.

The third ſort is a low annual plant, the ſeeds of which were formerly ſown to make edgings for borders in the pleaſure-garden, for which purpoſe all the low annual flowers are very improper, becauſe they do not anſwer the intent, which is to prevent the earth of the borders falling into the walks, which theſe plants never can do; and though they make a pretty appearance during their continuance in flower, which is ſeldom more than a fortnight or three weeks, yet after their flowers are paſt they become very unſightly; therefore all theſe ſorts of flowers ſhould be ſown in ſmall patches in the borders of the flower-garden, where, if they are properly mixed with other flowers, they will have a very good effect; and by ſowing of them at three or four different ſeaſons, there may be a ſucceſſion of them continued in flower till autumn.

There are two different varieties of this third ſort, one with red, and the other hath white flowers; but the white is not common in the gardens, but the ſeeds of the ſixth ſort are generally ſold for it, and is ſeldom diſtinguiſhed but by thoſe who are ſkilled in botany: this plant ſeldom riſes more than five or ſix inches high, and if they have room will branch out on every ſide, but when they are left too cloſe, they draw each other up, and are weak: as theſe do not bear tranſplanting well, ſo the ſeeds ſhould be ſown thin in patches, and when the plants are grown pretty ſtrong, they ſhould be thinned, leaving but ſix or eight in each patch to flower; and by thus treating them, they will put out ſide branches, and flower much ſtronger, and continue longer in beauty than when they are left cloſer together; theſe plants will require no other culture but to keep them clean from weeds.

The fourth ſort ſeldom grows ſo large as the third, and the flowers are much ſmaller, but have an agreeable odour. It grows naturally in Helvetia, and is preſerved in botanic gardens for variety. It is annual, and requires the ſame treatment as the third.

The fifth ſort grows on ſandy and rocky places in ſeveral parts of England, ſo is rarely admitted into gardens. The leaves of this are ſmall, and cut to the midrib into many jags; theſe are ſpread on the ground, and between them ariſe a naked foot-ſtalk two or three inches long, ſuſtaining ſmall umbels of white flowers. This is an annual plant, whoſe ſeeds ſhould be ſown in autumn where the plants are deſigned to remain, and require no other care but to keep them clean from weeds.

The ſixth ſort is very like the third, but differs in the ſhape of the leaves. The flowers of this are white, ſo may be ſown to make a variety with the red. It requires the ſame treatment.

The ſeventh ſort grows naturally on the Alps, from whence it was ſent me; this is a perennial plant, which roots pretty deep in the ground. The lower leaves which riſe from the root, are round, fleſhy, and crenated on their edges. The ſtalk riſes four or five inches high, and is garniſhed with ſmall oblong leaves which half embrace the ſtalks with their baſe. The flowers terminate the ſtalk in a round compact

pact umbel; they are of a purple colour, and appear in June, but are ſeldom ſucceeded by ſeeds in England.

It is propagated by ſeeds, which ſhould be ſown on a ſhady border in autumn, and when the plants are ſtrong enough to remove, they ſhould be tranſplanted on a ſhady border where they are deſigned to remain, and will require no other care but to keep them clean from weeds.

The eighth ſort grows naturally in Spain and Portugal; this hath a great reſemblance of the ſecond, but the ſtalks do not ſpread ſo much; they grow erect, about ſeven or eight inches high, are ligneous and perennial. The leaves are very narrow, and ſeldom more than an inch long, ſtanding thinly upon the ſtalks, having no foot-ſtalks. The flowers grow in hemiſpherical umbels on the top of the ſtalks, and are of a purple colour. It flowers in May and June, but ſeldom produces good ſeeds here.

This ſort may be propagated by cuttings, which ſhould be treated in the ſame way as is before directed for the firſt ſort; and ſome of the plants may be planted on a warm border in a dry ſoil, where they will endure the cold of our ordinary winters very well; but it will be proper to have two or three plants in pots, which may be ſheltered under a frame in winter, to preſerve the kind, if, by ſevere froſt, thoſe in the open air ſhould be deſtroyed.

IBISCUS. See HIBISCUS.

ICACO. See CHYRSOBALANUS.

ICE is a hard tranſparent body, formed from ſome liquor congealed, or fixed.

Ice is ſaid to be the natural ſtate of water, which remains firm, and not liquid, when no external cauſe acts upon it.

The true cauſe of the congelation of water into Ice, ſeems to be the introduction of frigorific particles into the pores or interſtices between the particles of water, and by that means getting ſo near them, as to be juſt within the ſpheres of one another's attractions, and then they muſt cohere into one ſolid or firm body.

It may be wondered why Ice goes to the top of the water, for one would imagine, that being colder than flowing water, it ought to be more condenſed, and conſequently heavier; but is to be conſidered, that there are always ſome bubbles of air interſperſed in Ice. It is certain, by the ſwimming of Ice upon water, that it is ſpecifically lighter than the water out of which it is made by freezing; and it is as certain, that this lightneſs of Ice proceeds from thoſe numerous bubbles that are produced in it by congelation.

Water, when it is frozen into Ice, takes up more ſpace than it did before it was congealed. It is viſible, that the dimenſions of water are increaſed by freezing, its particles being kept at ſome diſtance the one from the other, by the intervention of the frigorific matter.

And, beſides, there are many little volumes of air included at ſeveral diſtances, both in the pores of the watery particles, and in the interſtices made by the ſpherical figures. Now, by the inſinuation of theſe chryſtals, the volumes of air are driven out of the watery particles, and many of them uniting, form larger volumes; theſe have thereby a greater force to expand themſelves than when they are diſperſed, and ſo both enlarge their dimenſions, and leſſen the ſpecific gravity of water thus congealed into Ice.

It ſeems very probable, that cold, and freezing, and conſequently Ice, are produced by ſome ſubſtance of a ſaline nature floating in the air; in that ſalts, and more eminently ſome particular ones, when mixed with Ice or ſnow, do wonderfully increaſe the force and effects of cold.

It is alſo viſible, that all ſaline bodies cauſe a ſtiffneſs and frigidity in thoſe bodies into which they enter.

It is manifeſt, by obſerving ſalts by microſcopes, that the figures of ſome ſalts, before they ſhoot into maſſes, are then double wedge-like particles, which have abundance of ſurface in reſpect to their ſolidity; and this is the reaſon why they ſwim in water, when once they are raiſed in it, although they are ſpecifically heavier, theſe ſmall points of ſalts getting into the pores of the water, whereby they are, in ſome meaſure, ſuſpended in the winter, when the heat of the ſun is not ordinarily ſtrong enough to diſſolve the ſalts into fluid, to break their points, and to keep them in perpetual motion; which being leſs diſturbed, are more at liberty to approach one another, and by ſhooting into chryſtals, of the form above-mentioned, do, by their extremities, inſinuate themſelves into the pores of water, and by that means freeze it into a ſolid form, called Ice.

Monſ. Mariotte, in his Treatiſe of Hydroſtatics, gives the ſubſequent account of what happens to water in freezing, which he diſcovered by the following experiment.

Having filled a cylindric veſſel, of about ſeven or eight inches high, and ſix inches diameter, within two inches of the top, with cold water, he expoſed it to the open air in a great froſt, and obſerved exactly the whole progreſs of the freezing of it.

The firſt congelation was in the upper ſurface of the water, in little long water ſhoots, or laminæ, which were jagged like a ſaw, the water between them remaining ſtill unfrozen, though the reſt of the ſurface was already frozen to the thickneſs of more than two lines; he obſerved that ſeveral bubbles of air were formed in the Ice, that began to fix on the bottom and ſides of the veſſel, ſome would riſe up, and others remained entangled in the Ice, which made him imagine that theſe bubbles taking up more ſpace in the water, than when their matter was, as it were, diſſolved in it, they puſhed up a little water through the hole at the top, after the ſame manner that new wine works out at the bung-hole of a veſſel when it begins to heat, and the little water that ouzed out at this little hole in the Ice, ſpreading itſelf upon the upper ſurface of the water, which was already frozen, became Ice alſo, and there began to form a hill of Ice; and that hole continuing open, by reaſon of the water which paſſed ſucceſſively through it, being puſhed up by the new bubbles which formed themſelves in the Ice, which continue to increaſe about the ſides and bottom of the veſſel, he obſerved that the upper ſurface of the water was frozen above an inch thick towards the edges of the veſſel, and above an inch and a half round about the little hole, before the water that was contained in it, as in a pipe, became frozen, but at laſt it was frozen; then the middle of the water remaining unfrozen, and the water which was compreſſed by the new bubbles, which formed themſelves for two or three hours, having no vent at the little hole, the Ice broke at once towards the top, by the ſpring of the included air.

In like manner the froſt acts upon vegetables, by theſe frigorific particles entering the tender ſhoots of plants, and inſinuating between the pores of the ſap, thereby increaſing its bulk, ſo that the tender veſſels of the plants are torn, and thoſe parts of the plants are ſoon killed; and the greater the quantity of moiſture is in vegetables, the more they are in danger of being deſtroyed, for we frequently ſee many plants which grow on the top, and from the joints of walls, eſcape the ſevereſt froſts, when thoſe of the ſame kinds are all deſtroyed which were in the ground; which is entirely owing to their veſſels being ſtronger and more compact, and not ſo replete with moiſture: ſo when the autumn proves cold and moiſt, whereby the veſſels of plants are not properly hardened, and are replete with moiſture, a ſmall froſt will do great miſchief to them; whereas when the autumn is dry and warm, the tender ſhoots of trees and ſhrubs are hardened, and drained of their moiſture, ſo are not liable to the like accidents.

ICE-HOUSE is a building contrived to preſerve ice for the uſe of a family in the ſummer ſeaſon.

Theſe are more generally uſed in warm countries, than in England, but particularly in Italy, where the meaneſt perſon who rents a houſe, is not without a a vault or cellar for keeping of ice; but as the uſe of ice in England is much greater of late than it was formerly, ſo the number of Ice-houſes has been greatly increaſed; and although the mention of theſe may, at firſt ſight, ſeem foreign to my ſubject, yet if it is conſidered, that theſe buildings are generally erected in gardens, and as often put under the care of gardeners, it may not be amiſs for me to give ſome general directions for the choice of the ſituation and ſtructure of the building, as alſo for the management of the ice.

In the choice of a ſituation for an Ice-houſe, the principal regard ſhould be, that of a dry ſpot of ground, for wherever there is moiſture, the ice will melt; therefore in all ſtrong lands, which detain the wet, there cannot be too much care taken to make drains all round the building to carry off all moiſture; for when this is lodged near the building, it will occaſion a damp there, which will always be prejudicial to the keeping of the ice.

The next conſideration muſt be, to have the place ſo elevated, that there may be deſcent enough to carry off whatever wet may happen near the building, or from the ice melting; alſo, that the place be as much expoſed to the ſun and air as poſſible, and not placed under the drip, or in the ſhade of trees, as hath been too often practiſed, under a falſe notion, that if it ſhould be expoſed to the ſun, the ice will melt away in ſummer, which never can be the caſe where there is ſufficient care taken to exclude the outward air (which muſt always be regarded in the building of theſe houſes) for the heat of the ſun can never penetrate through the double arches of the building, ſo as to add any warmth to the air; but when the building is entirely open to the ſun and wind, all damps and vapours will thereby be removed from about the building, which can never be kept too dry, or free from moiſt vapours. As to the figure of the building, that may be according to the fancy of the owner; but for the well into which the ice is to be put, a circular figure is the moſt convenient; the depth of the well, as alſo the diameter of it, muſt be proportioned to the quantity of ice wanted, but it is always beſt to have enough; for when the houſe is well built, it will keep the ice for two or three years; and there will be this advantage in having it large enough to contain ice for two years conſumption, that if a mild winter ſhould happen, when there is not ice to be had, there will be a ſtock to ſupply the want.

If the quantity wanting is not great, a well of ſix feet diameter, and eight feet deep, will be large enough; but for large conſumption, it ſhould not be leſs than nine or ten feet diameter, and as many deep: where the ſituation is either dry chalk, gravel, or ſand, the pit may be entirely below the ſurface of the ground; but in ſtrong loam, clay, or moiſt ground, it will be the beſt way to raiſe it ſo high above the ſurface, as that there may be no danger from the wet.

At the bottom of the well there ſhould be a ſpace left, about two feet deep, to receive any moiſture which may drain from the ice, and a ſmall underground drain ſhould be laid from this, to carry off the wet; over this ſpace of two feet, ſhould be placed a ſtrong grate of wood, to let the moiſture fall down, which may at any time happen, from melting of the ice. The ſides of this well muſt be bricked up with a wall, at leaſt two bricks and a half thick; but if it is yet thicker, it will be better, becauſe the thicker the walls are made, the leſs danger there will be of the well being affected by any external cauſe. When the well is brought within three feet of the ſurface, there muſt be another outer arch or wall begun, which muſt be carried up to the height of the top of the intended arch of the well; and if there is a ſecond arch turned over from this well, it will add to the goodneſs of the houſe; but this muſt be ſubmitted to the perſon who builds, if he will be at the expence; but if not, then the plate into which the roof is to be framed, muſt be laid on this outer wall, which ſhould be carried high enough above the inner arch, to admit of a door-way in, to get out the ice. If the building is to be covered with ſlates or tiles, there ſhould be a thickneſs of Reeds laid under, to keep out the ſun and external air; if theſe Reeds are laid two feet thick, and plaſtered over with lime and hair, there will be no danger of the heat getting through it.

The external wall need not be built circular, but of any other figure, either ſquare, hexangular, or octangular; and where this ſtands much in ſight may be ſo contrived as to make it a good object. I have ſeen an Ice-houſe built in ſuch a manner as to have a handſome alcove ſeat in the front, and behind this ſeat was contrived a paſſage to get out and put in the ice; and by having the entrance behind, to the north aſpect, a ſmall paſſage being next the ſeat, through which a perſon might enter to take out the ice, and a large door being contrived with a porch, wide enough for a ſmall cart to back in, to ſhoot down the ice upon the floor near the mouth of the well, where it may be well broken, before it is put down. The aperture of this mouth of the well need not be more than two feet and a half diameter, which will be large enough to put down the ice, and if it was greater, it would be inconvenient; there ſhould be a ſtone fitted to ſtop this aperture, which muſt be cloſed up as ſecure as poſſible, after the ice is put in, and all the vacant ſpace above and between this and the outer door, muſt be filled cloſe with Barley Straw, to exclude the air; ſo the door to enter for taking out the ice ſhould be on the oppoſite ſide, immediately behind the alcove ſeat, as was before-mentioned; and this door ſhould be no larger than is abſolutely neceſſary for the coming at the ice, and muſt be ſtrong and cloſe to exclude the air; and at five or ſix feet diſtance from this another door ſhould be contrived, which ſhould be cloſely ſhut before the inner door is opened, whenever the ice is taken out.

The building being finiſhed, ſhould have time to dry before the ice is put into it; for when the walls are green, the damp of them frequently melts the ice. At the bottom of the well, upon the wooden grate, ſhould be laid ſome ſmall faggots; and if upon theſe a layer of Reeds is placed ſmooth for the ice to lie upon, it will be better than Straw, which is commonly uſed; and in the choice of the ice, the thinner it is, the better it may be broken to powder; for the ſmaller it is broken, the better it will unite when put into the well: in putting of it in, there muſt be care taken to ram it cloſe, as alſo to allow a vacancy all round next the wall, of about two inches; this is to give paſſage to any moiſture, which may be occaſioned by the melting of ſome of the ice on the top, which, if pent up, will melt the ice downward; when the ice is put into the well, if there is a little ſalt-petre mixed at every ten inches or a foot thickneſs, it will cauſe the ice to join more cloſely into a ſolid maſs. The inſtructions here given, being carefully obſerved, will be ſufficient to guide perſons wholly ignorant in theſe matters.

JET D'EAU is a French word, which ſignifies a fountain that caſts up water to any conſiderable height in the air.

Monſ. Mariotte, in his Treatiſe of Hydroſtatics, ſays, That a Jet d'Eau will never riſe ſo high as its reſervatory, but always falls ſhort of it by a ſpace which is in a ſubduplicate ratio of that height; and this he proves by ſeveral experiments; that though Jets ought to riſe to the height of the reſervatories, yet the friction of the ſides of the ajutages, and the reſiſtance of the air, are the cauſes that in Jets that have very high reſervatories, the height of the Jets does not come up to that of the reſervatory by a great deal.

He adds, That if a greater branches out in many ſmaller ones, or is diſtributed through ſeveral Jets, the ſquare of the diameter of the main pipe muſt be proportioned to the ſum of all the expences of its branches; that if the reſervatory be fifty-two high, and the ajutages half an inch in diameter, the pipe ought to be three inches in diameter.

He ſays, That the beauty of Jets of water conſiſts in their uniformity and tranſparency at the going out of the ajutage, and ſpreading but very little, and that to the higheſt part of the Jet.

That the worſt ſort of ajutages are thoſe that are cylindrical, for they retard very much the height of the Jets, the conic retard it leſs; but the beſt way is, to bore the horizontal plane, which ſhuts the extremity of the pipe, or conduit, with a ſmooth and poliſhed hole, taking care that the plate be perfectly plain, poliſhed, and uniform.

Theſe ſpouts of water are ſome of the greateſt beauties of the Italian gardens, and are certainly better adapted for gardens in thoſe warm countries, than they are for our climate, becauſe, in the great heats of ſummer, the ſight of theſe water-ſpouts is cooling and refreſhing to the imagination, and they certainly add a real coolneſs to the air; but in cold countries they cool the air too much, therefore ſhould not be erected; or if they are, they ſhould be placed at ſuch diſtances from the habitation, as that the damp may no ways affect it.

Where theſe Jets are contrived, if there is not a conſtant ſupply for a large column of water, they ſhould by no means be made, for nothing can have a meaner appearance, than thoſe pitiful piſſing ſpouts, ſo frequently to be ſeen in England, which perhaps have not a ſupply of water to play above an hour or two; therefore where there is not a natural body of water, to ſupply theſe Jets, without the expence of raiſing it, there ſhould never be any of theſe contrived in gardens.

ILEX. Lin. Gen. Plant. 158. Aquifolium. Tourn. Inſt. R. H. 600. tab. 371. The Holly-tree; in French, *Houx*.

The CHARACTERS are,

They have male, female, and hermaphrodite flowers on different plants. The male flowers have a ſmall permanent empalement of one leaf, which is indented in four parts; they have but one petal, which is cut into four ſegments almoſt to the bottom; they have four awl-ſhaped ſtamina, which are ſhorter than the petal, and are terminated by ſmall ſummits. The female flowers have their empalements and petals the ſame as the male, but have no ſtamina; in their center is placed the roundiſh germen, having four obtuſe ſtigmas ſitting on it. The germen afterward becomes a roundiſh berry with four cells, each containing a ſingle hard ſeed.

This genus of plants is ranged in the third ſection of Linnæus's fourth claſs, intitled Tetrandria Tetragynia, which includes thoſe plants whoſe flowers have four ſtamina and four ſtyles; but according to his own ſyſtem, it ſhould be placed in the third ſection of his twenty-ſecond claſs, with thoſe plants which have male and hermaphrodite flowers on different plants.

The SPECIES are,

1. ILEX (*Aquifolium*) foliis oblongo-ovatis, undulatis, ſpinis acutis. *Holly-tree with oblong leaves which are waved, and have acute ſpines.* Ilex aculeata baccifera. C. B. P. 425. *Prickly berry-bearing Ilex*; and the Aquifolium ſive agrifolium vulgò. J. B. 1. 114. *The common Holly.*
2. ILEX (*Echinata*) foliis ovatis, undulatis, marginibus aculeatis, paginis ſupernè ſpinoſis. *Holly with oval waved leaves, whoſe borders are armed with ſtrong thorns, and their upper ſurface prickly.* Aquifolium echinatâ folii ſuperfice. Cornut. Canad. 180. *Holly-tree whoſe upper ſurface of the leaves are prickly, commonly called Hedge-hog Holly.*
3. ILEX (*Caroliniana*) foliis ovato-lanceolatis ſerratis. Hort. Cliff. 40. *Holly with oval, ſpear-ſhaped, ſawed leaves.* Aquifolium Carolinienſe, foliis dentatis, baccis rubris. Cateſb. Carol. 1. p. 31. *Carolina Holly with indented leaves and red berries, commonly called Daboon Holly.*

There are ſeveral varieties of the common Holly with variegated leaves, which are propagated by the nurſery gardeners for ſale, and ſome years paſt were in very great eſteem, but at preſent are but little regarded, the old taſte of filling gardens with ſhorn Evergreens being pretty well aboliſhed; however, in the diſpoſition of the clumps or other plantations of Evergreen trees and ſhrubs, a few of the moſt lively colours may be admitted, which will have a good effect in the winter ſeaſon, if they are properly diſpoſed.

As the different variegations of the leaves of Hollies, are by the nurſery gardeners diſtinguiſhed by different titles, ſo I ſhall here mention the moſt beautiful of them, by the names they are generally known:

Painted Lady Holly, Britiſh Holly, Bradley's beſt Holly, Phyllis, or Cream Holly, Milkmaid Holly, Pritchet's beſt Holly, Gold-edged Hedge-hog Holly, Cheyney's Holly, Glory of the Weſt Holly, Broaderick's Holly, Partridge's Holly, Herefordſhire white Holly, Blind's Cream Holly, Longſtaff's Holly, Eales's Holly, Silver-edged Hedge-hog Holly.

All theſe varieties are propagated by budding or grafting them upon ſtocks of the common green Holly: there is alſo a variety of the common Holly with ſmooth leaves, but this is frequently found intermixed with the prickly-leaved on the ſame tree, and often on the ſame branch, there are both ſorts of leaves.

The common Holly grows naturally in woods and foreſts in many parts of England, where it riſes from twenty to thirty feet high, and ſometimes more, but their ordinary height is not above twenty-five feet. The ſtem by age becomes large, and is covered with a grayiſh ſmooth bark; and thoſe trees which are not lopped or browzed by cattle, are commonly furniſhed with branches the greateſt part of their length, ſo form a ſort of cone; the branches are garniſhed with oblong oval leaves about three inches long, and one and a half broad, of a lucid green on their upper ſurface, but are pale on their under, having a ſtrong midrib: the edges are indented and waved, with ſharp thorns terminating each of the points, ſo that ſome of the thorns are raiſed upward and others are bent downward, and being very ſtiff, renders them troubleſome to handle. The leaves are placed alternate on every ſide of the branches, and from the baſe of their footſtalks come out the flowers in cluſters, ſtanding on very ſhort foot-ſtalks; each of theſe ſuſtain five, ſix, or more flowers. In ſome plants I have obſerved the flowers were wholly male, and produced no berries; in others I have obſerved female and hermaphrodite flowers, but upon ſome large old trees growing on Windſor foreſt, I have obſerved all three upon the ſame trees. The flowers are of a dirty white, and appear in May; they are ſucceeded by roundiſh berries, which turn to a beautiful red about Michaelmas, but continue on the trees if they are not deſtroyed, till after Chriſtmas before they fall away.

The ſecond ſort grows naturally in Canada, from whence it was brought to Europe. The leaves of this ſort are not ſo long as thoſe of the common Holly, and their edges are armed with ſtronger thorns ſtanding cloſer together; the upper ſurface of the leaves is ſet very cloſe with ſhort prickles, from whence the gardeners have given it the title of Hedge-hog Holly. This ſort is uſually propagated in the nurſeries, by budding or grafting it upon the common Holly; but I have raiſed it from the berries, and found the plants to be the ſame as thoſe from whence the ſeeds were taken, ſo make no doubt of its being a diſtinct ſpecies.

There are two varieties of this with variegated leaves, one of which is yellow, and the other white. There is alſo a variety of the common Holly with yellow berries, which is alſo accidental, and is generally found on thoſe plants which have variegated leaves, and but ſeldom on plain Hollies.

The common Holly is a very beautiful tree in winter, therefore deſerves a place in all plantations of

Evergreen trees and ſhrubs, where its ſhining leaves and red berries make a fine variety; and if a few of the beſt variegated kinds are properly intermixed, they will enliven the ſcene. The Holly was alſo formerly planted for hedges, and is a very proper plant for that purpoſe; but then it ſhould not be clipped with ſhears, becauſe when the leaves are cut through the middle, they are rendered unſightly, ſo they ſhould be cut with a knife cloſe to the leaf; and although in this method they are not ſhorn ſo even as with ſhears, yet they will have a much better appearance, and may be made as cloſe and ſecure as by any other method generally practiſed.

The Holly is propagated by ſeeds, which never come up the firſt year, but lie in the ground as the Haws do; therefore the berries ſhould be buried in the ground in a large pot or tub one year, and then taken up and ſown in the autumn upon a bed expoſed only to the morning ſun; the following ſpring the plants will appear, which muſt be kept clean from weeds; and if the ſpring ſhould prove dry, it will be of great ſervice to the plants if they are watered once a week; but they muſt not have it oftener, nor in too great quantity, for too much moiſture is very injurious to theſe plants when young.

In this ſeed-bed the plants may remain two years, and then ſhould be tranſplanted in the autumn, into beds at about ſix inches diſtance each way, where they may ſtand two years longer, during which time they muſt be conſtantly kept clean from weeds; and if the plants have thriven well, they will be ſtrong enough to tranſplant where they are deſigned to remain; for when they are tranſplanted at that age, there will be leſs danger of their failing, and they will grow to a larger ſize than thoſe which are removed when they are much larger; but if the ground is not ready to receive them at that time, they ſhould be tranſplanted into a nurſery in rows at two feet diſtance, and one foot aſunder in the rows, in which place the plants may remain two years longer; and if they are deſigned to be grafted or budded with any of the variegated kinds, that ſhould be performed after the plants have grown one year in this nurſery; but the plants ſo budded or grafted ſhould continue two years after in the nurſery, that they may make good ſhoots before they are removed; though the plain ones ſhould not ſtand longer than two years in the nurſery, becauſe when they are older, they do not tranſplant ſo well. The beſt time for removing of Hollies is in the autumn, eſpecially in dry land; but where the ſoil is cold or moiſt, they may be tranſplanted with great ſafety in the ſpring; if the plants are not too old, or if they have not ſtood long unremoved, there is great odds of their dying when removed.

The Dahoon Holly grows naturally in Carolina, from whence the ſeeds were ſent by the late Mr. Mark Cateſby, who found the trees growing on a ſwamp at a diſtance from Charles-town, but it hath ſince been diſcovered in ſome other countries in North America. This riſes with an upright branching ſtem to the height of eighteen or twenty feet; the bark of the old ſtems is of a brown colour, but that of the branches or younger ſtalks is green and ſmooth, garniſhed with ſpear-ſhaped leaves, which are more than four inches long, and one and a quarter broad in the broadeſt part, of a light green and thick conſiſtence; the upper part of the leaves are ſawed on their edges, each ſerrature ending in a ſmall ſharp ſpine; they ſtand alternately on every ſide the branches, upon very ſhort foot-ſtalks. The flowers come out in thick cluſters from the ſide of the ſtalks; they are white, and ſhaped like thoſe of the common Holly, but are ſmaller; the female and hermaphrodite flowers are ſucceeded by ſmall roundiſh berries in its native country, which make a fine appearance in winter, but they have not as yet produced fruit in England, ſo far as I can learn.

Dr. Linnæus ſuppoſes this plant and the evergreen Caſſine to be the ſame, but they are undoubtedly diſtinct plants: he may probably have been led into this miſtake, by receiving ſeeds of this ſort mixed together with the berries of Caſſine from America, which I have more than once done; but whoever ſees the two plants growing, cannot doubt of their being different.

This ſort is tender while young, ſo requires protection in the winter till the plants are grown ſtrong and woody, when they may be planted in the full ground in a warm ſituation, where they will endure the cold of our ordinary winters pretty well; but in ſevere froſt they ſhould be protected, otherwiſe the cold will deſtroy them.

This ſort is propagated from ſeeds, in like manner as the common ſort; the ſeeds of it will lie as long in the ground, ſo the berries ſhould be buried in the ground a year, and then taken up and ſown in pots filled with light earth, and placed under a frame in winter; in the ſpring the pots ſhould be plunged into a hot-bed, which will bring up the plants; theſe muſt be preſerved in the pots while young, and ſheltered in winter under a common frame till they have obtained ſtrength, when in the ſpring they may be turned out of the pots and planted in the full ground, in a warm ſituation.

From the bark of the common Holly is made the bird-lime, and the wood is made into hones for ſetting of razors. The wood is very white, and takes a fine poliſh, ſo is very proper for ſeveral kinds of furniture. I have ſeen a floor of a room laid in compartments with Holly and Mahogany, which had a very pretty effect.

ILLECEBRUM. Lin. Gen. 291. Corrigiola. Dill. Gen. p. 169. Paronychia. Tourn. Inſt. 281.

The CHARACTERS are,

It hath a five-cornered coloured empalement of five leaves, which is permanent, but has no petals; it hath five ſlender ſtamina within the empalement, terminated by ſimple ſummits, and an oval germen with a ſhort ſtyle, crowned by an obtuſe ſtigma. The empalement afterward becomes a roundiſh capſule with five angles, having one cell, containing one large ſeed, which is pointed on every ſide.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flowers having five ſtamina and one ſtyle.

The SPECIES are,

1. ILLECEBRUM (*Suffruticoſum*) floribus lateralibus ſolitariis, caulibus ſuffruticoſus. Lin. Sp. 298. *Illecebrum with an under-ſhrub ſtalk, having ſingle flowers on the ſides.* Paronychia Hiſpanica fruticoſa, myrti folio. Tourn. Inſt. 508.
2. ILLECEBRUM (*Paronychia*) floribus bracteis nitidis obvalatis, caulibus procumbentibus. Lin. Sp. 299. *Illecebrum with neat bractea incloſing the flowers, and trailing ſtalks.* Paronychia Hiſpanica. Cluſ. Hiſt. 2. p. 183.
3. ILLECEBRUM (*Capitatum*) floribus bracteis nitidis occultantibus capitula terminalia, caulibus erectis, foliis ciliatis. Lin. Sp. 299. *Illecebrum with neat bractea terminating the erect ſtalks, and ſilvery leaves.* Paronychia Narbonenſis erecta. Tourn. Inſt. 508.
4. ILLECEBRUM (*Achyrantha*) caulibus repentibus piloſis, foliis ovatis mucronatis oppoſito minore, capitulis ſubgloboſis ſubſpinoſis. Lin. Sp. 299. *Illecebrum with creeping ſtalks, ſmall oval-pointed leaves placed oppoſite, almoſt globular heads of flowers, having ſmall ſpines.* Achyrantha repens, foliis bliti pallidi. Hort. Elth. 8. tab. 7.
5. ILLECEBRUM (*Polygonoides*) caulibus repentibus hirtis, foliis lato-lanceolatis petiolatis, capitulis orbiculatis nudis. Lin. Sp. 300. *Illecebrum with hairy creeping ſtalks, broad ſpear-ſhaped leaves on foot-ſtalks, and orbicular naked heads of flowers.* Amaranthoides humile Curaſſavicum, foliis polygoni. Herm. Parad. 17.
6. ILLECEBRUM (*Vermiculatum*) caulibus repentibus glabris foliis, ſubteretibus carnoſis, capitulis oblongis glabris terminalibus. Lin. Sp. 300. *Illecebrum with ſmooth creeping ſtalks, almoſt taper fleſhy leaves, and oblong ſmooth heads terminating the branches.* Amaranthoides humile Curaſſavicum, cepeæ foliis lucidis, capitulis. Herm. Parad. 15.

The three firſt ſorts grow naturally in Spain, Portugal, and the ſouth of France; the firſt has ligneous ſtalks about a foot high, garniſhed with ſmall leaves like thoſe of Knot-graſs; the flowers come out ſingly on the ſide of the ſtalks, which make little appearance, ſo is ſeldom preſerved in gardens.

The ſecond and third ſorts have trailing ſtalks near two feet long, which ſpread on the ground, garniſhed with leaves like thoſe of the firſt ſort; the heads of flowers come out from the joints of the ſtalk, having neat ſilvery bractea ſurrounding them, which make a pretty appearance. Their flowers appear in June, and there is generally a ſucceſſion of them for at leaſt two months; and when the autumn proves warm, they will ripen their ſeeds the beginning of October.

Theſe three ſorts may be propagated by ſeeds, which ſhould be ſown on a bed of light earth the beginning of April; the plants will come up in May, when they ſhould be kept clean from weeds till the plants are fit to remove; then the plants ſhould be carefully taken up, planting ſome of each ſort in ſmall pots, and the other into a warm dry border, obſerving to water and ſhade them until they have taken new root; after which, thoſe which are planted in the full ground will require no other culture but to keep them clean from weeds; for in the ordinary winters of England, they will live in the open air: but as theſe plants are ſometimes killed in ſevere winters, therefore I adviſe ſome plants to be planted in pots, which may be placed in a common frame in winter, where they may enjoy the open air in mild weather, but be ſcreened from froſt.

As the ſeeds of theſe plants do not conſtantly ripen in England, ſo they may be propagated by cuttings, which, if carefully taken off in May or June, and planted in a ſhady border, will in two months put out roots; then in moiſt weather they may be tranſplanted, and afterward treated as the old plants.

The other three ſorts are natives of the warm parts of America; the fourth ſort grows naturally at Beunos Ayres; the fifth and ſixth, in many of the iſlands in the Weſt-Indies.

Theſe have creeping ſtalks, which ſend out roots from the joints, which faſten to the ground in their native ſoil, whereby they ſpread to a great diſtance; and in this country, when the pots are plunged into a tan-bed, they will multiply as faſt, by taking root in tan, or any of the other pots of plants which are near them.

The flowers of the fourth ſort make little appearance, therefore the plant is rarely propagated, except in botanic gardens for variety; but thoſe of the fifth and ſixth ſort have dry heads of flowers, reſembling thoſe of the Amaranthoides, under which genus they were formerly ranged.

Theſe three ſorts are tender, ſo will not thrive in the open air in England; therefore their ſeeds ſhould be ſown on a hot-bed in the ſpring, at the ſame time as the Amaranthus, Gomphrena, and other tender plants; and afterward, if they are plunged into the tan-bed in the ſtove, their branches will put out roots, whereby they may be propagated in plenty.

IMPATIENS. Rivin. Ord. 4. Lin. Gen. Plant. 899. Balſamina. Tourn. Inſt. R. H. 418. tab. 235. Female Balſamine; in French, *Balſamine*.

The Characters are,

The flower has a two-leaved ſmall empalement, which is coloured, and placed on the ſide of the petals. It hath five petals which are unequal, and ſhaped like a lip-flower; the petals are roundiſh, the upper is erect, ſlightly cut at the point into three parts, where it is ſharp-pointed, forming the upper lip; the two lower petals are broad, obtuſe, irregular, and reflexed; theſe conſtitute the lower lip; the intermediate pair are alike, and are placed oppoſite, joining at their baſe. It hath a nectarium in the bottom of the flower, ſhaped like a hood or cowl, which is oblique to the mouth, riſing on the outſide, whoſe baſe ends in a tail or ſpur. It hath five ſhort ſtamina which are narrow toward their baſe, and incurved, terminated by ſummits, which join at the top round the ſtamina, but are divided at their baſe. In the bottom is ſituated an oval ſharp-pointed germen, having no ſtyle, but a ſingle ſtigma ſhorter than the ſummits. The germen afterward becomes a capſule with one cell, opening with an elaſticity in five valves, which twiſt ſpirally, and contain ſeveral roundiſh ſeeds fixed to a column.

This genus of plants is ranged in the fifth ſection of Linnæus's nineteenth claſs, which includes thoſe plants which have ſingle flowers in the empalement, whoſe ſtamina vary in number and ſituation.

The Species are,

1. Impatiens (*Noli tangere*) pedunculis multifloris ſolitariis, foliis ovatis, geniculis caulinus tumentibus. Flor. Suec. 722. *Impatiens with foot-ſtalks ſuſtaining many ſingle flowers, oval leaves, and ſtalks having ſwelling joints.* Balſamina lutea, ſive, Noli me tangere. C. B. P. 306. *Yellow Balſamine, or Touch me not.*
2. Impatiens (*Balſamina*) pedunculis unifloris aggregatis, foliis lanceolatis, nectaris floribus brevioribus. Hort. Upſal. 276. *Impatiens with foot-ſtalks ſuſtaining ſingle flowers, which ariſe in cluſters, ſpear-ſhaped leaves, and nectariums which are ſhorter than the flower.* Balſamina fœmina. C. B. P. 306. *The female Balſamine.*
3. Impatiens (*Triflora*) pedunculis trifloris ſolitariis, foliis anguſto-lanceolatis. Flor. Zeyl. 315. *Impatiens with three flowers on a foot-ſtalk, and narrow ſpear-ſhaped leaves.* Balſamina erecta, ſc. fœmina, Perſicæ anguſto folio Zeylanica. Herm. Par. Bat. 105. *Upright, or female Balſamine of Ceylon, with a narrow Peach leaf.*

There are ſeveral other ſpecies of this genus, which grow naturally in India, which are plants of little beauty, ſo have not been introduced into the Engliſh gardens; the ſorts here mentioned, are all I have yet ſeen growing here, except one tall ſort from North America.

The firſt ſort grows naturally in ſeveral parts of Weſtmoreland and Yorkſhire, but is frequently introduced into gardens by way of curioſity. It is an annual plant, which riſes about a foot and a half high, with an upright ſucculent ſtalk, whoſe joints are ſwollen, garniſhed with oval ſmooth leaves, which ſtand alternate on every ſide the ſtalk. The flowers come out from the wings of the ſtalks upon long ſlender foot-ſtalks, which branch into ſeveral other ſmaller, each ſuſtaining one yellow flower, compoſed of five petals, which in front are ſhaped like the lip or grinning flowers, but at their baſe have a nectarium with a long tail like the flowers of Indian Creſs; theſe are ſucceeded by taper pods, which, when ripe, burſt open upon being touched, and twiſt ſpirally like a ſcrew, caſting out the ſeeds with great elaſticity. If the ſeeds of this plant are permitted to ſcatter, they generally ſucceed better than when they are ſown; for unleſs they are ſown in the autumn ſoon after they are ripe, they very rarely grow. The plants require no care but to keep them clean from weeds, and thin them where they are too cloſe. It flowers in June, and the ſeeds ripen about a month or five weeks after; this delights in a ſhady ſituation and a moiſt ſoil.

The ſecond ſort is the female Balſamine, of which there are ſeveral varieties; the common ſort has been long an inhabitant in the Engliſh gardens, of this there is the white, the red, and ſtriped flowered, and likewiſe the ſingle and double flowering, with variegated flowers of two colours. Theſe ſorts are ſo hardy as to riſe in the full ground; and where the ſeeds ſcatter, the plants will come up the following ſpring; but ſuch ſelf-ſown plants do not come to flower ſo early as thoſe which are raiſed upon a hot-bed; however, they generally are ſtronger plants, and continue much longer in the autumn in flower than the others, ſo are an ornament to the garden, when there is a greater ſcarcity of flowers.

This ſort riſes a foot and a half high, dividing into many ſucculent branches, which are garniſhed with long, ſpear-ſhaped, ſawed leaves. The flowers come out from the joints of the ſtalks, upon ſlender foot-ſtalks about an inch long, each ſuſtaining a ſingle flower; but there are two, three, or four of theſe foot-ſtalks ariſing from the ſame joint. The flowers are compoſed of five large unequal petals, which are ſhaped like thoſe of the former ſort, but are larger, and ſpread open much wider; there are white, purple, and red of this ſort, as alſo ſingle and double flowers. If the ſeeds of theſe are ſown on a moderate hot-bed in the ſpring, the plants will flower in June; but thoſe which are ſown in the full ground, will not flower before the middle of July; and theſe will continue flowering till the froſt puts a ſtop to them in the autumn.

There are two other varieties of this, if not diſtinct ſpecies; one of them grows naturally in the Eaſt, and the other in the Weſt-Indies; that which comes from the Eaſt-Indies, by the title of Immortal Eagle Flower, is a moſt beautiful plant; the flowers are double, much larger than thoſe of the common ſort; they are ſcarlet and white variegated, and purple and white in others; and the plants producing many flowers, render them very valuable; and if the ſeeds of theſe are carefully ſaved, the kinds may always be preſerved; but I have raiſed ſome plants from foreign ſeeds, whoſe flowers were ſo very double as to loſe their male parts, ſo did not produce any ſeeds.

The ſeeds of theſe plants ſhould be ſown on a moderate hot-bed in the ſpring, and when the plants are come up about an inch high, they ſhould be tranſplanted on another moderate hot-bed at about four inches diſtance each way, obſerving to ſhade them from the ſun till they have taken new root; after which they ſhould have a large ſhare of free air admitted to them, at all times when the weather is favourable, to prevent their drawing up tall and weak: they will require to be often refreſhed with water, but it ſhould not be given to them in too great plenty; for as their ſtems are very ſucculent, ſo they are apt to rot with much moiſture. When the plants are grown ſo large as to touch each other, they ſhould be carefully taken up with balls of earth to their roots, and each planted into a ſeparate pot filled with light rich earth, and plunged into a very moderate hod-bed under a deep frame, to admit the plants to grow, ſhading them from the ſun until they have taken freſh root; then they ſhould have a large ſhare of air admitted to them every day, and by degrees hardened, ſo as to bear the open air, into which part of the plants may be removed in July, placing them in a warm ſheltered ſituation; where, if the ſeaſon proves favourable, they will flower and make a fine appearance; but it will be proper to keep part of the plants either in a glaſs-caſe or a deep frame, in order to get good ſeeds, becauſe thoſe in the open air will not ripen their ſeeds unleſs the ſummer proves very warm; and the plants in ſhelter muſt have a good ſhare of free air every day, otherwiſe they will grow pale and ſickly; nor ſhould they have too much of the ſun in the middle of the day, in very hot weather, for that occaſions their leaves hanging and their requiring water, which is often very hurtful; therefore if the glaſſes are ſhaded in the middle of the day for three or four hours, the plants will thrive better, and continue longer in beauty than when they are expoſed to the great heat. Thoſe who are curious to preſerve theſe plants in perfection, pull off all the ſingle and plain coloured flowers from the plants which they preſerve for ſeeds, leaving only thoſe flowers which are double and of good colours; where this is carefully done, they may be continued without the leaſt degeneracy conſtantly.

The ſort which grows in the Weſt-Indies, is there called Cockſpur. This hath ſingle flowers as large as the laſt-mentioned ſort, but I never ſaw any of them more than half double, and only with white and red ſtripes: the plants are very apt to grow to a very large ſize before they produce any flowers, ſo that it is late in the autumn before they begin to flower; and ſometimes in bad ſeaſons they will ſcarce have any flowers, and but rarely ripen their ſeeds here, ſo that few perſons care to cultivate this ſort, eſpecially if they can have the other.

The third ſort here mentioned grows naturally in Ceylon, and in many parts of India; this hath very narrow ſpear-ſhaped leaves, which are ſawed on their edges; the foot-ſtalks ſuſtain each three flowers, which are ſmaller than thoſe of the common ſort, ſo are not worthy of a place in gardens, except for the ſake of variety. This is a tender plant, and requires the ſame treatment as the Immortal Eagle Flower.

IMPERATORIA. Lin. Gen. Plant. 321. Tourn. Inſt. R. H. 316. tab. 168. Maſterwort; in French, *Imperatoire.*

The Characters are,

It hath an umbellated flower; the principal umbel is plain, and compoſed of many ſmaller; the greater umbel has no involucrum, but the ſmall ones have, which are compoſed of many narrow leaves, almoſt as long as the umbel; the principal umbel is uniform; the flowers have five heart-ſhaped petals, which are equal and inflexed. They have five hairy ſtamina, terminated by roundiſh ſummits. The germen is ſituated under the petals, ſupporting two reflexed ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes a roundiſh compreſſed fruit divided in two parts, containing two oval-bordered ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, intitled Pentandria Digynia, which contains the plants whoſe flowers have five ſtamina and two ſtyles.

We have but one Species of this genus, viz.

Imperatoria (*Oſtruthium.*) Hort. Cliff. 103. *Maſterwort.* Imperatoria major. C. B. P. 156. *Greater Maſterwort*; and the Aſtrantia of Dodonæus. Pempt. 320. *Maſterwort, or falſe Pellitory of Spain.*

This plant grows naturally on the Auſtrian and Styrian Alps, and upon other mountainous places in Italy; the root is as thick as a man's thumb, running obliquely in the ground; it is fleſhy, aromatic, and has a ſtrong acrid taſte, biting the tongue and mouth like Pellitory of Spain; the leaves ariſe immediately from the root; they have foot-ſtalks ſeven or eight inches long, dividing into three very ſhort ones at the top, each ſuſtaining a trilobate leaf, indented on the border; the foot-ſtalks are deeply channelled, and when broken emit a rank odour. The flower-ſtalks riſe about two feet high, and divide into two or three branches, each being terminated by a pretty large umbel of white flowers, whoſe petals are ſplit; theſe are ſucceeded by oval compreſſed ſeeds, ſomewhat like thoſe of Dill, but larger. It flowers in June, and the ſeeds ripen in Auguſt.

This plant is cultivated in gardens to ſupply the markets. It may be propagated either by ſeeds, or by parting the roots: if you would propagate it by ſeeds, they ſhould be ſown in autumn ſoon after they are ripe, on a bed or border, in a ſhady ſituation; obſerving not to ſow the ſeeds too thick, nor ſhould they be covered too deep. In the ſpring the plants will appear, when they ſhould be carefully weeded; and if the ſeaſon ſhould prove very dry, they ſhould be now and then refreſhed with water, which will greatly promote their growth. Toward the beginning of May, if you find the plants come up too cloſe together, you ſhould prepare a moiſt ſhady border (and thin the plants carefully, leaving them about ſix inches aſunder;) and plant thoſe which you draw up into the border about the ſame diſtance apart every way, being careful to water them duly, if the ſeaſon ſhould prove dry, until they have taken root; after which time, theſe plants (as alſo thoſe remaining in the ſeed-beds) will require no other culture but to keep them clear from weeds; which may be eaſily effected, by hoeing the ground between the plants now and then in dry weather, which will deſtroy the weeds; and by thus ſtirring the ground, will be of great ſervice to the plants. The following autumn theſe plants ſhould be tranſplanted where they are deſigned to remain, which ſhould be in a rich moiſt ſoil and a ſhady ſituation;

tation; where they will thrive much better than if too much expoſed to the ſun, or in a dry ſoil, for they delight in ſhade and moiſture; ſo that where theſe are wanting the plants will require a conſtant ſupply of water in dry weather, otherwiſe they will thrive but ſlowly. The diſtance which theſe plants ſhould be placed, muſt not be leſs than two feet every way, for where they like their ſituation, they will ſpread and increaſe much. When theſe plants are rooted, they will require no other culture but to keep them clear from weeds; and in the ſpring, before they ſhoot, the ground ſhould be every year gently dug between the plants; in doing of which, great care ſhould be had not to cut or bruiſe their roots. Theſe plants, with this management, will continue ſeveral years, and will produce ſeeds in plenty.

If you would propagate theſe plants by offſets, their roots ſhould be parted at Michaelmas, and planted in a ſhady ſituation, at the ſame diſtance as has been directed for the ſeedling plants, obſerving to water them until they have taken root, after which time they muſt be managed as the ſeedlings.

The roots of this plant are uſed in medicine, and are greatly reccommended for their virtue in contagious diſtempers, or the bites of venomous creatures; they are alexipharmic and ſudorific; by ſome they are recommended for cholics and aſthmas, for the cramp, and all cold diſeaſes of the nerves.

INARCHING is a method of grafting, which is commonly called grafting by approach. This method of grafting is uſed when the ſtock you intend to graft on, and the tree from which you would take the graft ſtand ſo near (or can be brought ſo near) that they may be joined together. The method of performing it is as follows: take the branch you would Inarch, and having fitted it to that part of the ſtock where you intend to join it, pare away the rind and wood on one ſide about three inches in length. After the ſame manner cut the ſtock or branch in the place where the graft is to be united, ſo that the rind of both may join equally together, at leaſt on one ſide, that the ſap may meet; then cut a little tongue upwards in the graft, and make a notch or ſlit in the ſtock downward to admit it; ſo that when they are joined, the tongues will prevent their ſlipping, and the graft will more cloſely unite with the ſtock. Having thus placed them exactly together, you muſt tie them with ſome baſs, or other ſoft bandage; then cover the place with grafting clay, to prevent the air from entering to dry the wound, or the wet from getting in to rot the ſtock: you ſhould alſo fix a ſtake into the ground to which that part of the ſtock, as alſo the graft ſhould be faſtened, to prevent the wind from breaking them aſunder, which is often the caſe when this precaution is not obſerved.

In this manner they are to remain about four months, in which time they will be ſufficiently united, and the graft may then be cut from the mother tree, obſerving to ſlope it off cloſe to the ſtock; and if at this time you cover the joined parts with freſh grafting clay, it will be of great ſervice to the graft.

This operation is always performed in April or May, that the graft may unite with the ſtock before the ſucceeding winter, and is commonly practiſed upon Oranges, Myrtles, Jaſmines, Walnuts, Firs, Pines, and ſeveral other trees, which will not ſucceed ſo well by common grafting or budding. But although I have mentioned Orange-trees among the reſt, yet I would by no means adviſe this practice where the trees are deſigned to grow large, which, in this method, they rarely ever will do; and it is chiefly practiſed upon thoſe trees only as a curioſity, to have a young plant with fruit upon it, in a year or two from ſeed, by Inarching a bearing branch into a young ſtock, whereby it is effected, yet theſe plants are ſeldom long lived.

INDIGOFERA. Lin. Gen. 889. Indigo.

The Characters are,

The empalement is of one leaf, ſpreading almoſt flat, and cut into five ſegments; the flower is of the butterfly kind, having a roundiſh ſpreading ſtandard, which is indented at the point and reflexed: the wings are oblong, obtuſe, and their under borders ſpreading; the keel is obtuſe, ſpreading, and acute-pointed. It hath ten ſtamina digeſted in a cylinder whoſe points aſcend, terminated by roundiſh ſummits, and a cylindrical germen, ſupporting a ſhort ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a long taper pod, incloſing kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, from the flowers having ten ſtamina formed in two bodies.

The Species are,

1. Indigofera (*Tinctoria*) leguminibus arcuatis incanis, racemis folio brevioribus. Flor. Zeyl. 273. *Indigo with hoary arched pods, and the bunches of flowers ſhorter than the leaves.* Anil ſive Indigo Americana, ſiliquis in falculæ modum contortis. Acad. R. Scien. 1718. *Guatimala Indigo.*
2. Indigofera (*Suffruticoſa*) leguminibus arcuatis incanis, caule fruticoſa. *Indigo with a ſhrubby ſtalk, and hoary arched pods.* Colutea affinis fruticoſa argentea, floribus ſpicatis è viride purpureis, ſiliquis falcatis. Sloan. Cat. Jam. 142.
3. Indigofera (*Caroliniana*) leguminibus teretibus, foliolis quinis ſpicis longiſſimis ſparſis, radice perenne. *Indigo with taper pods, leaves with five lobes, long looſe ſpikes of flowers, and a perennial root.*
4. Indigofera (*Indica*) leguminibus pendulis lanatis compreſſis, foliis pinnatis. *Indigo with woolly, compreſſed, hanging pods, and winged leaves.*
5. Indigofera (*Glabra*) leguminibus glabris teretibus, foliolis trifoliatis. *Indigo with ſmooth taper pods, and trifoliate leaves.*

The firſt and fifth ſorts are annual plants with us; the ſeeds of theſe muſt be ſown on a hot-bed early in the ſpring of the year, and when the plants are come up two inches high, they ſhould be tranſplanted into ſmall pots filled with good freſh earth, and the pots plunged into a hot-bed of tanners bark; when the plants have obtained ſome ſtrength, they muſt have a great ſhare of free air, by raiſing the glaſſes in the day time; and in June they may be expoſed more to the open air, by which time they will begin to produce their flowers, which will be ſucceeded by pods in a ſhort time after, and in Auguſt their ſeeds will be perfected, if the plants are brought forward in the ſpring.

The ſecond ſort grows to the height of five or ſix feet, and will abide two or three years, if it is preſerved in a very warm ſtove in winter; this produces ſpikes of flowers from the wings of the leaves on the ſides of the ſtems of the plant, and ſometimes will perfect its ſeeds in England. This muſt be raiſed in a hot-bed, as was directed for the two former, but muſt not be wholly expoſed to the open air, even in the hotteſt weather.

The fourth ſort is ſuppoſed to be promiſcuouſly uſed to make the Indigo, but the firſt is the common ſort which is cultivated in the Engliſh plantations in America; but I have been aſſured by a perſon of great credit, that he has made as good Indigo from the ſecond ſort, as any that was produced in our plantations; and this being a much larger plant, will afford a greater quantity from the ſame compaſs of ground, than any one of the other ſpecies, eſpecially if cut before the ſtalks grow ligneous; and this ſort will grow on poorer land, ſo may be cultivated in ſuch places where the firſt ſort will not thrive ſo well, by which means great improvements may be made with this plant in our American plantations. There are ſome other ſorts of this plant which are natives of India, from which this commodity is made; two of which, viz. the fourth and fifth ſorts I have had growing in the garden at Chelſea, both which are very different in their leaves and pods from either of the American ſorts which have been cultivated. I have alſo received ſeeds from India of the third ſort, which is the ſame ſpecies of Indigo which grows naturally in South Carolina, and which was greatly eſteemed ſome years ago by the Indigo planters of that country, for the beauty of the commodity which it produced; but the plants being ſlender and thinly garniſhed with leaves, which were ſmall, they did not furniſh a quantity of Indigo in proportion to their bulk, ſo of late this ſort has not been much cultivated there; though the account which I received with the ſeeds was, that it was what the beſt Indigo of India was made from.

The whole proceſs in making the Indigo being exactly deſcribed by Pere Labat in his voyages, I thought it would not be unacceptable to the Engliſh reader, to tranſlate his account in this place, which is as follows:

There was formerly a great deal of Indigo made in the pariſh of Macauba: there is not a ſtream nor river in it, where one does not meet with Indigo works, that is, backs or vats of ſtone-work well cemented, in which the plant that yields the dye is put to digeſt: there are uſually three of theſe vats one above another, in the manner of a caſcade; ſo that the ſecond, which is lower than the bottom of the firſt, may receive the liquor contained in the firſt, when the holes which are made in the bottom of the firſt are unſtopped; and that the third may in its turn receive what was in the ſecond.

The firſt, largeſt, and higheſt of theſe vats is called the ſteeper or rot; it is uſually made twenty feet long, twelve or fifteen feet wide, and three or four feet deep. The ſecond is called the battery, it is almoſt half as ſmall again as the firſt: and the third, which is much leſs than the ſecond, is called the devilling.

The names of the two firſt perfectly agree with their uſes, for the plant is laid to ſteep in the firſt, where it ferments, is macerated, and becomes like rotten dung: after that the ſalts and ſubſtance of the leaf and rind are diffuſed in the water by the fermentation, which the heat and ripeneſs of the plant has excited in it. It is in the ſecond that they agitate and beat this water, impregnated and loaded with the ſalts of the plant, till having collected, re-united, and, as it were, coagulated them with one another, they form the particles which compoſe the dye.

As for the name of the third, I do not ſee how it agrees with it, unleſs it be becauſe this vat is deeper coloured than the others; for the Indigo already formed remaining in it, conſequently dyes and colours it much deeper than the others.

To which I ſhould add, that it is only at St. Domingo that they make uſe of this name. In the Windward Iſlands they call this laſt vat the ſettler, and this name ſuits it perfectly well, becauſe it is in this, that the Indigo begun in the ſteeper, and perfected in the battery unites, grows into a maſs, ſeparates itſelf from the particles of water which remained in it, leaves them at top, and ſettles at the bottom of the vat; whence it is taken out to be put into little bags, and then into the boxes, as I ſhall mention hereafter.

Nothing ought to be omitted in the building and making theſe vats ſubſtantial; the ſtrength of the fermentation is ſo great, that unleſs the ſtone-work and plaſter be very well done, and the mortar carefully choſen and wrought, they crack; and a very moderate crack is ſufficient to let out a vat of Indigo, and cauſe a conſiderable loſs to the owner.

When this misfortune happens, the following is an eaſy and infallible remedy, which I can anſwer for, as having experienced it. Take ſome ſea ſhells of any kind whatever, pound them without burning them, powder them, and ſift them through a fine ſieve. Take an equal quantity of quick lime and ſift it; mix theſe together with water enough to make a ſtiff mortar, and as quick as you can, ſtop the cracks of your vats with it. This mixture incorporates, ſticks, and dries in a moment, and immediately prevents the matter's running out of the vat.

Every body does, or ſhould know, that Indigo is a dye uſed to dye wool, ſilk, cloths, and ſtuffs, blue: the Spaniards call it Anilo: the fineſt they make, i. e. in New Spain, comes from Guatimala, which makes a great many people call it barely Guatimalo. It is made alſo in the Eaſt-Indies, particularly in the dominions of the Great Mogul, the kingdom of Golconda, and other places thereabouts, as Mr. Tavernier relates in his voyages. This ſort is in Europe oftener called India than Indigo or Anil, people taking for its proper name the name of the place it was made at. Some authors, and among others, Father du Tertre of our order, having fancied that the Indigo which comes from the Eaſt-Indies is more beautiful, finer, and dearer, than that which comes from the Weſt-Indies, which they call flat Indigo, while they call that from the Eaſt barely India. They would have ſpoken more properly, if they had called the latter round India; for, by their leave, all the difference between the two Indias, or Indigos, is, that that made in the Eaſt-Indies is ſhaped like half eggs, and that of the Weſt like cakes; for as for goodneſs and beauty, the one will not be a whit ſuperior to the other, if both are wrought with equal care and fidelity.

The ſhape of the Oriental Indigo obliges the merchants who would carry it into Europe to pound it, that they may put the more into the cheſts, or barrels they put it up in. It is certain, that being thus pounded, its grain having been broken under the peſtle, ground, and reduced to powder, makes it finer than the Weſt-Indian Indigo, which coming in cakes juſt as it was dried, ſhews its grain entire, and conſequently muſt appear coarſer; but what is that to the intrinſic goodneſs of the commodity; I maintain it is the ſame in both, though there ſeems to be a difference.

To be convinced of this truth, take a lump of ſugar equally white throughout, break it in two, pound one part of it, and reduce it to powder; this will look finer and whiter than that which is whole, which proceeds only from this, that the grain of the one has been ſeparated and divided into a greater number of parts, which, though very ſmall, and almoſt inſenſible, yet have a greater number of ſurfaces, and conſequently reflect more light; whereas the other remaining entire, preſenting to the ſight only a large grain, which has but little ſurface, of courſe reflects leſs light, and by a neceſſary conſequence muſt appear leſs white; which is the ſame as appearing leſs beautiful, ſince the beauty of ſugar conſiſts in its whiteneſs. Methinks we may reaſon in the ſame manner upon Indigo, and ſay, that cæteris paribus, the Weſt-Indian Indigo is as beautiful as the Eaſt-Indian, when they are both wrought alike.

I think I ſhould add, that the American Indigo is better for uſe than the other; for who does not ſee, that there is no pounding this dye, without the moſt ſubtle parts being diſſipated in the air, as Mr. Tavernier allows? And who can doubt that theſe parts are the beſt, and thoſe that go fartheſt when it is uſed?

I grant that the Indigo which comes from the Eaſt-Indies, is dearer than that which is made in the Weſt-Indies; the reaſon is plain, it comes farther, runs greater riſks; and thoſe who bring it would not find their account in ſelling it, at the ſame price with that which comes from a much nearer place; but that does not at all prove it to be more beautiful, or better.

Indigo is compoſed of the ſalt and ſubſtance of the leaves and rind of a plant of the ſame name; ſo that one may ſay, it is a diſſolution or digeſtion of the plant, cauſed by the fermentation it has excited in the water it was laid to ſteep in. I know ſome writers pretend, that the ſubſtance of the leaves does not produce the Indigo, which (as they would have it) is only a viſcous tincture, or colour, which the fermentation of the plant diffuſes in the water: but before I take their words for it, I deſire they would tell me what becomes of the ſubſtance of the plant; for when it is taken out of the ſteeper, it is certain, that it has no longer the ſame weight, conſiſtence, nor colour, it had before. The leaves, which were very plump, and very full of juice, are light, flabby, and withered, and look more like dung than any thing elſe, which makes them frequently give the name of rot to the ſteeper. If then we no longer find in the leaves, and the reſt of the plant, the ſame ſubſtance that was obſervable in it before it was laid to ſteep, is it not moſt natural to believe, that it is the ſame ſubſtance and ſalts, which, being freed from their incloſures, and diffuſed in the water, have thickened it, and by their union or coagulation have formed that blue maſs which they call Indigo, ſo uſeful in painting and dyeing?

The culture.] This plant requires a good rich level ſoil, not too dry; it greatly robs and impoveriſhes the ground where it grows, and muſt be alone. There cannot be too much care taken to keep it clean, and to hinder herbs of any kind whatever from growing near it. They weed and cleanſe the ground where they intend to plant the Indigo ſeed, five times over. I ſhould think they ſhould call it ſowing, but the term of planting is conſecrated in our iſles, and I do not think I ought for the ſake of a word to fall out with our planters, who deſerve our eſteem upon a thouſand accounts, though they have got a habit of murdering the French language. They ſometimes carry their neatneſs to ſuch a pitch, that they ſweep the piece of ground as they do a room. After that they make the holes wherein the ſeeds are to be put for this purpoſe; the ſlaves, or others, who are to work at it, range themſelves in the ſame line, at the top of the piece of ground; and going backwards they make little drills the breadth of their hoe, of the depth of two or three inches, at about a foot diſtance every way, and as much as poſſible in a ſtrait line. When they are come to the end of the ground, each furniſhes himſelf with a little bag of ſeeds, and returning that way they came, they put eleven or thirteen ſeeds into each of the holes they have made. A relick of ſuperſtition has taught them that the number muſt be odd. I by no means approve of this practice, but I ſhall take care not to endeavour to ſhew them the uſeleſſneſs and folly of it, being ſatisfied I ſhall only loſe my time and labour.

This work is the moſt toilſome of any in the manufacture of Indigo; for thoſe who plant it muſt be always ſtooping, without riſing up, till the planting of the whole length of the piece is ended; ſo that when that is large, which almoſt always happens, they are obliged to remain two hours, and often more, in this poſture.

When they come to the top of the piece, they go back again, and cover the holes where they have put the ſeed in, by thruſting in with their feet the earth they had taken out of them, and ſo the ſeed is covered with about two inches of earth.

The culture of this plant may be rendered very eaſy, provided the inhabitants of our colonies in America could be brought to make uſe of the drill plough; for with this inſtrument two perſons and a horſe or mule will ſow more land with Indigo in one day, than twenty perſons can perform in the ſame time, in the method now practiſed; for the plough makes the drill, and the hopper which is fixed to the plough follows, and ſcatters the ſeeds at equal diſtances in the drills; and another inſtrument behind the hopper covers in the drills, whereby the whole operation is performed at the ſame time, and with great eaſe. Indeed the uſe of this machine muſt be underſtood by the perſons who are to perform it, otherwiſe they will do it in a bad manner, but a little practice will bring any perſon to the right uſe of it.

As the Indigo is ſown in rows, a hoeing plough may be made of a proper dimenſion, in order to clean the ground between the rows; with this contrivance it may be performed in much leſs time than in the method now practiſed. But in doing of this, I would adviſe the ſtirring of the ground, ſoon after the Indigo plants are come up, before the weeds have got much ſtrength, at which time they are ſoon deſtroyed; and by ſtirring of the ground the plants will be greatly encouraged; and the ſtrongeſt and moſt thriving plants will always make the beſt Indigo.

What Le Bat ſays of cutting the plants before they are too old, in order to have the Indigo of a better colour, is certainly right. Therefore as ſoon as the flowers begin to appear, it ſhould be cut; for if it ſtands much longer the ſtems of the plants will grow hard and ſtringy, and the lower leaves will change to a yellowiſh colour, which will render the Indigo leſs valuable; as will alſo the plants being too cloſe together, which will occaſion their bottom leaves to decay for want of free air: the ſame will happen if weeds are ſuffered to grow among the plants. Therefore there muſt be great regard to their being kept always clean.

Though all ſeaſons are good for the planting of Indigo, yet care muſt be taken not to put it in the ground in a dry time: it is true, the ſeed may keep a whole month in the ground, without being ſpoiled; but when it is planted ſo, one runs the riſk of having it eaten up by vermin, or carried away by the wind, or choked by the weeds that ſpring up with it; ſo that the prudent planters never run the riſk of planting it dry, i. e. at a time when they do not probably expect rain in two or three days after the planting is ended: they chuſe therefore, uſually, a moiſt ſeaſon, which promiſes rain, and then they are ſure of ſeeing the plant ſpring up in three or four days after its being planted.

Notwithſtanding all the care that has been taken in clearing the ground where the ſeeds have been planted, the planter muſt not be careleſs when the Indigo is got above ground; becauſe the goodneſs of the ſoil, joined to the moiſture and warmth of the climate, and the plentiful dews that fall every night, makes a prodigious quantity of weeds ſpring up, which would choke and abſolutely ſpoil the Indigo, if extreme care was not taken to weed them up as ſoon as they appear, and to keep the plant extraordinary neat; and very often the weeds are partly the cauſe of the breeding of a kind of caterpillars, which devour all the leaves in a ſhort time.

From the time of the plants riſing above ground, to its perfect maturity, is but two months, and then it is fit to cut: if one was to ſtay longer it would bloſſom, its leaves would grow drier and harder, and conſequently they would yield leſs ſubſtance, and the colour would not be near ſo beautiful.

After this firſt cutting, the new branches and leaves which the plant produces may be cut about every ſix weeks, provided the ſeaſon be rainy, and that care be taken not to cut it in a time of drought, becauſe then we ſhould infallibly loſe the plant, or, as they call it there, the Choupues, and be obliged to plant again; but all things being rightly managed, the plant may laſt two years; after which it muſt be plucked up, and new ones planted.

When the plant is ripe, which is known by the leaves, which grow brittle and leſs ſupple, they cut it ſome inches from the ground. They uſe for the cutting of it great crooked knives made like ſickles. Some planters make it into bundles like double bottles of hay, that a negro may eaſily carry them to the ſteeper; but moſt people put it into large pieces of coarſe cloth, which they tie by the four corners; and this is more convenient, the plant is leſs handled and ſqueezed, and the ſmall are carried away as ſafely as the great; and beſides the work goes on quicker this way, than in making bottles; and as time is precious every where, and eſpecially in America, there cannot be too much care taken not to loſe any.

Eighteen or twenty packets of plants, each about the ſize of two bottles of hay, are ſufficient to fill a ſteeper of the afore-mentioned ſize. When it is filled with water, ſo that it covers the plants, they put pieces of wood on the top, that the plants may not riſe above the water (much after the manner as they do upon the Grapes that are put into the preſs) and let all ferment. According as the heat is greater or leſs, or the plant more or leſs ripe, the fermentation is raiſed ſooner or later, ſometimes in ſix, eight, or ten hours; and ſometimes one is obliged to wait eighteen or twenty hours, but very ſeldom longer. Then the effect of the fermentation viſibly appears, the water heats, and boils up on all ſides, as the Grapes do in the vat; and the water which at firſt was clear, inſenſibly grows thick, and becomes of a blue, inclining to a Violet colour. Then without meddling at all with the plants, they open the cocks, which are at the bottom of the ſteeper, and let all this water, loaded with the ſalts and ſubſtance of the plant, which were freed by the fermentation, run into the battery; and while they throw away as uſeleſs, and almoſt rotten, the plants that were in the ſteeper, and clean it, that it may be filled with freſh, they beat the water, which they have let out of the ſteeper into the battery.

They formerly uſed for this purpoſe a battledoor wheel, whoſe axle was placed upon the middle of the vat, and which they turned by two handles that were at the end of the ſame axle. Since that, in the room of battledoors, they have put little bottomleſs boxes, and afterwards others, whoſe bottoms were bored full of holes: at preſent they uſe a kind of pretty large pails, faſtened to ſtrong poles, placed upon chandeliers, by means of which, the negroes violently and continually raiſe, beat, and ſtir the water, till the ſalts and other parts of the ſubſtance of the plant are united, and ſufficiently, as it were, coagulated to incorporate.

The hitting this minute exactly ſhews the ſkill of him who overſees the making of the Indigo; for if he makes them leave off beating a little too ſoon, the grain not yet formed, remains diſperſed in the water, without ſinking and gathering together at the bottom of the vat, and is loſt with the water, when they are obliged to let it out, which is a great loſs to the owner; or if when it is formed they continue to beat, they diſſolve it, and the ſame inconvenience follows. This minute then muſt be nicked, and when it is found, they muſt leave off beating and let the matter reſt.

To find this minute, they make uſe of a little ſilver cup, deſigned for this uſe alone; they fill it with this water, while the negroes beat it, and according as they obſerve that the fæces ſink to the bottom of the cup, or remain diſperſed in the water, they ceaſe, or continue beating.

The General Dictionary printed at Trevoux, relates very ſeriouſly, upon the credit of father Plumier a minim, that the Indigo-maker having taking up ſome of the water of this battery in his cup, ſpits in it; and that if the Indigo be formed, the fæces immediately ſink to the bottom of the cup, and that then he makes them leave off beating, if not, he makes them continue it. This is not the only incident in which people have impoſed upon father Plumier's credulity and ſimplicity. I have been a witneſs of it upon other occaſions.

When they have left off beating they let the matter reſt, the fæces ſink to the bottom of the vat, and gather together like a kind of mud; and the water freed from all the ſalts it was impregnated with, ſwims above it, and grows clear. Then they open the cocks, which are placed in the battery at different diſtances from the bottom, and let this water run away; and when they come to the ſurface of the fæces, they open the cocks of the bottom, that the fæces may all fall into the devilling or ſettler. There they let it ſettle a little while longer, after which they put it into linen bags, fifteen or eighteen inches long, made with a point, where it perfectly purges itſelf from the reſt of the water, which remained among its particles. When that is done, they ſpread it in little boxes three or four feet long, two feet broad, and about three inches deep, and expoſe it to the air to dry it perfectly. They obſerve not to expoſe it to the ſun, becauſe it would ſtarve the colour in drying it; and they take a great deal of care to keep it from the rain, becauſe that would diſſolve and utterly ſpoil it.

It ſometimes happens that the caterpillars get among the Indigo; and if they are let alone ever ſo little a while they eat all the leaves, and often the very rind and ends of the branches, and kill the ſtocks; it is but loſt time to endeavour to deſtroy them, or hinder them from ravaging a whole piece, by ſtopping them with a ditch. The ſureſt way is to cut down the Indigo with all ſpeed, let its age be what it will, and to throw both plants and caterpillars together into the ſteeper; there they burſt, and part with what they had devoured, and the Indigo is not the leſs beautiful for it. It is true, when the plant is not come to its perfect maturity, it yields much leſs; but many experiments have taught us, that the colour it yields is much more beautiful; ſo that what is loſt one way is gained another.

I would not wait for ſo perfect a ripeneſs before I cut the plant. Perhaps all the ſecret of thoſe, whoſe Indigo is ſo much extolled beyond ours, lies only in cutting the plant when it yields the livelieſt colour. I have experienced that in leaving ſome cochineal flies upon ſome Indian Figs, which were too ripe, inſtead of being red, they grew of a filemot colour, like the fruit they fed upon. The ſame thing might happen in Indigo; and what I here propoſe is not a groundleſs doubt, ſince it is backed by the experiment I have juſt related; which plainly proves, that the ſame plant, cut at different ages, produces colours different in beauty. I would not venture to give this advice to men wedded to their intereſt, who value the quantity rather than the quality of their commodity; but I believe I have nothing to fear from our iſlanders, who are generous and magnificent, ſometimes even beyond their abilities: I adviſe them therefore to make different trials, as to the ſoil, the ſeaſon, the age of the plant, the water they ſteep it in, the point of diſſolution, &c. and I am ſure, that with a little time, labour, and patience, they will make Indigo that will equal, and even excel, the moſt boaſted Indigo of foreign countries. The planters of St. Domingo know that in 1701 their coarſe ſugar was very bad, and was not made without infinite trouble; and at preſent every body allows, that by their labour, aſſiduity, and enquiries, it is grown much more eſteemed than that of the Windward Iſlands: why may not the ſame be hoped for in Indigo?

Mr. Pomet, author of the General Hiſtory of Drugs, ſays in his firſt part, chap. 10. That the Indians of the village of Sarqueſſe, near Amadabat, uſe only the leaves of the Indigo, and throw away the plant and branches; and that it is from thence the moſt eſteemed Indigo comes.

I am pretty much of his opinion; for we ſee, that thoſe who take the pains to ſtrip off the Grapes from the branches, before they put them into the vat, and throw away the ſtalks entirely, make much the beſt wine; becauſe the ſtalks always contain an acid, which mixes with the juice of the Grape in the treading and preſſing them both together; and for the ſame reaſon, the ſtalks of the Indigo plant muſt contain a liquid much leſs perfect in colour than that of the leaves: but one ought to have the leiſure and patience of the Indians to undertake ſuch a work, and have workmen as cheap as they are in that country, ſuppoſing the fact true, as Mr. Pomet delivers it from the relation of Mr. Tavernier.

Though I am a great friend to thoſe experiments which may carry our manufactures to a greater perfection, yet I dare not propoſe this, becauſe of the expence they muſt be at, who would try it; and becauſe the profit ariſing from it would not perhaps quit coſt: however, I have here given the method of the Indians of Sarqueſſe, that I may have no reaſon to reproach myſelf with having omitted a thing which may be of ſome uſe to my country.

Good Indigo ought to be ſo light, as to ſwim upon water; the more it ſinks the more it is to be ſuſpected of being mixed with earth, aſhes, or powdered ſlate. Its colour ought to be a deep blue, inclining to a Violet, brilliant, lively, and bright: it ought to be more beautiful within than without, and look ſhining, and as it were ſilvered.

If it is too heavy in proportion to its bulk, it ought to be ſuſpected, and its quality examined into; for as it often bears a conſiderable price, it is fit that thoſe who buy it, ſhould be acquainted with the frauds that may be committed in it.

The firſt is the beating the plant too much in the ſteeper, that the leaves and rind of it may be entirely conſumed. It is certain that the quantity of the matter is very conſiderably increaſed by this diſſolution, but the Indigo is a great deal the leſs beautiful for it; it is blackiſh, thick, heavy, and fitter to be thrown away than uſed.

The ſecond is the mixing aſhes, earth, or a certain brown ſhining ſand (which is pretty commonly found in the bays by the ſea-ſide) and eſpecially powdered ſlate, with the fæces, as they fall into the devilling, and ſtirring all well together, that it may incorporate, and the fraud not appear: and this fraud is much more eaſily committed in the powdered Indigo, than in that which is in cakes; becauſe it is very difficult for thoſe heterogeneous bodies to unite ſo well together, as not to make in many places, as it were, beds of a different matter; and then, by breaking the piece of Indigo, they are eaſily perceived.

The two following expedients may be made uſe of, in order to know the goodneſs or badneſs of Indigo.

The firſt is to diſſolve a bit of it in a glaſs of water. If it is pure and well made, it it will entirely diſſolve; but if it is adulterated, the foreign matter will ſink to the bottom of the glaſs.

The ſecond is to burn it. The good Indigo will burn all away, whereas the aſhes, earth, ſand, and ſlate, remain after the true Indigo is conſumed.

In 1694, Indigo was ſold at the Windward Iſlands, from three livres ten ſols, to four livres per pound, according to its beauty, and the number of veſſels to be freighted with it. I have known it ſince at a much lower price; however, the planter would not fail of making a very conſiderable profit of it, though he ſhould ſell it for no more than forty ſols per pound, becauſe this commodity requires fewer utenſils and leſs charges than a ſugar-work.

Since the cultivation of Indigo was introduced in South Carolina, great quantities of that uſeful dye has been brought from thence to England; and it may be hoped that the encouragement granted by parliament to the planters, will enable them to proſecute this branch of commerce with ſuch ſucceſs, as to be a great national benefit, and of equal advantage to that colony: but as yet the planters have not arrived to ſo much perfection in the making of it as could be wiſhed; for moſt of the Indigo which I have ſeen of the produce of that country, has been ſo hard as to render it difficult to diſſolve, occaſioned by their pouring a quantity of lime-water into the vat, in order to make the fæces of the plant ſubſide. I have alſo been informed by letters from many of the planters, that after the fermentation of the plant in the vat, it comes out again almoſt entire, being but in a very ſmall proportion leſſened, either in bulk or weight. This may probably be owing, in great part, to their culture of the plant, as alſo from their vats not being large enough to contain a ſufficient quantity of the herb, to make the fermentation ſtrong enough to diſſolve it; or from the vats being built in the open air, whereby the fermentation may be impeded, by the cooler breezes of the evening air: for in the iſlands where the beſt Indigo is made, their vats are all built under cover, where their heat is much greater than that in Carolina, therefore this requires the attention of the planters of Indigo.

As to the culture of the plant, by all the information I have been able to procure from thence, they commit a great error in ſowing their ſeeds too thick, whereby the plants are drawn up with ſlender ſtems, which are not ſufficiently garniſhed with leaves; nor are the leaves ſo large and ſucculent as they would naturally grow, were the plants allowed a greater ſhare of room, ſo that the ſtalks conſiſt of little elſe but ſtrong veſſels, which are not diſſolvable by the fermentation, and it is only the upper parts of the plant which are furniſhed with leaves, like young trees growing cloſe together which are drawn up with ſlender ſtems, having no lateral branches, nor leaves, but at their tops; therefore it is not to be ſuppoſed, a great quantity of Indigo can be produced from plants ſo managed; for it is a common obſervation of the cultivators of Woad, that when their plants ſpire, and have narrow thin leaves, they produce but little of the dye; ſo that they make choice of rich ſtrong land for ſowing the ſeeds of this plant, and are careful to thin them, that they may have room to ſpread, and produce large ſucculent leaves, from which they always reap the greateſt profit. If the planters of Indigo in America would but imitate the cultivators of Woad in this particular, they would certainly find their advantage in ſo doing.

Another thing in which they err is, letting the plant ſtand too long before they cut it, ſuppoſing from the height of the plant to procure a great quantity of the dye; but in this they are greatly miſtaken, for the older the plant is before it is cut, the drier and firmer will be the ſtalks; therefore but little of the plant will be diſſolved by fermentation, nor will the fæces of the old plants be near ſo beautiful as that of the young. Therefore it is to be wiſhed, that they would try ſome few experiments in the culture and management of the plants, by ſowing thin, and keeping the plants perfectly clean from weeds; as alſo to cut them while young and full of juice, and hereby they will be better informed how to improve it to the greateſt advantage. But as labour is dear in that country, ſo many perſons probably object to the expence of cultivating the Indigo in this method; therefore, to avoid this, I have before propoſed ſowing the ſeeds with a drill plough, whereby the firſt expence will be greatly leſſened, and the ſeeds more equally ſown; and by the uſe of the hoe plough, ten acres may be kept clean from weeds with as ſmall expence, as one when managed by the hand hoe; and by ſtirring of the ground often, and earthing up the plants, they would grow much ſtronger, be leſs liable of being deſtroyed by flies, and have larger and more ſucculent ſtalks and leaves.

INGA. See Mimosa.

INOCULATING, or Budding. This is commonly practiſed upon all ſorts of ſtone fruit, in particular, ſuch as Peaches, Nectarines, Cherries, Plums, &c. as alſo Oranges and Jaſmines, and is preferable to any ſort of grafting for moſt ſorts of fruit. The method of performing it is as follows: you muſt be provided with a ſharp penknife, having a flat haft (the uſe of which is to raiſe the bark of the ſtock, to admit the bud) and ſome ſound baſs mat, which ſhould be ſoaked in water to increaſe its ſtrength, and make it more pliable; then having taken off the cuttings from the trees you would propagate, you ſhould chooſe a ſmooth part of the ſtock about five or ſix inches above the ſurface of the ground, if deſigned for dwarfs, and for half ſtandards at three feet; but for ſtandards, they ſhould be budded ſix or more feet above ground; then with your knife make an horizontal cut croſs the rind of the ſtock, and from the middle of that cut make a ſlit downwards about two inches in length, ſo that it may be in the form of a T; but you muſt be careful not to cut too deep, leſt you wound the ſtock: then having cut off the leaf from the bud, leaving the foot-ſtalk remaining, you ſhould make a croſs cut about half an inch below the eye, and with your knife ſlit off the bud, with part of the wood to it, in form of an eſcutcheon: this done, you muſt with your knife pull off that part of the wood which was taken with the bud, obſerving whether the eye of the bud be left to it, or not (for all thoſe buds which loſe their eyes in ſtripping, ſhould be thrown away, being good for nothing) then having gently raiſed the bark of the ſtock where the croſs inciſion was made, with the flat haft of your penknife clear to the wood, you ſhould thruſt the bud therein, obſerving to place it ſmooth between the rind and the wood of the ſtock, cutting off any part of the rind belonging to the bud, which may be too long for the ſlit made in the ſtock; and ſo having exactly fitted the bud to the ſtock, you muſt tie them cloſely round with baſs mat, beginning at the under part of the ſlit, and ſo proceed to the top, taking care that you do not bind round the eye of the bud, which ſhould be left open.

When your buds have been inoculated three weeks or a month, you will ſee which of them have taken; thoſe of them which appear ſhrivelled and black, being dead, but thoſe which remain freſh and plump, you may depend are joined; and at this time you ſhould looſen the bandage, which, if not done in time, will pinch the ſtock, and greatly injure, if not deſtroy, the bud.

The March following you muſt cut off the ſtock about three inches above the bud, ſloping it that the wet may paſs off, and not enter the ſtock; to this part of the ſtock left above the bud, it is very proper to faſten the ſhoot which proceeds from the bud, and would be in danger of being blown out, if not prevented; but this muſt continue no longer than one year, after which it muſt be cut off cloſe above the bud, that the ſtock may be covered thereby.

The time for Inoculating is, from the middle of June until the middle of Auguſt, according to the forwardneſs of the ſeaſon, and the particular ſorts of trees to be propagated; but the time may be eaſily known, by trying the buds, whether they will come off well from the wood. However, the moſt general rule is, when you obſerve the buds formed at the extremity of the ſame year's ſhoots, which is a ſign of their having finiſhed their ſpring growth. The firſt ſort commonly inoculated is the Apricot, and the laſt the Orange-tree, which ſhould never be done until the middle of Auguſt; and in doing of this work, you ſhould always make choice of cloudy weather; for if it be done in the middle of the day, in very hot weather, the ſhoots will perſpire ſo faſt, as to leave the buds deſtitute of moiſture; nor ſhould you take off the cuttings from the trees long before they are uſed; but if you are obliged to fetch your cuttings from ſome diſtance, as it often happens, you ſhould then be provided with a tin box or caſe, having a ſocket about ten inches long, and a cover to the top, which muſt have five or ſix holes; in this ſocket you ſhould put as much water as will fill it about two or three inches high, and place your cuttings therein in an upright poſition, ſo that that part which was cut from the tree may be ſet in the water, and ſo faſten down the cover to keep out the air; and the holes in the cover will be ſufficient to let the perſpiration of theſe branches paſs off, which, if pent in, would be very hurtful to them; you muſt alſo be careful to carry it upright, that the water may not reach to the buds; for it is a very wrong practice in thoſe who throw their cuttings all over in water, which ſo ſaturates the buds with moiſture, that they have no attractive force left to imbibe the ſap of the ſtock, whereby they very often miſcarry.

But before I leave this head, I beg leave to obſerve, that though it is the ordinary practice to diveſt the bud of that part of the wood which was taken from the ſhoot with it; yet, in many ſorts of tender trees, it is beſt to preſerve a little wood to the bud, without which they often miſcarry. The not obſerving this, has occaſioned ſome people to imagine, that ſome ſorts of trees are not to be propagated by Inoculation; whereas, if they had performed it in this method, they might have ſucceeded, as I have ſeveral times experienced.

INTYBUS. See Cichorium.

INULA. Lin. Gen. Plant. 860. Enula. Cæſalp. Helenium. Raii Meth. 33. Aſter. Tourn. Inſt. R. H. 481. tab. 274. Elecampane.

The Characters are,

It hath a radiated compound flower, with an imbricated empalement, compoſed of looſe, ſpreading, ſmall leaves, the outer being the broadeſt. The diſk, or middle of the flower, is compoſed of hermaphrodite florets, and the border, or ray of the female half florets, ſtretched out like a tongue. The hermaphrodite florets are funnel-ſhaped, erect, and cut into five ſegments at the top; theſe have five ſhort ſlender ſtamina, terminated by cylindrical ſummits, which coaleſce at the top: they have one long germen, crowned with down, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an upright bifid ſtigma. The female half florets have a narrow entire tongue, no ſtamina, but a long crowned germen with a hairy ſtyle, and an upright ſtigma. The germen in both flowers become a ſingle, narrow, four-cornered ſeed, crowned with a down, ſitting on a naked receptacle.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia ſuperflua, which includes the plants with a compound flower, made up of hermaphrodite florets in the diſk, and female half florets for the rays, which are fruitful.

The Species are,

1. Inula (*Helenium*) foliis amplexicaulibus ovatis, rugoſis, ſubtus tomentoſus, calycum ſquamis ovatis. Amœn. Acad. 1. p. 410. *Elecampane with oval rough leaves, which embrace the ſtalks, woolly on their under ſide, and the ſcales of the empalement oval.* Aſter omnium maximus, Helenium dictus. Tourn. Inſt. 483. *The greateſt Starwort, called Elecampane.*
2. Inula (*Odora*) foliis amplexicaulibus dentatis hirſutiſſimis radicalibus ovatis, caulinus lanceolatis caule paucifloro. Lin. Sp. Plant. 1236. *Inula with hairy indented leaves embracing the ſtalks, thoſe at the bottom oval, but thoſe on the ſtalks ſpear-ſhaped, which have but few flowers.* Aſter luteus radice odorâ. C. B. P. 266. *Yellow Starwort with a ſweet root.*
3. Inula (*Salicina*) foliis ſeſſilibus lanceolatis recurvis ſerrato-ſcabris, floribus inferioribus altioribus, ramis ſub-angulatis. Amœn. Acad. 1. p. 410. *Inula with ſpear-ſhaped, recurved, rough, ſawed leaves, ſitting cloſe to the ſtalks, and the under flowers growing taller than the upper, and angular branches.* Aſter montanus luteus, ſalicis glabro folio. C. B. P. 266. *Yellow Mountain Starwort with a ſmooth Willow leaf.*
4. Inula (*Germanica*) foliis ſeſſilibus lanceolatis recurvis, ſcabris, floribus ſubfaſciculatis. Lin. Sp. Plant. 883. *Inula with ſpear-ſhaped recurved leaves ſitting cloſe to the ſtalks, which are rough, and flowers growing in cluſters.* Aſter Thuringiacus altiſſimus latifolius, montanus, flore luteo parvo. Haller. Jen. 181. *Talleſt broad-leaved Mountain Starwort of Thuringia, with a ſmall yellow flower.*
5. Inula (*Crithmoides*) foliis linearibus carnoſis tricuſpidatis. Lin. Sp. Plant. 883. *Inula with narrow fleſhy leaves ending in three points.* Aſter maritimus flavus crithmum chryſanthemum dictus. Raii Syn. Ed. 3. p. 174. *Yellow maritime Starwort, called Golden Samphire.*
6. Inula (*Montana*) foliis lanceolatis hirſutis integerrimis, caule unifloro calyce brevi imbricato. Lin. Sp. Plant. 124. *Inula with hairy, ſpear-ſhaped, entire leaves, one flower on a ſtalk, having a ſhort ſcaly cup.* Aſter montanus luteo magno flore. C. B. P. 267. *Mountain Starwort with a large yellow flower.*
7. Inula (*Oculis Chriſti*) foliis amplexicaulibus oblongis, integerrimis hirſutis, caule piloſo, corymboſo. Lin. Sp. Plant. 1237. *Inula with oblong, entire, hairy leaves, and flowers growing in a corymbus.* Conyza Pannonica lanuginoſa. C. B. P. 265. *Hungarian woolly Fleabane.*
8. Inula (*Britannica*) foliis amplexicaulibus lanceolatis, diſtinctis ſerratis, ſubtus villoſis, caule ramoſo villoſo erecto. Flor. Suec. 756. *Inula with ſpear-ſhaped ſawed leaves embracing the ſtalk, hairy on their under ſide, and an erect branching ſtalk.* Aſter paluſtris luteus, folio longiore lanuginoſo. Tourn. Inſt. 483. *Yellow Marſh Starwort with a longer woolly leaf.*

9. Inula (*Hirta*) foliis ſeſſilibus lanceolatis, recurvatis, ſubſerrato-ſcabris, floribus inferioribus, altioribus, caule teretiuſculo ſubpiloſo. Lin. Sp. 1239. *Inula with ſpear-ſhaped, recurved, rough leaves, ſitting cloſe to the ſtalks, and the lower flowers riſing above the other.* Aſter luteus, ſalicis folio hirſuto. C. B. P. 266. *Yellow Aſter with a hairy Willow leaf.*

10. Inula (*Bifrons*) foliis oblongis decurrentibus denticulatis, floribus congeſtis terminalibus ſubſeſſilibus. Lin. Sp. 1236. *Inula with oblong indented leaves running along the ſtalks, and flowers in cluſters terminating the ſtalks.* Conyza Pyrenaica, foliis primulæ veris. Par. Bat. 127.

11. Inula (*Squaroſa*) foliis ovalibus lævibus reticulato-venoſis ſubcrenatis, calycibus ſquarroſis. Lin. Sp. 1240. *Inula with ſmooth oval leaves and netted veins, with rough empalements to the flowers.* Aſter Conyzoides odoratus luteus. Tourn. Inſt. 483.

12. Inula (*Canarienſis*) foliis linearibus carnoſis tricuſpidatis, caule fruticoſo. *Inula with narrow, fleſhy, three-pointed leaves, and a ſhrubby ſtalk.* Aſter Canarienſis fruteſcens, folio tridentato craſſo. Hort. Chelſ. 26. *Shrubby Canary Starwort with a thick leaf, ending in three points.*

13. Inula (*Saturejaoides*) foliis linearibus hirſutis oppoſitis, pedunculatis nudis unifloris. *Inula with narrow hairy ſtalks placed oppoſite, and naked foot-ſtalks, having one flower.* Aſter ſaturejæ foliis conjugatis & piloſis, flore luteo. Houſt. MSS. *Starwort with hairy Savoury leaves growing by pairs, and a yellow flower.*

14. Inula (*Mariana*) caule erecto hiſpido, foliis lanceolatis aſperis, floribus alaribus ſolitariis ſeſſilibus, terminalibus umbellatis. *Inula with an erect prickly ſtalk, ſpear-ſhaped rough leaves, flowers proceeding ſingly from the ſides of the ſtalks, ſitting cloſe, and terminating in an umbel.* Aſter luteus Marianus Saligneis brevioribus foliis hirſutis pubeſcentibus, ſummo caule ramoſus. Pluk. Mant. 30. *Yellow Starwort of Maryland, with ſhorter, ſallow, hairy leaves, and the top of the ſtalk branching.*

15. Inula (*Fruticoſa*) foliis lanceolatis acutis, ſubtus trinerviis, ſquamis calycinis acutis caule fruticoſa. *Inula with ſpear-ſhaped acute leaves, having three veins on their under ſide, the ſcales of the empalement ſharp-pointed, and a ſhrubby ſtalk.*

The firſt ſort grows naturally in ſeveral parts of England, but it is alſo cultivated in gardens for the ſake of the roots, which are uſed in medicine, and are accounted carminative, ſudorific, and alexipharmic, of great ſervice in ſhortneſs of breath, coughs, ſtuffing of the lungs, and infectious diſtempers.

This hath a perennial root, which is thick, branching, and of a ſtrong odour. The lower leaves are a foot long, and four inches broad in the middle, rough on their upper ſide, but downy on their under. The ſtalks riſe about three feet high, and divide toward the top into ſeveral ſmaller branches, garniſhed with oblong oval leaves, which are indented on their edges, and end in acute points. The flowers terminate the ſtalks, each branch ending with one large, yellow, radiated flower, ſitting in a ſcaly empalement, whoſe ſcales are oval, and placed like the ſcales on fiſh over each other. The flowers are ſucceeded by narrow four-cornered ſeeds crowned with down. It flowers in June and July, and the ſeeds ripen the latter end of Auguſt.

This ſort may be propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe; for if they are kept till the ſpring, they ſeldom grow; but where they are permitted to ſcatter, the plants will come up the following ſpring without any care, and may be either tranſplanted the following autumn; or if they are deſigned to remain, they ſhould be hoed out to the diſtance of ten inches, or a foot each way, and conſtantly kept clean from weeds; theſe roots will be fit for uſe the ſecond year.

But moſt people propagate the plant by offſets, which, if carefully taken from the old roots, with a bud, or eye, to each, will take root very eaſily; the beſt time for this is the autumn, as ſoon as the leaves begin to decay; theſe ſhould be planted in rows about a foot aſunder, and nine or ten inches diſtance in the rows; the ſpring following the ground muſt be kept clean from weeds, and if in autumn it is ſlightly dug, it will promote the growth of the roots; theſe will be fit for uſe after two years growth, but the roots will abide many years, if they are permitted to ſtand; however, the young roots are preferable to thoſe which are old and ſtringy. It loves a gentle loamy ſoil, not too dry.

The ſecond ſort hath a perennial root, from which ariſe ſeveral ſtalks, about two feet high. The leaves at bottom are oval, indented, and hairy; thoſe above embrace the ſtalks with their baſe. The ſtalks are divided into ſeveral branches, garniſhed with a few ſcattering yellow flowers. The root has a very ſweet odour when broken. It flowers in July, but rarely ripens ſeeds here.

The third ſort hath a perennial root, from which ariſes many ſpear-ſhaped leaves, which are ſmooth and recurved. The ſtalks riſe near two feet high; they are angular, and branch at the top into ſeveral foot-ſtalks, each ſuſtaining one yellow radiated flower. It flowers in June, July, and Auguſt, and the ſeeds ripen in September.

The fourth ſort riſes with an upright ſtalk between three and four feet high, with ſpear-ſhaped leaves, which are turned backward, indented on their edges, and rough on their upper ſide. The flowers are collected in cloſe bunches on the upper part of the ſtalks; they are ſmall and yellow. It grows on the Alps, and other mountainous parts of Europe. It flowers in June, and the ſeeds ripen in autumn.

The fifth ſort grows naturally on the ſea-coaſts in many parts of England. I have ſeen it growing plentifully near Sheerneſs, in the iſle of Sheepy, in Kent; this riſes with an upright ſtalk a foot and a half high, garniſhed with fleſhy ſucculent leaves, which come out in cluſters, and are about an inch and a quarter long, and one eighth of an inch broad, ending in three points. The flowers come out at the top of the ſtalks in ſmall umbels; they are yellow, and have a border of rays; this flowers in July, and the ſeeds ripen in autumn. The younger branches of this plant are frequently ſold in the London markets for Samphire; but this is a great abuſe, becauſe this plant has none of the warm aromatic taſte of the true Samphire.

The ſixth ſort grows naturally in Germany; this riſes with upright ſtalks a foot and a half high, garniſhed with ſpear-ſhaped leaves which are covered with ſoft hairs, and are entire. The ſtalks each ſupport one large yellow flower, which appears in July, but rarely ripens ſeeds here.

The ſeventh ſort hath a perennial root and an annual ſtalk; this grows naturally in Hungary. The leaves are oblong and hairy; the ſtalks branch at the top in form of a corymbus. The flowers are ſmall, yellow, and are in cloſe cluſters; theſe appear in July, but ſeldom perfect ſeeds in England.

The eighth ſort grows naturally in Auſtria, Bohemia, and other parts of Germany; it hath a perennial root, and an annual ſtalk which riſes near two feet high, garniſhed with ſpear-ſhaped woolly leaves, which are ſawed, and cloſely embrace the ſtalks with their baſe. The upper part of the ſtalk divides into two or three erect branches, or foot-ſtalks, each ſuſtaining one pretty large deep yellow flower; theſe are in beauty in July, but ſeldom ripen ſeeds here.

The ninth ſort grows naturally in the ſouth of France, Spain, and Italy; this hath a perennial root, from whence ariſe ſeveral ſtalks about one foot high; the lower leaves are ſpear-ſhaped and prickly; the upper half embrace the ſtalks, which divide into ſeveral branches, each being terminated by one yellow flower, which appears in July, but ſeldom perfects ſeeds here.

The tenth ſort riſes about a foot high, dividing into many branches, which are garniſhed by oval hairy leaves, which half embrace the ſtalks with their baſe;

each of the branches is terminated by one large yellow flower, whoſe empalement is compoſed of oval ſcales. It flowers in July and Auguſt, but never perfects ſeeds in this country.

The eleventh ſort grows naturally in Hungary; this riſes with ſingle upright ſtalks near two feet high, garniſhed with oval ſpear-ſhaped leaves, which are ſlightly indented on the edges, and ſit cloſe to the ſtalks, which are hairy, and divide in form of a corymbus at the top. The flowers are pretty large, of a pale yellow colour, and appear in July, but are not ſucceeded by ſeeds in this country.

The twelfth ſort grows naturally in the Canary Iſlands; this riſes with ſeveral ſhrubby ſtalks near four feet high, which divide into ſmaller branches, garniſhed with cluſters of narrow fleſhy leaves, which are divided into three ſegments at their points. The flowers come out on the ſide of the branches at the top of the ſtalks; they are ſmall, and of a pale yellow colour, appearing in Auguſt.

The ſecond, third, fourth, ſixth, ſeventh, eighth, and ninth ſorts are abiding plants, which will thrive and flower in the open air in England; they may be all propagated by parting of their roots. The beſt time for doing of this is in autumn, at which time the plants may be removed; theſe may be intermixed with other flowering plants in the borders of large gardens, where they will make an agreeable variety during their continuance in flower. As theſe roots multiply pretty faſt, they ſhould be allowed room to ſpread, therefore ſhould not be planted nearer than two feet from other plants; and if they are removed every third year, it will be often enough, provided the ground between them is dug every winter, and, in ſnmmer, if they are kept clean from weeds, they will require no other care.

As ſome of theſe ſorts produce good ſeeds in England, they may be propagated by ſowing of the ſeeds in the autumn, on a border of light earth expoſed to the eaſt, where the morning ſun only is admitted; and in the ſpring, when the plants appear, they ſhould be kept clean from weeds till they are fit to remove, when they ſhould be tranſplanted on a ſhady border, ſix inches aſunder, obſerving to ſhade and water them till they have taken new root; and during the ſummer ſeaſon they ſhould be kept clean from weeds, and in autumn they may be tranſplanted into the borders where they are to remain.

The tenth ſort grows naturally in the ſouth of France, and on the Pyrenean mountains. This hath a thick fibrous root, which is perennial, ſending out many oblong indented leaves, whoſe baſe runs along the ſtalks from one joint to another: from the root ariſe three or four ſtalks about two feet high, which divide each into three or four ſmall branches, which are terminated by cluſters of ſmall yellow flowers, ſitting cloſe between the ſmall leaves; theſe appear in June and July, and are ſucceeded by narrow ſeeds, crowned with down, which ripen in the autumn.

It is propagated by ſeeds, which ſhould be ſown on a bed of light earth early in the ſpring; in May the plants will appear, which ſhould be kept clean from weeds till they are fit to tranſplant, when they ſhould be planted in an eaſt border, at about ſix inches diſtance each way, watering and ſhading them till they have taken new root; after which they will require no other culture but to keep them clean from weeds till the autumn, when they ſhould be planted where they are deſigned to remain.

The eleventh ſort grows naturally near Montpelier, and alſo in Italy; this hath a fibrous root, from which ariſe two or three erect ſtalks about two feet high, garniſhed with ſmooth oval leaves placed alternate, ſitting cloſe to the ſtalks; the veins of the leaves are ſlender, and formed like net-work. The ſtalks are terminated by one yellow flower incloſed in a rough ſcaly empalement, and at the two joints of the ſtalk immediately under the flower, come out ſmall footſtalks, with ſmaller flowers than thoſe on the top.

This plant ſeldom continues above two or three years, therefore young plants ſhould be raiſed from ſeeds to ſucceed them. The ſeeds may be ſown at the ſame time, and in the ſame manner as is directed for the tenth ſort, and the plants afterward treated in the ſame way.

The fifth ſort grows naturally in the ſalt marſhes in ſeveral parts of England, which are flowed by the tides, therefore is ſeldom admitted into gardens. The roots of this are perennial, but the ſtalks decay in autumn; and if any one has curioſity to keep a plant or two of it in their gardens, they may tranſplant it into a ſhady border from the place of its natural growth, and, by keeping it moiſt in dry weather, it will thrive pretty well, but the ſtalks will not riſe ſo high, nor will the leaves be near ſo fleſhy as in the ſalt marſhes.

The twelfth ſort will not live abroad in the open air in England, during the winter ſeaſon, ſo muſt be removed into ſhelter in autumn, but ſhould have as much free air as poſſible at all times, when the weather is mild, otherwiſe it is apt to draw up weak. In cold weather the plants muſt have very little water, for their ſtalks and leaves being ſucculent, they are very apt to rot with too much wet; in ſummer they ſhould be placed abroad with other hardy exotic plants in a ſheltered ſituation, where they will add to the variety, though they are plants of no great beauty, and ſeldom flower in England, unleſs the ſummer is very warm. This is eaſily propagated by cuttings, any time in ſummer, which, if planted in a ſhady border, will take root in a ſhort time.

The thirteenth ſort was diſcovered by the late Dr. Houſtoun, growing naturally at La Vera Cruz; this riſes with a ſhrubby ſtalk about two feet high, dividing into many ſmaller branches, which are hairy, and garniſhed with narrow ſtiff leaves placed oppoſite, without foot-ſtalks; from the edges of theſe ariſe long hairs, which are ſtiff, and come out by pairs; at the end of the branches ariſe the naked foot-ſtalks, which are four or five inches long, ſuſtaining one ſmall, yellow, radiated flower.

This is propagated by cuttings during the ſummer ſeaſon, which muſt planted on a bed of light earth, and ſhaded till they have taken root; after which the plants muſt be treated in the ſame manner as other hardy exotics, ſheltering them from froſt in winter.

The fourteenth ſort was ſent me from Maryland, where it grows naturally; this riſes with a ſtrong ſtalk about a foot and a half high, which is pretty cloſely ſet with prickly hairs, and garniſhed with rough ſpear-ſhaped leaves, about three inches long, and near one inch broad in the middle: toward the upper part of the ſtalk there are ſingle flowers coming from the wings at each joint, and the ſtalk is terminated by a cluſter of ſmall yellow flowers, diſpoſed in form of an umbel. This plant flowers here in Auguſt, but has not as yet perfected ſeeds in England.

The fifteenth ſort was diſcovered growing naturally at Carthagena, by the late Dr. Houſtoun; this riſes with a ſhrubby ſtalk to the height of ten or twelve feet, divided into ſeveral ligneous branches, garniſhed with ſpear-ſhaped leaves five inches long, and one inch and a half broad in the middle, and ſmooth on their upper ſide, but on their under have three longitudinal veins. The flowers are produced at the end of the branches, having very large ſcaly empalements; they are as large as a ſmall Sun-flower, of a pale yellow colour. This plant is too tender to live in the open air in England, ſo muſt be conſtantly kept in the bark-ſtove. It is propagated by ſeeds, which muſt be procured from the country where it naturally grows, for it does not produce any here; theſe muſt be ſown upon a hot-bed, and when the plants are fit to remove, they ſhould be each planted into a ſmall pot filled with light earth, and plunged into a freſh hot-bed, treating them in the ſame manner as other tender plants from the ſame country.

JOHNSONIA. Dale. Callicarpa. Lin. Gen. Plant. 127. Spondylococus. Mitch. 20. This plant was ſo titled by the late Dr. Dale, of South Carolina, in memory of Dr. Johnſon, who publiſhed an edition of Gerard's Herbal, corrected and much improved.

The Characters are,

The flower hath an empalement of one leaf, cut at the brim into four ſhort ſegments, which are erect. It hath one petal, which is tubulous, and divided into four parts at the brim, which ſpread open. It hath four ſlender ſummits, which are longer than the petal, terminated by oblong yellow ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſlender ſtyle, crowned by a thick obtuſe ſtigma. The germen afterward becomes a ſmooth globular berry, incloſing four hard oblong ſeeds.

Dr. Linnæus ranges this genus of plants in the firſt ſection of his fourth claſs, intitled Tetrandria Monogynia, which includes the plants whoſe flowers have four ſtamina and one ſtyle. As the ſeeds of this plant were ſent me from Carolina by the late Dr. Dale with this title, in the year 1739, and with them the characters of the genus, which was before it was mentioned by Dr. Linnæus, I have continued it under the Doctor's title.

We have but one Species of this genus, viz.

Johnsonia (*Americana*) floribus verticillatis ſeſſilibus, foliis ovato lanceolatis oppoſitis, caule fruticoſo. Dale. *Shrubby Johnſonia with oval ſpear-ſhaped leaves placed oppoſite, and flowers growing in whorls ſitting cloſe to the ſtalks.* Callicarpa. Act. Upſal. 1741. Mr. Cateſby, in his Hiſtory of Carolina, has figured it under the following title, Frutex baccifer verticillatus, foliis ſcabris latis dentatis & conjugatis, baccis purpureis denſè congeſtis, vol. ii. p. 47.

This ſhrub grows plentifully in the woods near Charles-town, in South Carolina. It riſes from four to ſix feet high, ſending out many branches from the root, which are woolly when young, like thoſe of the Wayfaring-tree, garniſhed with oval ſpear-ſhaped leaves placed oppoſite, ſtanding on ſhort foot-ſtalks; they are about three inches long, and one inch and a quarter broad in the middle, growing narrow at both ends, and a little indented on their edges, their ſurface rough, and a little hoary. The flowers come out in whorls round the ſtalks, ſitting very cloſe to the branches at the foot-ſtalks of the leaves; they are ſmall, tubulous, cut into four obtuſe ſegments at the top, which expand, and are of a deep purple colour; theſe are ſucceeded by ſoft ſucculent berries, which turn firſt to a bright red colour, but afterward change to a deep purple when ripe, and incloſe four hard oblong ſeeds.

The ſeeds of this plant were ſent me by Mr. Cateſby, from Carolina, in 1724; and many of the plants were then raiſed in ſeveral curious gardens in England; moſt, if not all of them were afterward planted in the open air, where they flouriſhed very well for ſome years, and ſeveral of the plants produced flowers in the Chelſea garden for four or five years, but theſe were not ſucceeded by fruit; and in the ſevere froſt in 1740, they were moſt of them deſtroyed, as were alſo the young plants which were raiſed from Dr. Dale's ſeeds the year before, which were only ſheltered under a frame; ſo that until the Doctor ſent a freſh ſupply of ſeeds in 1744, there were ſcarce any of the plants living in the Engliſh gardens; but ſince then, there has been quantities of the ſeeds brought to England.

This plant riſes eaſily from ſeeds, if they are ſown in a moderate hot-bed; the beſt way is to ſow the ſeeds in pots, and plunge them into a tan-bed of a moderate warmth; and when the plants come up, and have obtained ſome ſtrength, they ſhould be gradually inured to the open air, into which they ſhould be removed in June, and placed in a ſheltered ſituation, where they may remain till autumn; during which time they muſt be kept clear from weeds, and gently refreſhed with water in dry weather; but as theſe young plants are tender, they ſhould be placed under a frame before the early froſt comes on; for a froſt in autumn will kill the tender part of their ſhoots, which often cauſes their ſtalks to decay moſt part of their length before the ſpring. During the winter ſeaſon they ſhould be ſcreened from froſt, but in mild weather they muſt enjoy the free air, otherwiſe their ſhoots will turn mouldy and decay. The following ſpring, juſt before the plants ſhoot, they ſhould be carefully turned out of the pots, ſo as not to break their roots; and part of them may be planted in ſmall pots filled with light earth, and the others into a nurſery-bed in a warm ſituation, at about four or five inches aſunder; thoſe in the pots ſhould be plunged into a moderate hot-bed, which will forward their taking root; but afterward muſt be hardened to bear the open air as before; theſe plants in the pots ſhould be ſheltered under a frame in winter for three or four years, till they have obtained ſtrength; then they may be turned out of the pots, and planted in a warm ſituation, where they will live in the open air in common winters; but in ſevere froſt they are in danger of being killed, if they are not ſheltered; therefore the ſurface of the ground about their roots ſhould be covered with old tan to keep out the froſt, and their tops covered with Straw, Peas-haulm, or Fern, which will protect them.

Thoſe plants in the beds ſhould alſo be covered with mats, or Straw, in froſty weather, and after they have obtained ſtrength, they may be tranſplanted into a warm ſituation, and treated every winter in the ſame manner as the other.

The leaves of this ſhrub were often uſed by Dr. Dale, in dropſical caſes, with very good ſucceſs. A particular account of the virtues of this, and many other plants of Carolina, was ſent me with dried ſamples of each, by the Doctor, during the laſt war; but as the ſhips were taken in their paſſage, they were all loſt, and the Doctor dying ſoon after, I could never recover them.

JONTHLASPI. See Clypeola.

JONQUIL. See Narcissus.

IPOMOEA. Lin. Gen. Plant. 199. Quamoclit. Tourn. Inſt. R. H. 116. tab. 39. *Quamoclit, or Scarlet Convolvulus.*

The Characters are,

The flower hath a ſmall permanent empalement, cut into five parts at the top. The petal is funnel-ſhaped, having a long cylindrical tube, whoſe brim is five-pointed, ſpreading open flat. It hath five awl-ſhaped ſtamina, nearly the length of the petal, terminated by roundiſh ſummits. In the bottom of the tube is ſituated a round germen, ſupporting a ſlender ſtyle, crowned by a roundiſh ſtigma. The germen afterward becomes a roundiſh capſule with three cells, incloſing three oblong ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

The Species are,

1. Ipomoea (*Quamoclit*) foliis pinnatifidis linearibus, floribus ſubſolitariis. Hort. Cliff. 60. *Ipomoea with very narrow many-pointed leaves, and ſolitary flowers.* Quamoclit foliis tenuiter inciſis & pennatis. Tourn. Inſt. R. H. 116. *Quamoclit with narrow, cut, winged leaves.*
2. Ipomoea (*Coccinea*) foliis cordatis acuminatis, baſi angulatis, pedunculis multifloris. Hort. Upſal. 39. *Ipomoea with heart-ſhaped pointed leaves, angular at the baſe, and many flowers on a ſtalk.* Quamoclit Americana folio hederæ flore coccineo. Com. Rar. Plant. 21. *American Quamoclit with an Ivy leaf and a ſcarlet flower, commonly called Scarlet Convolvulus.*
3. Ipomoea (*Solanifolia*) foliis cordatis acutis integerrimis, floribus ſolitaris. Prod. Leyd. 430. *Ipomoea with acute, heart-ſhaped, entire leaves, and ſolitary flowers.* Quamoclit Americana ſolani folio, flore roſeo. Plum. Cat. 3. *American Quamoclit with a Nightſhade leaf, and a Roſe-coloured flower.*
4. Ipomoea (*Violacea*) foliis cordatis integerrimis, floribus confertis corollis indiviſis. Sauv. Monſp. 114. *Ipomoea with heart-ſhaped entire leaves, flowers growing in cluſters, and undivided petals.* Quamoclit foliis ampliſſimis cordiformibus. Plum. Cat. 4. *Quamoclit with large heart-ſhaped leaves.*
5. Ipomoea (*Tuberoſa*) foliis palmatis, lobis ſeptenis lanceolatis integerrimis pedunculis trifloris. Hort. Upſal. 39. *Ipomoea with hand-ſhaped leaves, compoſed of ſeven ſpear-ſhaped entire lobes, and foot-ſtalks having three flowers.* Convolvulus major heptaphyllus, flore ſulphureo odorato. Sloan. Cat. 55. *Greater ſeven-leaved*

Bindweed with a yellow ſweet flower, called Spaniſh Arbour Vine.

6. Ipomoea (*Triloba*) foliis trilobis cordatis, pedunculis trifloris. Lin. Sp. Plant. 161. *Ipomea with heart-ſhaped leaves having three lobes, and three flowers on a foot-ſtalk.* Convolvulus pentaphyllos minor, flore purpureo. Sloan. Cat. 55. *Smaller five-leaved Bindweed with a purple flower.*

7. Ipomoea (*Hepaticæfolia*) foliis palmatis, floribus aggregatis. Flor. Zeyl. 79. *Ipomoea with hand-ſhaped leaves, and flowers growing in cluſters.* Volubilis Zeylanica pes tigrinus dicta. Hort. Elth. 318. *Volubilis of Ceylon, called Tyger's-foot.*

8. Ipomoea (*Digitata*) foliis digitatis glabris floribus ſeſſilibus, caule lævi. Lin. Sp. Plant. 162. *Ipomoea with ſmooth hand-ſhaped leaves, whoſe lobes ſit cloſe, and a ſmooth ſtalk.* Convolvulus quinquefolius glaber Americanus. Pluk. Alm. 116. *Smooth five-leaved American Bindweed.*

The firſt ſort grows naturally in both Indies; in the Weſt-Indies it is called Sweet-William, and by ſome Indian Pink. It riſes with a twining ſtalk ſeven or eight feet high, ſending out many ſlender twining branches, which twiſt about any neighbouring plants for ſupport; the leaves are winged, being compoſed of ſeveral pair of very fine narrow lobes, not thicker than fine ſowing thread; they are about an inch long, of a deep green, and ſometimes are by pairs oppoſite, and at others they are alternate; the flowers come out ſingly from the ſide of the ſtalks, ſtanding upon ſlender foot-ſtalks about one inch long; they are funnel-ſhaped, having a tube an inch long, which is narrow at bottom, but gradually widens to the top, which ſpreads open flat, with five corners or angles: they are of a moſt beautiful ſcarlet colour, ſo make a fine appearance. This is an annual plant in England, but whether it is ſo in its native place I cannot tell; for as the ſeeds fall to the ground, ſo there is a ſucceſſion of young plants, which continue flowering great part of the year.

This is a tender plant, ſo will not thrive in the open air in England; it is propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring; and as the plants will ſoon appear, they ſhould be each tranſplanted into a ſmall pot filled with light earth, before they twine about each other, for then it will be difficult to diſengage them without breaking their tops. When they are potted, they ſhould be plunged into a new hot-bed, and ſticks placed down by each plant for their ſtalks to twine about; after they have taken new root, they ſhould have a good ſhare of air in warm weather to prevent their drawing up weak; and when they are advanced too high to remain under the frame, they ſhould be removed into the tan-bed in the ſtove, where they ſhould have ſupport, for their branches will extend to a conſiderable height. They will begin to flower in June, and there will be a ſucceſſion of flowers till the end of September, and the ſeeds will ripen well in this ſituation every autumn.

The ſecond ſort grows naturally in Carolina and the Bahama Iſlands; this is alſo an annual plant in England, but is not ſo tender as the former. It hath a twining ſtalk, which riſes ſix or eight feet high, garniſhed with heart-ſhaped leaves ending in acute points, which are divided into angles at their baſe; the flowers come out from the ſide of the branches, upon ſlender foot-ſtalks, which ſupport three or four flowers of the ſame form and ſize as the former, but are not ſo deep coloured. There is a variety of this with Orange-coloured flowers, but they do not differ in any other reſpect. If the ſeeds of this ſort are ſown on a hot-bed in the ſpring, and when the plants come up, if they are gradually hardened, and afterward tranſplanted into a warm border, in favourable ſeaſons they will flower and produce good ſeeds; but moſt people raiſe the plants on a very gentle hot-bed, and tranſplant them afterward into another; by which method they are brought forward, ſo will perfect their ſeeds earlier.

The third ſort is like the ſecond, but the leaves have no angles, and the flowers are of a Roſe colour, each foot-ſtalk ſuſtaining one flower. This may be treated in the ſame manner as the ſecond ſort.

The fourth ſort grows naturally in the Weſt-Indies, where it twines about any neighbouring ſupport, and riſes ten or twelve feet high, garniſhed with large heart-ſhaped entire leaves: the flowers come out from the ſide of the branches upon ſlender foot-ſtalks, in cluſters; they are of a blue colour, and their brims are not angular as in the former ſpecies, but entire. This ſort is propagated by ſeeds, which ſhould be ſown on a hot-bed in the ſpring, and the plants afterward treated in the ſame way as is before directed for the firſt ſort, for it is too tender to thrive in the open air here.

The fifth ſort is cultivated in moſt of the iſlands in the Weſt-Indies, but is ſuppoſed to have been introduced there from the Spaniſh Main. Theſe plants riſe to a very great height, and ſend out many branches, ſo are planted to cover arbours for ſhade in the iſlands, from whence it had the appellation of Spaniſh Arbour Vine. The ſtalks of this plant are covered with a purple bark; they twine about any neighbouring ſupport, ſending out many ſide branches, ſo that one plant will cover an arbour of fifty feet long. The leaves are divided into ſeven lobes almoſt to the bottom; the flowers come out from the ſide of the ſtalks; they are large, funnel-ſhaped, of a bright yellow colour, and ſmell very ſweet; theſe are ſucceeded by large roundiſh capſules with three cells, containing one large ſeed in each, which are of a dark colour.

This is a perennial plant, but too tender to thrive in the open air in England; the ſeeds of this muſt be ſown upon a hot-bed in the ſpring, and when the plants come up, they muſt be tranſplanted into ſeparate pots, and plunged into a freſh hot-bed; but as they will ſoon grow too tall to ſtand under a frame, they ſhould be removed into the bark-ſtove, where they muſt be ſupported, otherwiſe they will twine about all the neighbouring plants. As theſe plants extend their ſhoots to a very great length, they require a tall ſtove, where they may have room to grow, without which they will never produce any flowers. I have had theſe plants ſeveral years, but have only ſeen one flower produced from them; for they grow ſo very large before they begin to have flowers, as that few of the ſtoves in England have height enough for their growth.

The ſixth ſort grows naturally in moſt of the iſlands in the Weſt-Indies; this hath a twining ſtalk, which riſes ten or twelve feet high, garniſhed with leaves divided into three lobes, which are heart-ſhaped; the foot-ſtalks ariſe from the ſide of the ſtalks, each ſuſtaining three purple flowers. This is alſo tender, ſo the plants muſt be raiſed on a hot-bed in the ſpring, and afterward planted in ſeparate pots, plunging them into another hot-bed, where they may remain till they reach the glaſſes, when they ſhould be removed into a glaſs-caſe where they may have room, and be ſcreened from the cold, but ſhould have a large ſhare of free air admitted to them in warm weather; with this treatment the plants will flower and produce ripe ſeeds.

The ſeventh ſort grows naturally in India; this riſes with a twining hairy ſtalk four or five feet high, garniſhed with hand-ſhaped leaves which are hairy, and divided at the bottom into ſeveral lobes; the flowers come out in cluſters, incloſed in a five-cornered involucrum; they are of a purpliſh colour, but ſmall, and open only in the evening, ſo make no figure. This is propagated by ſeeds, and requires the ſame treatment as the ſixth ſort.

The eighth ſort grows naturally in the Weſt-Indies; this hath a ſmooth twining ſtalk which riſes four or five feet high, garniſhed with hand-ſhaped leaves having five lobes, which ſit cloſe to the ſtalks; the flowers come out from the ſide of the ſtalks upon ſhort foot-ſtalks, which ſuſtain two or three purple flowers; theſe are ſucceeded by round tricapſular ſeed-veſſels; in each cell there is one brown ſeed.

This ſort requires the ſame treatment as the two former, with which it will produce flowers and perfect its ſeeds in England.

IRESINE. Lin. Gen. 1113. Amaranthus. Sloan. Cat. Jam. 49.

The Characters are,

It hath male and female flowers on different plants; the male flowers have an empalement compoſed of two neat ſmall leaves, and five erect, ſmall, ſpear-ſhaped petals, and five nectarii ſituated between the five erect ſtamina, which are terminated by roundiſh ſummits; the female flowers on the other plants, have the like empalement and corolla as the male, with an oval germen but no ſtyle, crowned by two roundiſh ſtigma; the empalement afterward becomes an oval capſule, incloſing woolly ſeeds.

This genus is ranged in the fifth order of Linnæus's twenty-ſecond claſs of plants, intitled Diœcia Pentandria, from their having male and female flowers on different plants, and the male flowers having five ſtamina.

We know but one Species of this genus, viz.

Iresine (*Celoſioides.*) Lin. Sp. 1456. Amaranthus panicula flavicante gracili holoſericea. Sloan. Cat. Jam. 49. *Amaranthus with ſlender yellowiſh panicles of ſilky flowers.*

This plant grows naturally in Jamaica, and moſt of the other iſlands in the Weſt-Indies, from whence I have received the ſeeds. It is perennial; the ſtalks are weak, ſo require ſupport; they riſe ten or twelve feet high, having large knots at each joint, garniſhed with oval, ſpear-ſhaped, ſmooth leaves. The ſtalks are very diffuſed, branching out on every ſide; the flowers are produced on the top, in ſlender looſe panicles, covered with a ſilky down, of a pale yellow colour; theſe appear in July and Auguſt, and in warm ſeaſons the ſeeds will ripen in the autumn.

It is propagated by ſeeds, which ſhould be ſown upon a hot-bed in the ſpring, and the plants ſhould be afterward treated in the ſame manner as hath been directed for the tender ſorts of Amaranthus, till they are grown too tall to remain in the frame, when they ſhould be removed to the bark-ſtove, plunging the pots into the tan-bed, and ſupporting the branches of the plants with a trellis to prevent their falling on other plants; in this ſituation they will produce flowers and ſeeds the ſecond year, but the plants may be continued three or four years longer.

IRIS. Tourn. Inſt. R. H. 358. tab. 186, 187, 188. Lin. Gen. Plant. 57. Flower-de-luce; in French, *Flambe.*

The Characters are,

The flowers are incloſed in ſpathæ (or ſheaths) which are permanent; the flowers are divided into ſix parts; the three outer petals are oblong, obtuſe, and reflexed, the three inner are erect, and end in acute points; theſe all join at their baſe: they have three awl-ſhaped ſtamina, which lie upon the reflexed petals, and are terminated by oblong depreſſed ſummits. Under the flower is ſituated an oblong germen, ſupporting a ſlender ſtyle, crowned by a large three-pointed ſtigma; the germen afterward becomes an oblong angular capſule with three cells, filled with large ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, which contains thoſe plants whoſe flowers have three ſtamina and one ſtyle.

The Species are,

1. Iris (*Pſeudoacorus*) corollis imberbibus, petalis interioribus ſtigmate minoribus, foliis enſiformibus. Hort. Cliff. *Iris with an unbearded flower, the inner petals ſmaller than the ſtigma, and ſword-ſhaped leaves.* Iris paluſtris lutea. Tabern. Icon. 643. *Yellow Marſh Flower-de-luce.*
2. Iris (*Squalens*) corollis barbatis, caule foliis longiore multifloro. Hort. Cliff. 18. *Iris with bearded flowers, and the ſtalks longer than the leaves, having many flowers.* This is the Iris vulgaris Germanica ſive ſylveſtris. C. B. P. 30. *Common German, or wild Flower-de-luce.*
3. Iris (*Aphylla*) corollis barbatis, ſcapo nudo longitudine foliorum multifloro. Prod. Leyd. 17. *Iris with a bearded flower, and a naked ſtalk the length of the leaves, with many flowers.* Iris latifolia, caule aphyllo. C. B. P. 32. *Broad-leaved Flower-de-luce, whoſe ſtalks are without leaves.*
4. Iris (*Variegata*) corollis barbatis, caule ſubfolioſo longitudine foliorum multifloro. Prod. Leyd. 17. *Iris with a bearded flower, and a leafy ſtalk the length of the leaves, with many flowers.* Iris latifolia pannonica, colore multiplici. C. B. P. 31. *Broad-leaved Hungarian Flower-de-luce of many colours.*
5. Iris (*Suſiana*) corollis barbatis, caule foliis longiore unifloro. Hort. Cliff. 18. *Iris with a bearded flower, and a ſtalk longer than the leaves, having one flower.* Iris Suſiana, flore maximo ex albo nigricante. C. B. P. 31. *Flower-de-luce with a very large flower of a black and white colour, commonly called Chalcedonian Iris.*
6. Iris (*Biflora*) corollis barbatis, caule foliis breviore trifloro. Hort. Upſal. 17. *Iris with a bearded flower, and a ſtalk ſhorter than the leaves, with three flowers.* Iris humilis major, ſaturatè purpurea biflora. Tourn. Inſt. 361. *Greater Dwarf Flower-de-luce of a dark purple colour, and having two flowers on each ſtalk.*
7. Iris (*Pumila*) corollis barbatis, caule foliis breviore unifloro. Lin. Sp. Plant. 38. *Iris with a bearded flower, and a ſtalk ſhorter than the leaves, with one flower.* Iris humilis minor, flore purpureo. Tourn. Inſt. 361. *Smaller Dwarf Flower-de-luce with a purple flower.*
8. Iris (*Germanica*) corollis barbatis, caule foliis longiore multifloro, floribus inferioribus pedunculatis. Lin. Sp. 55. *Iris with a bearded flower, a ſtalk longer than the leaves with many flowers, and the lower flowers on foot-ſtalks.* Iris Aſiatica cærulea polyanthos. C. B. P. *Blue Aſiatic Flower-de-luce with many flowers, called greater Dalmatian Iris.*
9. Iris (*Orientalis*) corollis barbatis, germinibus trigonis, foliis enſiformibus longiſſimis caule foliis longiore bifloro. Pluk. 154. *Iris with a bearded flower, a three-cornered germen, very long ſword-ſhaped leaves, and a ſtalk longer than the leaves, with two flowers.*
10. Iris (*Graminea*) corollis imberbibus, germinibus ſexangularibus, caule ancipiti, foliis linearibus. Hort. Cliff. 19. *Iris with flowers having no beards, a ſix-cornered germen, a ſtalk having flowers on both ſides, and narrow leaves.* Iris anguſtifolia prunum redolens minor. C. B. P. 33. *Smaller narrow-leaved Flower-de-luce ſmelling like Plums.*
11. Iris (*Maritima*) corollis imberbibus, caule foliis breviore trifloro, foliis lineari-enſiformibus. *Iris whoſe flowers are not bearded, the ſtalk ſhorter than the leaves, having three flowers, and narrow ſword-ſhaped leaves.* Iris anguſtifolia maritima major. C. B. P. 33. *Greater narrow-leaved maritime Flower-de-luce.*
12. Iris (*Anguſtifolia*) corollis imberbibus, caule foliis æqualibus multifloro, ſpathâ majoribus erectis. *Iris whoſe flowers have no beards, the ſtalks equal in length with the leaves, having many flowers which are larger and more erect than the ſpatha.* Iris anguſtifolia, maritima minor. C. B. P. *Smaller narrow-leaved maritime Flower-de-luce.*
13. Iris (*Bicolor*) corollis imberbibus, caule foliis longiore multifloro, germinibus ſexangularibus, foliis linearibus. *Iris whoſe flowers have no beards, the ſtalks longer than the leaves, with many flowers, a ſix-cornered germen, and very narrow leaves.* Iris anguſtifolia, bicolor. C. B. P. 33. *Narrow-leaved Flower-de-luce with two colours.*
14. Iris (*Spuria*) corollis imberbibus, germinibus ſexangularibus, caule tereti, foliis ſublinearibus. Hort. Cliff. 19. *Iris whoſe flowers have no beards, with a ſix-cornered germen, a taper ſtalk, and very narrow leaves.* Iris pratenſis anguſtifolia, folio fœtido. C. B. P. 32. *Narrow-leaved Meadow Flower-de-luce, with a ſtinking leaf.*
15. Iris (*Sativa*) corollis imberbibus, ſpathâ bifoliâ, caule folioſo longitudine foliorum, pedunculis longioribus. *Iris with flowers having no beards, a ſheath containing two leaves, a leafy ſtalk the length of the leaves, and longer foot-ſtalks to the flowers.* Iris ſativa lutea. C. B. P. 32. *Yellow Garden Flower-de-luce.*
16. Iris (*Picta*) corollis imberbibus, caule longitudine foliorum multifloro, foliis enſiformibus. *Iris with an unbearded flower, a ſtalk the length of the leaves, with*

many flowers, and ſword-ſhaped leaves. Iris humilis minor, flore pićto. Tourn. Inſt. 362. *Leſſer Dwarf Flower-de-luce with a painted flower.*

17. Iris (*Verna*) corollis imberbibus, caule unifloro foliis breviore, radice fibroſâ. Flor. Virg. 10. *Iris with an unbearded flower, a ſtalk ſhorter than the leaves, with one flower, and a fibrous root.* Iris Virginiana pumila ſive chamæiris verna anguſtifolia, flore purpuro-cæruleo odorato. Pluk. Alm. 196. *Dwarf Spring Virginia Flower-de-luce, with a narrow leaf, and a purple blue ſweet ſmelling flower.*

18. Iris (*Verſicolor*) corollis imberbibus, germinibus ſubtrigonis, caule tereti, foliis enſiformibus. Lin. Sp. Plant. 39. *Iris with an unbearded flower, a three-cornered germen, a taper ſtalk, and ſword-ſhaped leaves.* Iris Americana verſicolor ſtylo crenato. Dill. Hort. Elth. 188. *Party-coloured American Flower-de-luce, with a crenated ſtyle.*

19. Iris (*Fœtidiſſima*) corollis imberbibus petalis interioribus patentiſſimis, caule uniangulato foliis enſiformibus. Hort. Cliff. 19. *Iris with an unbearded flower, the inner petals ſpreading, a ſtalk with one angle, and ſword-ſhaped leaves.* Iris fœtidiſſima, ſeu Xyris. Tourn. Inſt. 360. *Moſt ſtinking Flower-de-luce, or Xyris, called Stinking Gladwyn.*

20. Iris (*Siberica*) corollis imberbibus, germinibus trigonis, caule tereti, foliis linearibus. Lin. Hort. Cliff. 19. *Iris with an unbearded flower, a three-cornered germen, a taper ſtalk, and narrow leaves.* Iris pratenſis, anguſtifolia non fœtida altior. C. B. P. 32. *Taller narrow-leaved Meadow Flower-de-luce, not ſtinking.*

21. Iris (*Tuberoſa*) corollis imberbibus, foliis tetragonis. Vir. Cliff. 6. *Iris with an unbearded flower and four-cornered leaves.* Hermodaćtylus folio quadrangulo. Tourn. Cor. 50. *Hermodaćtyle with a four-cornered leaf.*

22. Iris (*Florentina*) corollis barbatis, caule foliis altiore ſubbifloro floribus ſeſſilibus. Lin. Sp. 55. *Iris with a bearded corolla, ſtalks taller than the leaves, having two ſeſſile flowers.* Iris alba Florentina. C. B. P. 31. *White Florentine Iris.*

23. Iris (*Sambucina*) corollis barbatis, caule foliis altiore multifloro, petalis deflexis planis, erećtis emarginatis. Lin. Sp. 55. *Iris with a bearded corolla, ſtalks taller than the leaves, having many flowers whoſe petals are deflexed, and the upright are indented.* Iris latifolia Germanica, ſambuci odore. C. B. P. 31.

The firſt ſort grows naturally in ditches and ſtanding waters in moſt parts of England; this is titled in the Pharmacopeia, Acorus adulterinus, or Pſeudo acorus. *Baſtard Acorus.* The roots of this are pretty thick, fleſhy, and ſpread every way near the ſurface of the ground; the leaves are ſword-ſhaped, very long, of a deep green colour, and not ſo ſtiff as thoſe of the Garden Iris; the ſtalks riſe from two to three feet high, toward the top of which grow three or four flowers one above another, which gradually ſucceed each other; they are ſhaped like the ordinary Flower-de-luce, but the three inner petals are leſs than the ſtigmas, ſo they want the three upright petals which are termed ſtandards. Theſe appear in June, and are ſucceeded by large three-cornered capſules, containing three rows of flat ſeeds.

This ſort is not cultivated in gardens, but being an officinal plant, it is here mentioned to introduce the other.

The ſecond ſort grows naturally in Germany, but has been long cultivated in the Engliſh gardens for ornament; the roots of this are very thick, fleſhy, and divided into joints, ſpreading juſt under the ſurface of the ground; they are of a browniſh colour on their outſide, but white within; the leaves ariſe in cluſters, embracing each other at their baſe, but ſpread aſunder upward in form of wings; they are a foot and a half long, and two inches broad, having ſharp edges, ending in points like ſwords; the ſtalks between theſe, which are a little longer than the leaves, having at each joint one leaf without a foot-ſtalk; theſe diminiſh in their ſize upward; the ſtalks divide into three branches, each of which produce two or three flowers one above another at diſtances, each incloſed in a ſheath; they have three large Violet-coloured petals which turn backward, and are called falls; theſe have beards near an inch long on their midrib toward their baſe, and have a ſhort arched petal which cover the beard, with three broad erećt petals of the ſame colour, called ſtandards; the ſtamina lie upon the reflexed petals. Under each flower is ſituated an oblong germen, which turns to a large three-cornered capſule with three cells, filled with large compreſſed ſeeds. This flowers in June, and the ſeeds ripen in Auguſt.

There is a variety of this with blue ſtandards and purple falls, which is titled Iris hortenſis latifolia, by Caſpar Bauhin; and one with pale purple ſtandards, another with white, and a third with a ſmaller flower, but theſe are accidental varieties which have come from ſeeds.

The third ſort has broader leaves than the laſt, the ſtalks have no leaves upon them, and are equal in length with the leaves; they have three or four large bright purple flowers, which ſtand above each other, having purpliſh ſheaths or hoods; the three bending petals or falls are ſtriped with white, from the baſe to the end of the beard; the flowers are ſucceeded by large blunt triangular capſules with three cells, filled with compreſſed ſeeds. It flowers the latter end of May, and the ſeeds ripen the beginning of Auguſt.

The fourth ſort grows naturally in Hungary; the leaves of this are like thoſe of the ſecond ſort, but are of a darker green; the ſtalks riſe as tall as the leaves, and toward the bottom are garniſhed with one leaf at each joint, whoſe baſe embrace the ſtalks; the upper part is naked, and branches into three, each having two or three flowers above one another; the three upright petals or ſtandards are yellow, and the bending petals or falls are variegated with purple ſtripes. This flowers in June, but is rarely ſucceeded by ſeeds in England.

The fifth ſort grows naturally near Conſtantinople, and in other parts of the eaſt. The leaves of this ſort are not ſo broad as thoſe of the ſecond, and are of a grayiſh colour; the ſtalks riſe two feet and a half high, ſupporting one very large flower; the three upright petals are almoſt as broad as a hand, but very thin, of mixed black and white ſtripes; the three bending petals or falls are of a darker colour, from whence ſome gardeners have called it the Mourning Iris. This flowers the latter end of May, or the beginning of June, but never has any ſeeds in England.

The ſixth ſort hath broad leaves like thoſe of the ſecond ſort, but ſhorter; the ſtalks riſe nine or ten inches high, branching into two or three at the top, each ſuſtaining two deep purple flowers. This flowers in May, but is not ſucceeded by ſeeds in England.

The ſeventh ſort hath narrower and ſhorter leaves than the former; the ſtalks are ſhorter than the leaves, and ſupport one flower on the top, of a light purple colour. This flowers the beginning of May, but rarely produces ſeeds in this country. There are two or three varieties of this, which differ in the colour of their flowers.

The eighth ſort hath the largeſt leaves of any of the Flower-de-luce, they are of a grayiſh colour and ſpread wide, embracing each other at their baſe, where they are purpliſh. The ſtalks riſe near four feet high, and divide into ſeveral branches, each ſupporting three or four flowers above each other at diſtances, covered with a thin ſheath; the three bending petals or falls, are of a faint purple inclining to blue, with purple veins running lengthways; the beard is yellow, and the three erećt petals or ſtandards are of a bright blue, with ſome faint purple ſtripes, the flowers have an agreeable ſcent. They appear the latter end of June, but are ſeldom ſucceeded by ſeeds in England.

The ſeeds of the ninth ſort were brought from Carniola, by the Right Rev. Dr. Pocock, Biſhop of Oſſory, who found the plants growing there naturally: theſe were ſown in the Chelſea garden, where they ſucceeded very well, and the plants have been ſince communicated to many curious gardens in Europe.

This plant hath a thick fleſhy root, divided into many knots or tubers, which ſpread and multiply in the ground; theſe ſend out many ſtrong, thick, fleſhy fibres, which ſtrike deep in the earth, putting out ſeveral ſmaller fibres from their ſides. From theſe roots ariſe cluſters of flat ſword-ſhaped leaves of a deep green colour, which are more than three feet long, and little more than one inch broad in the broadeſt part, ending in points; theſe leaves are connected together at their baſe into ſeveral heads or bundles, wrapping over each other; and between theſe ariſe the flower-ſtalks, which grow four feet high and are jointed, having very long ſpathæ or ſheaths at each of the upper joints, which include the flowers. Theſe ſtalks generally ſuſtain two flowers, one coming out of each ſheath or ſpatha; theſe are permanent, and when the flowers are paſt, cloſely cover the ſeed-veſſel. The flowers are divided into nine leaves, three of theſe ſtand erect, which are white, and ſix turn down, which are joined together at their baſe, the lower ſpreading out into a broad, obtuſe, reflexed fall, having a beard which is of a bright yellow colour; the upper ſegment is arched over the lower, ſo as to form a ſort of lip, which is reflexed backward; under theſe is ſituated an oblong three-cornered germen, which afterward becomes an oblong, ſwollen, three-cornered ſeed-veſſel, ending in a long point, which opens into three longitudinal cells, in which the ſeeds are ranged; theſe are angular and compreſſed. This plant flowers the latter end of June, or the beginning of July, and the ſeeds ripen in the autumn. It is very hardy, and thrives well in the open air without any protection. The leaves decay to the root in the autumn, and new ones ariſe in the ſpring. The roots alſo propagate very faſt, when they are in a light moiſt ſoil, ſo that it may ſoon be had in plenty, without waiting for plants from ſeeds.

The tenth ſort grows naturally in Auſtria; this hath narrow, flat, Graſs-like leaves, about a foot long, of a light green colour; between theſe ariſe the ſtalks about ſix inches high, having two narrow green leaves, which are much longer than the ſtalks; theſe ſtalks ſuſtain two or three flowers, which are ſmaller than any of the former ſpecies; the petals have no beards, but have a broad yellow line adorned with purple ſtripes; the three falls are of a light purple colour ſtriped with blue, and have a convex ridge running longitudinally, the other are of a reddiſh purple variegated with violet; they have a ſcent like freſh Plums. It flowers in July, and is ſucceeded by ſeed-veſſels which are ſhort, having three borders or wings running lengthways, opening in three cells, which are filled with angular ſeeds, which ripen in September.

The eleventh ſort grows naturally near the ſea, in the ſouth of France, and in Italy. This hath narrow ſword-ſhaped leaves, little more than a foot long, of a deep green colour; the ſtalks do not riſe ſo tall as the leaves; they ſuſtain at the top two or three flowers which ſtand near together; they are of a bright purple colour with very deep falls, and the three ſtandards are blue; the bending petals have no beards, but inſtead of that white broad ſtripes through the middle. This flowers in July, and the ſeeds ripen in September.

The twelfth ſort hath narrower leaves than the former, but of the ſame deep green colour; the ſtalks do not riſe higher than the leaves, and ſupport two or three flowers, which have long permanent empalements ſtanding erect, which cover the ſeed-veſſel till the ſeeds are ripe; the flowers are ſmaller, and of a paler colour than thoſe of the eleventh ſort.

The thirteenth ſort has very narrow, long, Graſs-like leaves, of a light green; the ſtalks riſe two feet and a half high, ſuſtaining three or four flowers above each other, which have blue falls, and purple ſtandards ſtriped with pale blue lines. This flowers in July, and the ſeeds ripen at Michaelmas.

The fourteenth ſort grows naturally in Germany; this hath leaves like thoſe of the eleventh ſort, which, when broken, have a diſagreeable ſcent; but this is accidental, and not common to all the plants; the ſtalks of this are taper, and riſe a little above the leaves, and ſuſtain three or four flowers one above another, which have light blue ſtandards, and purple variegated falls without beards; inſtead of which, they have a broad white line in the middle; theſe are ſucceeded by ſhort thick capſules, which have ſcarce any angles, opening in three cells, which are filled with angular ſeeds. It flowers in July, and the ſeeds ripen in September.

The fifteenth ſort has narrower leaves than thoſe of the ſecond, of a pale green colour, and not ſo ſtiff; the ſtalks are equal in height with the leaves, and branch out on both ſides with long foot-ſtalks, each ſuſtaining one pretty large yellow flower, incloſed in a long two-leaved ſheath; at each joint where the foot-ſtalks come out there is a ſingle leaf, which embraces the ſtalks with their baſe. This flowers in June, but rarely produces ſeeds in this country.

There are two varieties of this ſort, one with a ſulphur-coloured, and the other with a variegated flower, which are ſuppoſed to be only varieties which have been accidentally produced from ſeeds.

The ſixteenth ſort hath broad ſword-ſhaped leaves about eight inches long; the ſtalks riſe about the ſame height with the leaves, and divide into two or three foot-ſtalks, each ſuſtaining two or three flowers one above another, which have yellow ſtandards, and the falls are variegated with dark ſtripes. This flowers in June, but does not produce ſeeds here.

The ſeventeenth ſort grows naturally in North America; this hath tufted fibrous roots, from which ariſe many Graſs-like leaves about nine inches long; from between theſe come out the ſtalks, which are ſhorter than the leaves, ſupporting one purple flower with blue ſtandards. This ſort flowers in May, but ſeldom produces ſeeds in England.

The eighteenth ſort grows alſo in North America; this hath narrow ſword-ſhaped leaves about a foot long, of a light green colour; the ſtalks riſe a little above the leaves, they are taper, and ſupport two or three flowers one above another; the ſtandards are of a light blue, and the falls are purple variegated, with a broad white line inſtead of a beard through the middle. The germen, which is ſituated under the flower, is three-cornered below, but taper toward the top. This flowers in June, and often produces ſeeds here.

The nineteenth ſort grows naturally in moiſt places in many parts of England, ſo is ſeldom admitted into gardens. This hath thick tufted fibrous roots; the leaves are of a Graſs-green, ſword-ſhaped, and when broken emit a ſtrong odour, not much unlike that of hot roaſt beef at the firſt ſcent, but if ſmelt too cloſe, becomes diſagreeable. It is generally called ſtinking Gladwyn in England; the ſtalks riſe about the ſame height with the leaves, ſupporting two ſmall flowers, of a purple colour, variegated. It flowers in June, and the ſeeds ripen in autumn.

The twentieth ſort grows naturally in Auſtria and Bohemia; this hath narrow ſword-ſhaped leaves near a foot and a half long, of a dark green colour; the flower-ſtalks riſe above the leaves, and ſupport two or three flowers with light blue ſtandards, and deep blue falls, with a broad ſtripe of white, inſtead of the beard. This flowers in July, and the ſeeds ripen in September.

There are ſeveral varieties of theſe flag or ſword-leaved Iriſes, which chiefly differ in the colour of their flowers, ſo are not to be regarded as diſtinct ſpecies; thoſe which are here enumerated are ſuppoſed to be ſpecifically different, great part of them I have cultivated by ſeeds, and found them conſtantly produce the ſame as the parent plants.

All theſe ſorts are generally propagated by parting of their roots, which moſt of them multiply faſt enough. The beſt time to remove and part the roots is in autumn, that they may get good root before the ſpring, otherwiſe they will not flower ſtrong the following ſummer. All thoſe ſorts which ſpread much at their roots ſhould be tranſplanted every other year, to keep them within bounds, otherwiſe they will ſpread ſo much as to become troubleſome, eſpecially if they are planted near other flowers; indeed, the large growing kinds are moſt of them too ſpreading for the flower-garden, ſo are only fit to fill up the ſpaces between trees and ſhrubs in large plantations, where they will have a good effect during the time of their flowering.

The fifth, ſixth, ſeventh, tenth, eleventh, ſixteenth, ſeventeenth and eighteenth ſorts, grow in leſs compaſs, ſo may be admitted into the large borders, or in clumps of flowers in the pleaſure-garden, where they will add to the variety. The fifth ſort ſhould have a warmer ſituation, being a little tender, but all the other ſorts will grow in almoſt any ſoil or ſituation; theſe may all be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, then the plants will come up the following ſpring; but if the ſeeds are ſown in the ſpring, they will lie a year in the ground before they vegetate: when the plants come up they muſt be kept clean from weeds, and the following autumn ſhould be tranſplanted into beds at ten inches or a foot diſtance, where they may remain till they flower, which will be the ſecond ſummer after tranſplanting; but as moſt of the ſorts are ſo eaſily propagated by their roots, few people care to wait for ſeedling plants, unleſs of thoſe ſorts which are ſcarce.

The twenty-firſt ſort grows naturally in the iſlands of the Archipelago; this hath a tuberous knobbed root, from which ariſe five or ſix long, narrow, four-cornered leaves, between which ariſe the ſtalk, which ſupports one flower, ſhaped like thoſe of the Iris, but ſmall, and of a dark purple colour. This flowers in April, but does not produce ſeeds in England. It is propagated by the roots, which ſend out offſets; theſe may be taken up and tranſplanted when their leaves decay, but ſhould not be kept too long out of the ground. If theſe are planted in a deep looſe ſoil, the roots will run down, and be loſt in a few years where they are not diſturbed, ſo they ſhould be annually tranſplanted, and have a ſhallow ſoil; they are hardy in reſpect to cold, and require no farther care but to keep them clean from weeds.

The twenty-ſecond ſort grows naturally in the warm parts of Europe, but is hardy enough to thrive in the open air in England; the leaves of this ſort are broad, of a pale green colour; the flower-ſtalks riſe taller than the leaves, ſupporting one or two white flowers which ſit cloſe to the ſtalks. The roots of this are uſed in medicine, and is uſually called Sweet Iris.

The twenty-third ſort hath broad leaves, of a deeper green than thoſe of the laſt ſort. The ſtalks riſe much above the leaves, each having four or five flowers, which have a yellow ground, variegated with dark brown ſtripes, and have a ſcent like Elder; the two ſorts flower the latter end of May, or beginning of June.

They are ſo hardy as to thrive as well as the ſecond ſort in the open air in this country, and may be propagated by parting of their roots, or by ſeeds, in the ſame way as is directed for that ſort.

IRIS bulboſa. } See XIPHIUM.
IRIS Perſica. }

ISATIS. Tourn. Inſt. R. H. 211. tab. 100. Lin. Gen. Plant. 738. Woad; in French, *Paſtel.*

The CHARACTERS are,

The empalement of the flower is compoſed of four oval coloured leaves, which ſpread open and fall away. The flower hath four oblong petals, placed in form of a croſs, which are narrow at their baſe, but broad and obtuſe at their ends. It hath ſix ſtamina, four of which are as long as the petals, the other two are ſhorter; theſe are terminated by oblong lateral ſummits. It has an oblong compreſſed germen, the length of the two ſhorter ſtamina, crowned by an obtuſe ſtigma. The germen becomes an oblong compreſſed pod with one cell, opening with two valves, incloſing one oval compreſſed ſeed in the center.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifteenth claſs, intitled Tetradynamia Siliquoſa, which includes the plants whoſe flowers have four long and two ſhorter ſtamina, and their ſeeds in pods.

The SPECIES are,

1. ISATIS (*Tinctoria*) foliis radicalibus oblongo-ovatis obtuſis integerrimis, caulinis ſagittatis ſiliculis oblongis. *Woad with oblong, oval, blunt, entire leaves at bottom, but thoſe on the ſtalks arrow-pointed, and oblong pods.* Iſatis ſativa vel latifolia. C. B. P. 113. *Broad-leaved cultivated Woad.*
2. ISATIS (*Dalmatica*) foliis radicalibus lanceolatis crenatis, caulinis lineari-ſagittatis, ſiliculis brevioribus emarginatis. *Woad with ſpear-ſhaped lower leaves which are ſlightly crenated, thoſe on the ſtalks very narrow and arrow-pointed, and ſhorter indented pods.* Iſatis Dalmatica major. Bobart. *Greater Woad of Dalmatia.*
3. ISATIS (*Luſitanica*) foliis radicalibus crenatis, caulinis ſagittatis, pedunculis ſubtomentoſis. Lin. Sp. 936. *Woad with crenated lower leaves, thoſe on the ſtalks halbert-ſhaped, and the foot-ſtalks of the flowers woolly.* Iſatis ſylveſtris, minor Luſitanica. H. L. App. *Smaller wild Portugal Woad.*
4. ISATIS (*Ægyptiaca*) foliis omnibus dentatis. Lin. Sp. 937. *Woad whoſe leaves are all indented.*

The firſt ſort is cultivated in ſeveral parts of England for the purpoſes of dyeing, this being uſed as a foundation for many of the dark colours.

This is a commodity well worth propagating in all places where the land is ſuitable for it, which muſt be a pretty ſtrong ſoil, but not too moiſt.

The plant is biennial, in which it differs from the third and fourth ſort, which are annual. The lower leaves of this are of an oblong oval figure, and pretty thick conſiſtence, when growing in a proper ſoil; they are narrow at their baſe, but broad above, and end in obtuſe roundiſh points, entire on their edges, and of a lucid green. The ſtalks riſe near four feet high, dividing into ſeveral branches, garniſhed with arrow-ſhaped leaves, ſitting cloſe to the ſtalks; the ends of the branches are terminated by ſmall yellow flowers, in very cloſe cluſters, which are compoſed of four ſmall petals, placed in form of a croſs; theſe are ſucceeded by pods ſhaped like a bird's tongue, half an inch long, and one eighth of an inch broad, which when ripe turn black, and open with two valves, having one cell, in which is ſituated a ſingle ſeed. It flowers in July, and the ſeeds ripen the beginning of September.

The third ſort has been ſuppoſed to be the ſame ſpecies as the firſt, only differing by culture; but I have propagated both ſorts more than forty years, and have not found either of them alter; there are alſo very eſſential differences between the two plants, particularly in the ſhape of the under leaves, which in the wild ſort are narrow and ſpear-ſhaped, and thoſe on the ſtalks are not more than half the breadth of thoſe of the cultivated Woad. The ſtalks do not branch ſo much, and the pods are narrower than thoſe of the other ſort, nor do the roots abide ſo long, for they generally die the ſame year.

The ſecond ſort grows naturally in Dalmatia; this is a biennial plant; the lower leaves are ſpear-ſhaped, and crenated on their edges, but thoſe on the ſtalks are very narrow and arrow-pointed. The ſtalks branch more than thoſe of the firſt ſort, and riſe higher. The flowers are larger, and of a brighter yellow colour. The ſeed-veſſels are ſhorter, and broader at their ends, which are indented. Theſe plants all flower in July, and their ſeeds ripen in September.

The fourth ſort grows naturally in Egypt, and is an annual plant, which is too tender to thrive in the open air in England, therefore the ſeeds ſhould be ſown on a hot-bed in the ſpring; and when the plants are fit to remove they muſt be tranſplanted on a freſh hot-bed to bring them forward, but as ſoon as they have taken new root, they ſhould have a large ſhare of freſh air admitted to them daily, to prevent their being drawn up weak. In this bed they may remain five or ſix weeks, by which time they will be fit to tranſplant into pots, which ſhould be carefully performed, not to let the earth fall from their roots; the pots ſhould alſo be plunged into a moderate hot-bed, giving the plants plenty of air at all times when the weather will permit, and ſupporting their ſtalks, which will otherwiſe trail on the ground; with this management the plants will flower in June, and ripen their ſeeds in September.

The three laſt ſorts are not cultivated for uſe, ſo are only preſerved in botanic gardens for the ſake of variety; the ſecond and third ſorts are propagated by ſeeds, which ſhould be ſown in autumn; and when the plants come up, they muſt be thinned, leaving them ſix inches apart; afterward they muſt be kept clean from weeds: the ſummer following they will flower and produce ripe ſeeds, after which theſe ſorts ſoon decay; the roots of the firſt ſort will live another year. The firſt ſort which is propagated for uſe, is ſown upon freſh land which is in good heart, for which the cultivators of Woad pay a large rent; they generally chuſe to have their land ſituated near great towns, where there is plenty of dreſſing, but they never ſtay long on the ſame ſpot, for the beſt ground will not admit of being ſown with Woad more than twice; for if it is oftener repeated, the crop ſeldom pays the charges of culture, &c.

Thoſe who cultivate this commodity, have gangs of people, who have been bred to this employment, ſo that whole families travel about from place to place, wherever their principal fixes on land for the purpoſe; but theſe people go on in one track, juſt as their predeceſſors taught them; nor have their principals deviated much from the practice of their anceſtors, ſo that there is a large field for improvement, if any of the cultivators of Woad were perſons of genius, and could be prevailed on to introduce the garden culture ſo far as it may be adapted to this plant; this I know from experience, having made numbers of trials in the culture of this plant, therefore I ſhall inſert them here for the benefit of thoſe who may have ingenuity enough to ſtrike out of the old beaten track.

As the goodneſs of Woad conſiſts in the ſize and fatneſs of the leaves, the only method to obtain this, is by ſowing the ſeed upon ground at a proper ſeaſon, and allow the plants proper room to grow, as alſo to keep them clean from weeds; which, if permitted to to grow, will rob the plants of their nouriſhment. The method practiſed by ſome of the moſt ſkilful kitchen-gardeners in the culture of Spinach, would be a great improvement to this plant, for ſome of them have improved the round-leaved Spinach ſo much by culture, as to have the leaves more than ſix times the ſize they were formerly; and their fatneſs has been in the ſame proportion, upon the ſame land, which has been effected by thinning of the plants when young, and keeping the ground conſtantly clean from weeds; but to return to the culture of Woad.

After having made choice of a proper ſpot of land, which ſhould not be too light and ſandy, nor over ſtiff and moiſt, but rather a gentle hazel loam, whoſe parts will eaſily ſeparate: the next is to plough this up juſt before winter, laying it in narrow high ridges, that the froſt may penetrate through the ridges, to mellow and ſoften the clods; then in the ſpring plough it again croſſway, laying it again in narrow ridges; after it has lain ſome time in this manner, and the weeds begin to grow, it ſhould be well harrowed to deſtroy them; this ſhould be twice repeated while the weeds are young, and if there are any roots of large perennial weeds, they muſt be harrowed out, and carried off the ground. In June the ground ſhould be a third time ploughed, when the furrows ſhould be narrow, and the ground ſtirred as deep as the plough will go, that the parts may be as well ſeparated as poſſible; and when the weeds appear again, the ground ſhould be well harrowed to deſtroy them. Toward the end of July, or the beginning of Auguſt, it ſhould be ploughed the laſt time, when the land ſhould be laid ſmooth, and when there is a proſpect of ſhowers, the ground muſt be harrowed to receive the ſeeds, which ſhould be ſown either in rows with the drill plough, or in broad-caſt, after the common method; but it will be proper to ſteep the ſeeds one night in water before they are ſown, which will prepare them for vegetation: if the ſeeds are ſown in drills with a plough, they will be covered by an inſtrument fixed to the plough for that purpoſe; but thoſe which are ſown broad-caſt in the common way, muſt be well harrowed in. If the ſeeds are good and the ſeaſon favourable, the plants will appear in a fortnight, and in a month or five weeks after will be fit to hoe; for the ſooner this is performed when the plants are diſtinguiſhable, the better they will thrive, and the weeds being then young, will be ſoon deſtroyed. The method of hoeing theſe plants is the ſame as for Turneps, with this difference only, that theſe plants need not be thinned ſo much; for at the firſt hoeing, if they are ſeparated to the diſtance of three or four inches, and at the laſt to ſix inches, it will be ſpace enough for the growth of the plants; if this is carefully performed, and in dry weather, moſt of the weeds will be deſtroyed: but as ſome of them may eſcape in this operation, and young weeds will ariſe, ſo the ground ſhould be a ſecond time hoed in October, always chuſing a dry time for this work; at this ſecond operation, the plants ſhould be ſingled out to the diſtance they are to remain. After this the ground will be clean from weeds till the ſpring, when young weeds will come up, therefore about a fortnight in April will be a good time to hoe the ground again, when the weeds will be young, ſo may be performed in leſs than half the time it would require if the weeds were permitted to grow large, and the ſun and wind will much ſooner kill them; this hoeing will alſo ſtir the ſurface of the ground, and greatly promote the growth of the plants; if it is performed in dry weather, the ground will be clean till the firſt crop of Woad is gathered, after which it muſt be again well cleaned; if this is carefully repeated, after the gathering of each crop, the land will always lie clean, and the plants will thrive the better. The expence of the firſt hoeing will be about ſix ſhillings per acre; and for the after-hoeings half that price will be ſufficient, provided they are performed when the weeds are young; for if they are ſuffered to grow large, it will require more labour, nor can it be ſo well performed; therefore it is not only the beſt huſbandry to do this work ſoon, but it will be found the cheapeſt method; for the ſame number of men will hoe a field of ten acres three times, when it is performed while the weeds are young, as is required to hoe it twice only, becauſe the weeds have longer time to grow between the operations.

If the land in which the ſeed is ſown, ſhould have been in culture before for other crops, ſo not in good heart, it will require dreſſing before it is ſown, in which caſe rotten ſtable dung is preferable to any other; but this ſhould not be laid on till the laſt ploughing before the ſeeds are ſown, and not ſpread but as the land is ploughed, that the ſun may not exhale the goodneſs of it, which in ſummer is ſoon loſt, when ſpread on the ground. The quantity ſhould not be leſs than twenty loads to each acre, which will keep the ground in heart till the crop of Woad is ſpent.

The time for gathering the crop is according to the ſeaſon, but it ſhould be performed as ſoon as the leaves are fully grown, while they are perfectly green; for when they begin to change pale, great part of their goodneſs is over; for the quantity will be leſs, and the quality greatly diminiſhed.

If the land is good, and the crop well huſbanded, it will produce three or four gatherings, but the two firſt are the beſt; theſe are commonly mixed together in the manufacturing of it, but the after-crops are always kept ſeparate; for if theſe are mixed with the other, the whole will be of little value. The two firſt crops will ſell from twenty-five to thirty pounds a ton; but the latter will not bring more than ſeven or eight pounds, and ſometimes not ſo much.

An acre of land will produce a ton of Woad, and in good ſeaſons near a ton and a half.

When the planters intend to ſave the ſeeds, they cut three crops of the leaves, and then let the plants ſtand till the next year for ſeed; but if only one crop is cut, and that only of the outer leaves, letting all the middle leaves ſtand to nouriſh the ſtalks, the plants will grow ſtronger, and produce a much greater quantity of ſeeds.

Theſe ſeeds are often kept two years, but it is always beſt to ſow new ſeeds when they can be obtained. The ſeeds ripen in Auguſt; when the pods turn to a dark colour, the ſeeds ſhould be gathered; it is beſt done by reaping the ſtalks in the ſame manner as Wheat, ſpreading the ſtalks in rows upon the ground, and in four or five days the ſeeds will be fit to threſh out, provided the weather is dry; for if it lies long, the pods will open and let out the ſeeds.

There are ſome of the Woad planters who feed down the leaves in winter with ſheep, which is a very bad method; for all plants which are to remain for a future crop, ſhould never be eaten by cattle, for that greatly weakens the plants; therefore thoſe who eat down their Wheat in winter with ſheep are equally blameable.

ISOPYRUM. Lin. Gen. Plant. 621. Helleborus. Amman.

The Characters are,

The flower has no empalement. It hath five equal oval petals, which fall off, and five ſhort tububulous nectarii, ſituated within the petals, divided at their brim into three lobes, the middle one being the largeſt. It hath a great number of ſhort hairy ſtamina, terminated by ſingle ſummits, and ſeveral oval germen, with ſingle ſtyles of the ſame length, crowned by an obtuſe ſtigma the length of the ſtamina. The germen afterward become ſo many recurved capſules with one cell, filled with ſmall ſeeds.

This genus of plants is ranged in the ſeventh ſection of Linnæus's thirteenth claſs, intitled Polyandria Polygynia, which includes thoſe plants whoſe flowers have many ſtamina and ſtyles.

The Species are,

1. Isopyrum (*Fumaroides*) ſtipulis ſubulatis, petalis acutis. Hort. Upſal. 157. *Iſopyrum with awl-ſhaped ſtipulæ, and acute petals.* Helleborus fumariæ foliis. Amman. Ruth. 57. tab. 12. *Hellebore with Fumitory leaves.*
2. Isopyrum (*Thalictroides*) ſtipulis ovatis, petalis obtuſis. Lin. Sp. Plant. 557. *Iſopyrum with oval ſtipulæ, and obtuſe petals.* Ranunculus nemoroſus, thalictri folio. C. B. P. 178. *Wood Crowsfoot with a Meadow Rue leaf.*
3. Isopyrum (*Aquilegioides*) ſtipulis obſoletis. Lin. Sp. Plant. 557. *Iſopyrum with obſolete ſtipulæ.* Aquilegia montana, flore parvo, thalictri folio. C B. P. 144. *Mountain Columbine with a ſmall flower, and Meadow Rue Leaf.*

The firſt ſort grows naturally in Siberia, from whence the ſeeds were ſent to the Imperial garden at Peterſburgh, and the late Dr. Amman, profeſſor of botany there, ſent me part of the ſeeds; this is an annual plant, which ſeldom riſes more than three or four inches high. The leaves are ſhaped like thoſe of Fumitory; they are ſmall, and of a gray colour. The ſtalk is naked to the top, where there is a circle of leaves juſt under the flowers. The flowers are ſmall, of an herbaceous colour on their outſide, but yellow within, having five acute petals, and as many honey glands, with a great number of ſtamina which are ſhorter than the petals, and ſeveral reflexed moon-ſhaped germen, having ſo many ſingle ſtyles, crowned by obtuſe ſtigmas. The flowers are ſucceeded by many recurved ſeed-veſſels with one cell, filled with ſmall ſhining black ſeeds. It flowers the beginning of April, and the ſeeds ripen in May, then the plants decay.

The ſeeds of this plant ſhould be ſown in a ſhady border ſoon after they are ripe, for when they are kept long out of the ground, they ſeldom grow the firſt year; therefore when the ſeeds are permitted to ſcatter, they ſucceed better than thoſe which are ſown, and the plants will require no other care but to keep them clean from weeds; as there is no great beauty in this plant, ſo a ſmall patch or two of them in any ſhady part of the garden, by way of variety, will be ſufficient.

The ſecond and third ſorts were ſent me from Verona, near which place they grow naturally. The ſecond ſort hath leaves very like thoſe of the ſmalleſt Meadow Rue. The ſtalks riſe four or five inches high, ſupporting a few ſmall white flowers, with obtuſe petals, containing many ſmall ſeeds. It flowers the latter end of March, and the ſeeds ripen in May.

The third ſort hath leaves like the ſecond, but a little larger, and of a greener colour. The ſtalks riſe about ſix inches high, ſupporting two or three ſmall white flowers, ſhaped like thoſe of the ſecond ſort; theſe are ſucceeded by recurved ſeed-veſſels, filled with ſmall ſeeds. It flowers in April, and the ſeeds ripen in June.

Both theſe plants delight in a moiſt ſhady ſituation; they are propagated by ſeeds in the ſame way as the firſt ſort, but theſe will live two or three years.

ISORA. See Helicteres.

ITEA. Lin. Gen. Plant. 243. Flor. Virg. 143. Diconangia. Mitch. Gen. 5.

The Characters are,

The empalement of the flower is ſmall, permanent, and erect, ending in five acute points. The flower has five petals, which are inſerted in the empalement. It hath five awl-ſhaped ſtamina inſerted in the empalement, which are as long as the petals, terminated by roundiſh ſummits, and an oval germen ſupporting a cylindrical ſtyle, which is permanent, crowned by an obtuſe ſtigma. The germen afterward becomes a long oval capſule, with the ſtyle at the top, having one cell filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

We have but one Species of this genus, viz.

Itea (*Virginica.*) Flor. Virg. 143. We have no Engliſh title for this plant.

This ſhrub grows in moiſt ſoils in ſeveral parts of North America, where it riſes to the height of ſix or ſeven feet, ſending out many branches from the ground upward, garniſhed with ſpear-ſhaped leaves placed alternately, ſlightly ſawed on their edges, which are reflexed, veined, and of a light green. At the extremity of the ſame year's ſhoots, in the month of July, are produced fine ſpikes of white flowers, three or four inches long, erect; and when theſe ſhrubs are in vigour, they will be entirely covered with theſe ſpikes of flowers, ſo that they make a fine appearance at their ſeaſon of flowering.

This ſhrub is now pretty common in England; but the garden where I have ſeen it in the greateſt vigour, is that of his late Grace the Duke of Argyle, at Whitton, near Hounſlow, where the ſoil agrees ſo well with this plant, that it thrives and flowers there as well as in its native country.

This ſhrub will live in the open air in England, the cold never injuring it, but it will not thrive upon dry gravelly ground, being very apt to die in ſuch places in the ſummer ſeaſon. It is propagated by layers, which, if laid down in the autumn, will put out roots ſo as to be fit to remove by the following autumn; when they may be tranſplanted into a nurſery, or to the place where they are to remain. This ſhrub flowers at a ſeaſon when there are few others in beauty, ſo it is the more valuable on that acount.

IVA. Lin. Gen. 1059. Tarconanthus. Vail. Act. Par. 1719.

The Characters are,

It hath male and female flowers in the ſame plant; the flowers have a roundiſh permanent empalement, including ſeveral florets, which are convex; the male flowers have one petal, which is funnel-ſhaped, and indented in five parts at the brim; theſe are ſituated in the diſk; they have five briſtly ſtamina, terminated by erect ſummits, approach-

ing each other; the female half florets have neither petal or ſtamina; they have an oblong germen ſupporting two hair-like ſtyles, crowned with acute ſtigmas. The empalement afterward becomes the capſule, including one naked ſeed.

This genus of plants is ranged in the fifth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Pentandria, from the plants having male and female florets, and the male florets having five ſtamina.

The Species are,

1. Iva (*Annua*) foliis lanceolato-ovatis, caule herbaceo. Hort. Upſal. 285. *Ivy with oval ſpear-ſhaped leaves and an herbaceous ſtalk.* Tarconanthus foliis cordatis ſerratis trinervis. Prod. Leyd. 538.
2. Iva (*Fruteſcens*) foliis lanceolatis, caule fruticoſo. Amœn. Acad. 3. p. 25. *Iva with ſpear-ſhaped leaves and a ſhrubby ſtalk.* Agerato affinis, Peruviana fruteſcens. Pluk. Alm. 12.

The firſt ſort grows naturally in many parts of the Weſt-Indies; it is an annual plant, with an herbaceous ſtalk, which riſes from two to three feet high, ſending out ſeveral branches from the ſides, which are garniſhed with oval ſpear-ſhaped leaves, having three deep longitudinal veins, aad are ſawed on their edges; the ſtalks and branches are terminated by ſmall cluſters of pale blue flowers, which appear in July, and are ſucceeded by ſeeds which ripen in the autumn.

This is propagated by ſeeds, which ſhould be ſown in the ſpring upon a moderate hot-bed: and when the plants are fit to remove, they ſhould be tranſplanted on another hot-bed to bring them forward, treating them in the ſame way as is directed for Impatiens, with which management the plants will flower and perfect their ſeeds.

The ſecond ſort has been long an inhabitant of the Engliſh gardens, where it has been known by the title of Jeſuits Bark-tree. It hath ſlender ligneous branches which riſe eight or ten feet high, garniſhed with ſpear-ſhaped ſawed leaves; the branches (in warm ſeaſons) are terminated by ſmall cluſters of flowers, of a pale purple colour, which appear the latter end of Auguſt, but are not ſucceeded by ſeeds in England.

This ſhrub was ſome years paſt preſerved in green-houſes, being ſuppoſed too tender to live through the winter in the open air; but late trials have made it appear, that the ordinary winters in England ſeldom hurt it, provided it is planted in a dry ſoil and a ſheltered ſituation. It is propagated in the nurſery-gardens about London for ſale, and if the branches are layed into the ground in the ſpring, they will put out roots in ſix months; or if cuttings are planted in a ſhady border in May, they will take root.

JUDAICA ARBOR. See Cercis.

JUGLANS. Lin. Gen. Plant. 950. Nux. Tourn. Inſt. R. H. 581. tab. 346. Walnut; in French, *Noiſetier.*

The Characters are,

It hath male and female flowers at ſeparate diſtances on the ſame tree. The male flowers are diſpoſed in an oblong rope, or katkin, which is cylindrical and imbricated, with ſpaces between the ſcales; each ſcale has one flower, with one petal fixed in the outer center, toward the outſide of the ſcale. The petal is divided into ſix equal parts; in the center is ſituated many ſhort ſtamina, terminated by erect acute ſummits. The female flowers grow in ſmall cluſters, ſitting cloſe to the branches; theſe have a ſhort, erect, four-pointed empalement, ſitting on the germen, and an acute erect petal, divided into four parts. Under the empalement ſits a large oval germen, ſupporting two ſhort ſtyles, crowned by large reflexed ſtigmas. The germen afterward becomes a large oval dry berry, with one cell, incloſing a large oval nut with netted furrows, whoſe kernel hath four lobes, which are variouſly furrowed.

This genus of plants is ranged in the eighth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Polyandria, including thoſe plants which have male and female flowers on the ſame plant, and the male flowers have many ſtamina.

The Species are,

1. Juglans (*Regia*) foliolis ovalibus glabris ſubſerratis ſubæqualibus. Hort. Cliff. 449. *Walnut with oval ſmall leaves or lobes, which are ſmooth, ſawed, and equal.* Nux juglans ſive Regia vulgaris. C. B. P. 417. *Common Walnut.*
2. Juglans (*Nigra*) foliolis quindenis lanceolatis ſerratis, exterioribus minoribus gemmulis ſuper axillaribus. Lin. Sp. 1415. *Walnut-tree with ſpear-ſhaped lobes which are ſharply ſawed, the middle being the largeſt.* Nux juglans Virginiana nigra. H. L. 452. *Black Virginia Walnut.*
3. Juglans (*Oblonga*) foliolis cordato-lanceolatis infernè nervoſis, pediculis foliorum pubeſcentibus. *Walnut with heart ſpear-ſhaped lobes, having many veins on their under ſide, and downy foot-ſtalks to the leaves.* Juglans nigra, fructu oblongo profundiſſime inſculpto. Cat. Hort. Chelſ. *Black Virginia Walnut, with an oblong fruit very deeply furrowed.*
4. Juglans (*Alba*) foliolis lanceolatis ſerratis, exterioribus latioribus. Lin. Sp. Plant. 997. *Walnut with ſpear-ſhaped ſawed lobes, the outer being the broadeſt.* Nux juglans alba Virginienſis. Park. Theat. 1414. *White Virginia Walnut called Hickery Nut.*
5. Juglans (*Glabra*) foliolis cuneiformibus ſerratis, exterioribus majoribus. *Walnut with wedge-ſhaped lobes which are ſawed, the outer beiug the largeſt.* Juglans alba fructu minori cortice glabro. Clayt. Flor. Virg. *White Walnut with a ſmaller fruit, and a ſmooth bark.*
6. Juglans (*Ovata*) foliolis lanceolatis ſerratis glabris ſubæqualibus. *Walnut with ſmooth, ſpear-ſhaped, ſawed lobes, which are equal.* Juglans alba fructu ovato compreſſo, nucleo dulce, cortice ſquamoſo. Clayt. Flor. Virg. *White Walnut with an oval compreſſed fruit, a ſweet kernel, and a ſcaly bark, commonly called Shag-bark in America.*

There are ſeveral varieties of the common Walnut, which are diſtinguiſhed by the following titles: the large Walnut, the thin ſhelled Walnut, the French Walnut, the late ripe Walnut, and the double Walnut; but theſe do all of them vary when raiſed by the ſeed, ſo that the nuts from the ſame tree will produce plants whoſe fruit will differ; therefore there can be no dependence upon the trees which are raiſed from nuts, till they have produced fruit; ſo that thoſe perſons who plant the trees for their fruit, ſhould make choice of them in the nurſeries when they have their fruit upon them, otherwiſe they may be deceived, by having ſuch as they would not chuſe.

The ſecond ſort is commonly called Black Virginia Walnut; this grows to a large ſize in North America. The leaves of this ſort are compoſed of five or ſix pair of ſpear-ſhaped lobes, which end in acute points, and are ſawed on their edges; the lower pair of lobes are the leaſt, the other gradually increaſe in their ſize to the top, where the pair at the top, and the ſingle lobe which terminates the leaf, are ſmaller; theſe leaves, when bruiſed, emit a ſtrong aromatic flavour, as do alſo the outer cover of the nuts, which are rough, and rounder than thoſe of the common Walnut. The ſhell of the nut is very hard and thick, and the kernel ſmall, but very ſweet.

The third ſort grows naturally in North America, where the trees grow to a large ſize. The leaves of this ſort are compoſed of ſeven or eight pair of long heart-ſhaped lobes, broad at their baſe, where they are divided into two round ears, but terminate in acute points; they are rougher, and of a deeper green than thoſe of the ſecond ſort, and have nothing of the aromatic ſcent which they have. The fruit is very long. The ſhell is deeply furrowed, and is very hard. The kernel is ſmall, but well flavoured.

The fourth ſort is very common in moſt parts of North America, where it is called Hickery Nut. The leaves of this ſort are compoſed of two or three pair of oblong lobes, terminated by an odd one; theſe are of a light green, and ſawed on their edges; the lower pair of lobes are the ſmalleſt, and the upper the largeſt. The fruit is ſhaped like the common Walnut; but the ſhell is not furrowed, and is of a light colour.

The fifth ſort is not ſo large as the fourth. The leaves are compoſed of two pair of lobes, terminated by an odd one; theſe are narrow at their baſe, but broad and rounded at their ends; they are ſawed on their edges, and are of a light green. The nuts are ſmall, have a ſmooth ſhell, and are very hard and white.

The ſixth ſort grows naturally in North America, where it riſes to a middling ſtature. The leaves of this ſort are compoſed of three pair of ſmooth ſpear-ſhaped lobes, of a dark green colour, ſawed on their edges, and ending in acute points. The fruit is oval, the ſhell white, hard, and ſmooth; the kernel ſmall, but very ſweet. The young ſhoots of the tree are covered with a very ſmooth browniſh bark, but the ſtems and older branches have a rough ſcaly bark, from whence it had the appellation of Shagbark, in America.

The common Walnut is propagated in many parts of England for the fruit, and formerly the trees were propagated for their wood, which was in very great eſteem, till the quantity of Mahogany, and other uſeful woods which have been of late years imported into England, have almoſt baniſhed the uſe of Walnut.

Theſe trees are propagated by planting their nuts, which, as was before obſerved, ſeldom produce the ſame ſort of fruit as are ſown; ſo that the only way to have the deſired ſort, is to ſow the nuts of the beſt kinds; and if this is done in a nurſery, the trees ſhould be tranſplanted out when they have had three or four years growth, to the place where they are deſigned to remain; for theſe trees do not bear tranſplanting when they are of a large ſize, therefore there may be a good number of the trees planted, which need not be put at more than ſix feet apart, which will be diſtance enough for them to grow till they produce fruit; when thoſe whoſe fruit are of the deſired kind may remain, and the others cut up, to allow them room to grow; by this method a ſufficient number of the trees may be generally found among them to remain, which will thrive and flouriſh greatly when they have room; but as many people do not care to wait ſo long for the fruit, ſo the next beſt method is to make choice of ſome young trees in the nurſeries, when they have their fruit upon them; but though theſe trees will grow and bear fruit, yet they will never be ſo large or ſo long lived, as thoſe which are planted young.

All the ſorts of Walnuts which are propagated for timber, ſhould be ſown in the places where they are to remain; for the roots of theſe trees always incline downward, which being ſtopped or broken, prevent their aſpiring upward, ſo that they afterwards divaricate into branches, and become low ſpreading trees; but ſuch as are propagated for fruit, are greatly mended by tranſplanting; for hereby they are rendered more fruitful, and their fruit are generally larger and fairer; it being a common obſervation, that downright roots greatly encourage the luxuriant growth of timber in all ſorts of trees; but ſuch trees as have their roots ſpreading near the ſurface of the ground, are always the moſt fruitful and beſt flavoured.

The nuts ſhould be preſerved in their outer covers in dry ſand until February, when they ſhould be planted in lines, at the diſtance you intend them to remain; but in the rows they may be placed pretty cloſe, for fear the nuts ſhould miſcarry; and the young trees, where they are too thick, may be removed, after they have grown two or three years, leaving the remainder at the diſtance they are to ſtand.

In tranſplanting theſe trees, you ſhould obſerve never to prune either their roots or large branches, both which are very injurious to them; nor ſhould you be too buſy in lopping or pruning the branches of theſe trees when grown to a large ſize, for it often cauſes them to decay; but when there is a neceſſity for cutting any of their branches off, it ſhould be done early in September (for at that ſeaſon the trees are not ſo ſubject to bleed) that the wound may heal over before the cold increaſes; the branches ſhould always be cut off quite cloſe to the trunk, otherwiſe the ſtump which is left will decay, and rot the body of the tree.

The beſt ſeaſon for tranſplanting theſe trees is as ſoon as the leaves begin to decay, at which time if they are carefully taken up, and their branches preſerved entire, there will be little danger of their ſucceeding, although they are eight or ten years old, as I have ſeveral times experienced; though, as was before obſerved, theſe trees will not grow ſo large, or continue ſo long, as thoſe which are removed young.

This tree delights in a firm, rich, loamy ſoil, or ſuch as is inclinable to chalk or marl; and will thrive very well in ſtony ground, and on chalky hills, as may be ſeen by thoſe large plantations near Leatherhead, Godſtone, and Carſhalton in Surry, where are great numbers of theſe trees planted upon the downs, which annually produce large quantities of fruit, to the great advantage of their owners; one of which I have been told, farms the fruit of his trees, to thoſe who ſupply the markets, for 30 l. per annum.

The diſtance theſe trees ſhould be placed, ought not to be leſs than forty feet, eſpecially if regard be had to their fruit; though when they are only deſigned for timber, if they ſtand much nearer, it promotes their upright growth. The black Virginia Walnut is much more inclinable to grow upright than the common ſort, and the wood being generally of a more beautiful grain, renders it preferable to that, and better worth cultivating. I have ſeen ſome of this wood which hath been beautifully veined with black and white, which, when poliſhed, has appeared at a diſtance, like veined marble. This wood is greatly eſteemed by the cabinet-makers for inlaying, as alſo for bedſteads, ſtools, tables, and cabinets; and is one of the moſt durable woods for thoſe purpoſes of Engliſh growth, being leſs liable to be infected with inſects than moſt other kinds (which may proceed from its extraordinary bitterneſs;) but it is not proper for buildings of ſtrength, it being of a brittle nature, and exceeding ſubject to break very ſhort, though it commonly gives notice thereof, by its cracking ſome time before it breaks.

The general opinion is, that the beating of this fruit improves the trees, which I do not believe, ſince in the doing of this, the younger branches are generally broken and deſtroyed; but as it would be exceeding troubleſome to gather it by hand, ſo in beating it off, great care ſhould be taken that it be not done with violence, for the reaſon before aſſigned. In order to preſerve the fruit, it ſhould remain upon the trees till it is thorough ripe, when it ſhould be beaten down, and laid in heaps for two or three days; after which they ſhould be ſpread abroad, when, in a little time, their huſks will eaſily part from the ſhells; then you muſt dry them well in the ſun, and lay them up in a dry place, where mice or other vermin cannot come to them, in which place they will remain good for four or five months; but there are ſome perſons who put their Walnuts into an oven gently heated, where they let them remain four or five hours to dry, and then put them up in oil jars, or any other cloſe veſſel, mixing them with dry ſand, by which method they will keep good ſix months. The putting of them in the oven is to dry the germ, and prevent their ſprouting; but if the oven be too hot it will cauſe them to ſhrink, therefore great care muſt be had to that.

All the other ſorts are propagated in the ſame way, but as few of the ſorts produce fruit in England, ſo their nuts muſt be procured from North America; which ſhould be gathered when fully ripe, and put up in dry ſand, to preſerve them in their paſſage to England: when they arrive here, the ſooner they are planted the greater chance there will be of their ſucceeding;

ceeding; when the plants come up, they ſhould be kept clean from weeds; and if they ſhoot late in the autumn, and their tops are full of ſap, they ſhould be covered with mats, or ſome other light covering, to prevent the early froſts from pinching their tender ſhoots, which often cauſes them to die down a conſiderable length before the ſpring; but if they are ſcreened from theſe early froſts, the ſhoots will become firmer and better able to reſiſt the cold. Some of theſe ſorts are tender while young, ſo require a little care for the two firſt winters, but afterward will be hardy enough to reſiſt the greateſt cold of this country.

The black Virginia Walnut is full as hardy as the common ſort: there are ſome large trees of this kind in the Chelſea garden, which have produced great quantities of fruit upward of forty years; the nuts have generally ripened ſo well there as to grow, but their kernels are ſmall, ſo are of little value.

The trees all require the ſame culture as the common Walnut, but they grow beſt in a ſoft loamy ſoil not too dry, and where there is a depth of ſoil for their roots to run down. The Hickery, when young, is very tough and pliable, ſo the ſticks of it are much eſteemed; but the wood when grown large is very brittle, ſo not of any great uſe. The black Virginia Walnut is the moſt valuable wood of all the ſorts; ſome of the trees are beautifully veined, and will take a good poliſh, but others have very little beauty, which is the caſe of many other ſorts of wood.

JUJUBE. See ZIZIPHUS.

JULIANS, or ROCKETS. See HESPERIS.

JULY FLOWER. See DIANTHUS.

JUNCUS. Tourn. Inſt. R. H. 246. tab. 127. Lin. Gen. Plant. 396. Ruſh; in French, *Jonc.*

The CHARACTERS are,

It hath a chaff opening with two valves, an empalement with ſix oblong pointed little leaves which are permanent; the flower hath no petals, but the coloured empalement is by ſome taken for petals. It hath ſix ſhort hairy ſtamina, terminated by oblong erect ſummits, and a three-cornered pointed germen, with a ſhort ſlender ſtyle, crowned by three long, hairy, ſlender ſtigmas, which are reflexed. The germen afterward becomes a cloſe three-cornered capſule with one cell, opening with three valves, incloſing roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, intitled Hexandria Monogynia, which contains the plants whoſe flowers have ſix ſtamina and one ſtyle.

The SPECIES are,

1. JUNCUS (*Acutus*) culmo ſubnudo tereti mucronato, paniculâ terminali, involucro diphyllo ſpinoſo. Lin. Sp. Plant. 325. *Ruſh with a naked, taper, pointed ſtalk, terminated by a panicle, and a prickly two-leaved involucrum.* Juncus acutus, capitulis ſorghi. C. B. P. 11. *Prickly large Sea Ruſh.*

2. JUNCUS (*Filiformis*) culmo nudo, apice membranaceo incurvo, paniculâ laterali. Lin. Sp. Plant. 326. *Ruſh with a naked ſtalk, an incurved membranacous apex, and a lateral panicle.* Juncus acutus, panicula ſparſa. C. B. P. *Common hard Ruſh.*

3. JUNCUS (*Effuſus*) culmo nudo ſtricto, paniculâ laterali. Flor. Leyd. 44. *Ruſh with a naked cloſe ſtalk, and a lateral panicle.* Juncus lævis, paniculâ ſparsâ, major. C. B. P. *Larger common ſoft Ruſh, with a ſpreading panicle.*

4. JUNCUS (*Conglomeratis*) culmo nudo ſtricto, capitulo laterali. Prod. Leyd. 44. *Ruſh with a cloſe naked ſtalk and lateral heads.* Juncus lævis, paniculâ non ſparsâ. C. B. P. *Soft Ruſh with a more compact panicle.*

There are many other ſpecies of this genus, ſome of which grow naturally in England, and are very troubleſome weeds in many places, ſo are not worthy of being enumerated here; and thoſe which are here mentioned, is only to point out a method of deſtroying them.

The firſt and ſecond ſorts grow on the ſea-ſhores, where they are frequently watered by the ſalt water. Theſe two ſorts are planted with great care on the banks of the ſea in Holland, in order to prevent the water from waſhing away the earth; which being very looſe, would be in danger of removing every tide, if it were not for the roots of theſe Ruſhes, which faſten themſelves very deep in the ground, and mat themſelves near the ſurface, ſo as to hold the earth cloſely together. Therefore, whenever the roots of theſe Ruſhes are deſtroyed, the inhabitants immediately repair them to prevent farther damage. In the ſummer time, when the Ruſhes are fully grown, the inhabitants cut them, and tie them up into bundles, which are dried, and afterward carried into the larger towns and cities, where they are wrought into baſkets, and ſeveral other uſeful things, which are frequently ſent into England. Theſe ſorts do not grow ſo ſtrong in England, as they do on the Maeſe, and ſome other places in Holland, where I have ſeen them upward of four feet high.

The third and fourth ſorts grow on moiſt, ſtrong, uncultivated lands in moſt parts of England, and conſume the herbage where they are ſuffered to remain. The beſt method of deſtroying theſe Ruſhes is, to fork them up clean by the roots in July, and after having let them lie a fortnight or three weeks to dry, to lay them in heaps, and burn them gently; and the aſhes which theſe afford, will be good manure for the land; but in order to prevent their growing again, and to make the paſture good, the land ſhould be drained, otherwiſe there will be no deſtroying theſe Ruſhes entirely; but after it is well drained, if the roots are annually drawn up, and the ground kept duly rolled, they may be ſubdued.

JUNIPERUS. Tourn. Inſt. R. H. 588. tab. 361. Lin. Gen. Plant. 1005. Juniper; in French, *Genévrier.*

The CHARACTERS are,

It hath male and female flowers in different plants, and ſometimes at ſeparate diſtances on the ſame plant. The male flowers grow on a conical katkin; the flowers are placed by threes, two of them faſtened along the common tail oppoſite, terminated by a ſingle one; the ſcales are broad, ſhort, lying over each other, and fixed to the column by a very ſhort foot-ſtalk. The flower has no petal, but three ſtamina in the male flower which are joined in one body below, having three diſtinct ſummits, adhering to the ſcales of the lateral flowers. The female flowers have a ſmall three-pointed empalement ſitting upon the germen, which is permanent; they have three ſtiff, acute, permanent petals; the germen ſitting below the empalement, ſupports three ſingle ſtyles, crowned by ſtigmas. The germen afterward becomes a roundiſh berry, incloſing three ſtony ſeeds, which are oblong and angular on one ſide, but convex on the other.

This genus of plants is ranged in the twelfth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Monodelphia, which includes thoſe plants which have male and female flowers in different plants, whoſe ſtamina are joined in one body.

The SPECIES are,

1. JUNIPERUS (*Communis*) foliis ternis patentibus mucronatis bacca longioribus. Lin. Sp. Plant. 1040. *Juniper with ſpreading ſharp-pointed leaves placed by threes.* Juniperis vulgaris fruticoſa. C. B. P. 488. *The common Engliſh Juniper.*

2. JUNIPERIS (*Suecia*) foliis ternis patentibus, acutioribus, ramis erectioribus, bacca longioribus. *Juniper with longer and more acute-pointed leaves placed by threes, erect branches, and longer berries.* Juniperis vulgaris arbor. C. B. P. 488. *The Tree, or Swediſh Juniper.*

3. JUNIPERUS (*Virginiana*) foliis ternis omnibus patentibus. *Juniper with leaves placed by threes, which are all of them ſpreading.* Juniperus Virginiana. H. L. Folio ubique juniperino. Boerh. Ind. *Cedar of Virginia, or red Cedar.*

4. JUNIPERUS (*Caroliniana*) foliis ternis baſi adnatis, junioribus imbricatis, ſenioribus patulis. Hort. Cliff. 464. *Juniper with leaves placed by threes adhering at their baſe, the young ones lying over each other, and the old ones ſpreading.* Juniperus Virginiana, foliis inferioribus juniperinis, ſuperioribus ſabinam, vel cypreſſum referentibus. Boerh. Ind. *Carolina Cedar.*

5. Juniperus (*Bermudiana*) foliis inferioribus ternis, ſuperioribus quadrifariàm imbricatis. *Juniper with ſpreading under leaves placed by threes, and the upper by fours, which lie cloſe over each other.* Juniperis Bermudiana. H. L. *Cedar of Bermudas.*

6. Juniperis (*Thurifera*) foliis quadrifariàm imbricatis acutis. Lin. Sp. 1471. *Juniper with awl-ſhaped acute leaves placed by fours, lying over each other.* Juniperus major baccâ cæruleâ. C. B. P. *Greater Juniper with blue berries.*

7. Juniperus (*Phœnicia*) foliis ternis obliteratis imbricatis obtuſis. Lin. Sp. 1471. *Juniper with leaves placed by threes, which are obliterate, obtuſe, and lying over each other.* Cedrus folio cupreſſi major, fructu flaveſcente. C. B. P. *Greater Cedar with a Cypreſs leaf and yellowiſh fruit.*

8. Juniperus (*Lycia*) foliis ternis undique imbricatis ovatis obtuſis. Flor. Leyd. 90. *Juniper with oval blunt leaves, which every where lie over each other.* Cedrus folio cupreſſi media, majoribus baccis. C. B. P. 488. *Middle Cedar, with a Cypreſs leaf and larger berries.*

9. Juniperus (*Barbadenſis*) foliis omnibus quadrifariàm imbricatis junioribus ovatis ſenioribus acutis. Prod. Leyd. 90. *Juniper with all the leaves placed by fours, lying over each other, the young being oval, the older acute.* Juniperus maxima cupreſſi folio minimo, cortice exteriore in tenues philyras ſpiralis ductili. Sloan. Cat. Jam. 128. *Greateſt Juniper with the leaſt Cypreſs leaf, and the outer bark ſplitting off in thin ductile pieces, commonly called Jamaica Berry-bearing Cedar.*

10. Juniperus (*Sabina*) foliis oppoſitis erectis decurrentibus, ramis patulis. *Juniper with oppoſite, erect, running leaves, and ſpreading branches.* Sabina folio tamariſci. C. B. P. 487. *Savin with a Tamariſk-leaf, or common Savin.*

11. Juniperus (*Luſitanica*) foliis oppoſitis patulis decurrentibus, ramis erectioribus. *Juniper with oppoſite ſpreading leaves, which run over each other, and more erect branches.* Sabina folio cupreſſi. C. B. P. 487. *Savin with a Cypreſs leaf, commonly called Berry-bearing Savin.*

12. Juniperus (*Oxycedrus*) foliis undique imbricatis obtuſis, ramis teretibus. *Juniper with obtuſe leaves every-where lying over each other, and taper branches.* Juniperus major, baccâ rufeſcente. C. B. P. 489. *Greater Juniper with a browniſh berry.*

13. Juniperus (*Hiſpanica*) foliis quadrifariàm imbricatis acutis. Prod. Leyd. 90. *Juniper with acute leaves lying over each other, placed four ways.* Cedrus Hiſpanica procerior, fructu maximo nigro. Tourn. Inſt. 588. *Taller Spaniſh Cedar, with a very large black fruit.*

The firſt ſort grows naturally upon chalky lands in many parts of England. This is a low ſhrub, ſeldom riſing more than three feet high, ſending out many ſpreading branches, which incline on every ſide, covered with a brown bark, and garniſhed with narrow awl-ſhaped leaves ending in acute points, which are placed by threes round the branches, pointing outward; theſe are of a grayiſh colour, and continue through the year; the male flowers ſometimes are ſituated on the ſame plant with the female, but at diſtances, at other times they are upon diſtinct plants: the female flowers are ſucceeded by roundiſh berries, which are firſt green, but when ripe, are of a dark purple colour. The berries ripen in the autumn.

The wood, the berries, and the gum, are uſed in medicine; the gum is titled Sandaracha.

The ſecond ſort is known in the gardens by the title of Swediſh Juniper: this is by many ſuppoſed to be only a variety of the firſt, but is undoubtedly a diſtinct ſpecies, for I have many years raiſed both ſorts from the ſeeds, and have never found them alter. This ſort riſes to the height of ten or twelve feet, the branches grow more erect, the leaves are narrower, and end in more acute points: they are placed farther aſunder on the branches, and the berries are longer. It grows naturally in Sweden, Denmark, and Norway.

The third ſort grows naturally in moſt parts of North America, where it is called red Cedar, to diſtinguiſh it from a ſort of Cypreſs, which is called white Cedar there. Of this there are two, if not three varieties, beſides the ſpecies here enumerated; one of which has leaves in every part, like thoſe of the Savin, and upon being rubbed, emit a very ſtrong ungrateful odour: this is commonly diſtinguiſhed in America, by the title of Savin-tree. There is another with leaves very like thoſe of Cypreſs, but as theſe generally ariſe from the ſame ſeeds when they are ſent from America, ſo they may be ſuppoſed to be only ſeminal variations.

The lower leaves of the fourth ſort are like thoſe of the Swediſh Juniper, but the upper leaves are like thoſe of the Cypreſs; and this difference is conſtant, if the ſeeds are carefully gathered from the ſame tree; but as moſt of thoſe people who ſend over theſe ſeeds, are not very careful to diſtinguiſh the difference, ſo it often happens that the ſeeds of two or three ſorts are mixed together, which has given occaſion to people to imagine them but one ſpecies; but all the leaves of the third are like thoſe of the Juniper, ſo the gardeners call this the red Virginia Cedar; and the fourth they call Carolina Cedar, though all the ſorts grow naturally in Virginia.

The fifth ſort is the Bermudas Cedar, whoſe wood has a very ſtrong odour, and was formerly in great eſteem for wainſcotting of rooms, and alſo for furniture; but the odour being too powerful for many perſons, has rendered it leſs valuable, and at preſent there is not much of it imported into England. Theſe plants, while young, have acute-pointed leaves, which ſpread open, and are placed by threes round the branches; but as the trees advance, ſo their leaves alter, and the branches are four-cornered; the leaves are very ſhort, and placed by fours round the branches, lying over each other like the ſcales of fiſh; the berries are produced toward the end of the branches; theſe are of a dark red colour, inclining to purple. As there are few of theſe trees of any great ſize in England, ſo I have not had an opportunity of examining their flowers, therefore do not know if they have male and female flowers on the ſame plant, or if they are on different plants; for although I have received very fine ſpecimens from Bermudas, yet they are all with fruit on them almoſt fully grown, and not one with male flowers; and as theſe trees are commonly deſtroyed in England whenever there happens a ſevere winter, where they are not ſheltered, ſo we have little hopes of ſeeing them in flower here.

The ſixth ſort grows naturally in Iſtria, from whence I received the berries, which have ſucceeded with me in the Chelſea garden. This hath ſpreading branches, growing thinly, which are garniſhed with acute-pointed leaves, placed by fours round the branches; they are of a deep green, and not very cloſe to each other, but grow horizontally, pointing outward; the berries are much larger than thoſe of the common Juniper, and are blue when ripe.

The ſeventh ſort grows naturally in Portugal, from whence I have frequently received the berries. This ſort grows with its branches in a pyramidical form; the lower ones are garniſhed with ſhort, acute-pointed, grayiſh leaves, placed by threes round the branches, pointing outward; but thoſe on the upper branches are of a dark green, lying over each other like the ſcales of fiſh, but end in acute points. The male flowers are produced at the extremity of the branches; they are ſituated in a looſe, ſcaly, conical katkin, ſtanding upon a ſhort foot-ſtalk erect; the fruit is produced ſometimes upon the ſame tree, at diſtances from the flowers, and at other times they are upon ſeparate trees; the berries of this are of a pale yellow when ripe, and about the ſize of thoſe of the common Juniper.

The eighth ſort grows naturally in Spain and Italy, from both which countries I have received it. The branches of this ſort grow erect, and are covered with a reddiſh brown bark; the leaves are ſmall, obtuſe, and lie over each other like the ſcales of fiſh; the male flowers grow at the extremity of the branches in a conical katkin, and the fruit grows ſingle from the ſide of the branches below the katkins, on the ſame branch; the berries are large, oval, and, when ripe, are brown.

The ninth ſort grows naturally in Jamaica, and alſo in the other iſlands of the Weſt-Indies, where it riſes to be one of the largeſt timber trees in thoſe countries; the wood is frequently fetched from thence by the inhabitants of North America, for building of ſhips. This ſort is generally confounded with the Bermudas Cedar, and taken for the ſame, but the ſpecimens of it which were ſent me by the late Dr. Houſtoun, prove them to be different trees; for the branches of this ſpread very wide, the leaves are extremely ſmall, and are every where lying imbricatim over each other; the bark is rugged, and ſplits off in ſtrings, and is of a very dark colour; the berries are ſmaller than thoſe of the Bermudas Cedar, and are of a light brown colour when ripe: this ſort is male and female in different trees.

The tenth ſort is the common Savin; this grows naturally in Italy, Spain, and the Levant, upon the mountains where it is cold. It ſends out its branches horizontally, ſo ſeldom riſes more than three or four feet high, but ſpreads to a conſiderable diſtance every way; the branches are garniſhed with very ſhort acute-pointed leaves placed oppoſite, which run over each other along the branches, whoſe ends point upward. This ſort very rarely produces either flower or ſeed in the gardens; I have frequently examined old plants which have been ſtanding more than fifty years, and have not more than three times found any male flowers upon them, and but once have ſeen any berries, which were upon a ſeparate tree from the flowers; theſe berries were ſmaller than thoſe of the common Juniper, but of the ſame colour, and were a little compreſſed; the whole plant has a very rank ſtrong odour when touched. The leaves of this ſhrub are much uſed by the farriers for horſes when they have worms; and Mr. Ray commends the juice of it mixed with milk, and ſweetened with ſugar, as an excellent medicine for children who are troubled with worms. The leaves beaten into a cataplaſm with hog's-lard, will cure children's ſcabby heads.

The eleventh ſort has, by many, been ſuppoſed to be only an accidental variety of the former, but there is a manifeſt difference between them; for the branches of this grow more erect than thoſe of the eleventh ſort, the leaves are ſhorter, and end in acute points which ſpread outward. This ſort will riſe to the height of ſeven or eight feet, and produces great quantities of berries. I have propagated this ſort from ſeeds, but have never found it vary. It has been diſtinguiſhed by moſt of the old botaniſts, by the title of Berry-bearing Savin. It grows naturally on the Alps, from whence I have received the berries.

The twelfth ſort grows naturally in Spain, Portugal, and the ſouth of France, where it riſes ten or twelve feet high, ſending out branches the whole length of the ſtem, which are garniſhed with ſmall obtuſe leaves, lying over each other like the ſcales of fiſh; the branches are ſmall and taper, having no angles or corners, as moſt of the others have; the male flowers are ſituated at the end of the branches in conical ſcaly katkins, and the berries grow below from the ſide of the ſame branches. Theſe are larger than thoſe of the common Juniper, and when ripe are brown.

The thirteenth ſort grows naturally in Spain and Portugal, where it riſes from twenty-five to thirty feet high, ſending out many branches which form a ſort of pyramid; the branches are garniſhed with acute-pointed leaves, which lie over each other four ways, ſo as to make the branches four-cornered; the berries of this ſort are very large, and black when ripe.

Theſe plants are all propagated by ſowing their ſeeds, the beſt ſeaſon for which is as ſoon as they are ripe, if they can then be procured; for when they are kept until ſpring before they are ſown, they will not come up until the ſecond year. The ground in which the ſeeds of the hardy ſorts are ſown, ſhould be freſh and light, but it ſhould not be dunged: it ſhould be well dug and levelled very even; then ſow your ſeeds thereon pretty thick, and ſift ſome earth over them about half an inch thick; this bed will require no farther care than only to keep it clear from weeds, and toward the middle or latter end of April, you will find ſome of your plants appear above ground, though, perhaps, the greateſt part of them may lie till the ſpring following before they come up; therefore you ſhould carefully clear the beds from weeds, and in very dry weather refreſh them with ſome water, which will greatly promote the growth of thoſe plants which are up, and alſo cauſe the other ſeeds to vegetate; but if the bed in which theſe ſeeds are ſown is much expoſed to the ſun, it ſhould be ſhaded with mats in the day; for when the plants come firſt up, they will not bear too much heat. In this bed they ſhould remain till the ſecond autumn, when you muſt prepare ſome beds to tranſplant them into, which ſhould alſo be of light, freſh, undunged ſoil; and having well dug and cleanſed the ground from all noxious weeds and roots, you ſhould make it level; and then in the beginning of October, which is the proper ſeaſon for removing theſe plants, you ſhould raiſe up the young plants with a trowel, preſerving as much earth as poſſible to their roots, and plant them into beds about five or ſix inches aſunder each way, giving them ſome water to ſettle the earth to their roots; and if it ſhould prove very dry weather, you may lay a little mulch upon the ſurface of the ground round their roots, which will be of great ſervice to the plants. But as many of the ſeeds will be yet left in the ground where they are ſown, ſo the beds ſhould not be diſturbed too much in taking up the plants; for I have known a bed ſown with theſe berries, which has ſupplied plants for three years drawing, ſome of the berries having lain ſo long in the ground before they ſprouted; therefore the ſurface of the beds ſhould be kept level, and conſtantly clean from weeds.

The plants may remain two years in theſe beds, obſerving to keep them clear from weeds; in the ſpring you ſhould ſtir the ground gently between them, that their roots may with greater eaſe ſtrike into it; after which time they ſhould be tranſplanted, either into a nurſery, at the diſtance of three feet row from row, and eighteen inches aſunder in the rows, or into the places where they are to remain for good. The beſt ſeaſon to tranſplant them (as I before obſerved) is in the beginning of October, when you ſhould take them up carefully, to preſerve a ball of earth to their roots; and when planted, their roots ſhould be mulched; all which, if carefully attended to, as alſo obſerving to refreſh them with water in very dry weather until they have taken new root, will preſerve them from the danger of not growing; and they being extreme hardy in reſpect to cold, will defy the ſevereſt of our winters to injure them, provided they are not planted in a moiſt or rich ſoil.

In order to have theſe trees aſpire in height, their under branches ſhould be taken off, eſpecially where they are inclined to grow ſtrong, but they muſt not be kept too cloſely pruned, which would retard their growth; for all theſe Evergreen trees do more or leſs abound with a reſinous juice, which in hot weather is very apt to flow out from ſuch places as are wounded; ſo that it will not be adviſeable to take off too many branches at once, which would make ſo many wounds, from which their ſap in hot weather would flow in ſuch plenty, as to render the trees weak and unhealthy.

The two ſorts of Virginian Cedars grow to a much greater height than the former, and in their native country afford excellent timber for many uſes; but with us there are very few which are above twenty-five or thirty feet high, though there is no doubt of their growing larger; for they thrive very faſt after the three firſt years, and reſiſt the ſharpeſt froſt of our climate exceeding well, and are very apt to grow ſtrait and regular, provided they are not ſuffered to ſhoot out too much at bottom.

Theſe plants are alſo propagated by ſeeds, which muſt be procured from Virginia or Carolina (for they rarely produce ripe ſeeds in England) and ſown as was directed for the other Junipers; but as this ſeed cannot be procured in England till ſpring, ſo when ſown at that ſeaſon, it remains in the ground until the ſucceeding ſpring before the plants appear; therefore you muſt obſerve to keep the beds clear from weeds, and not ſuffer the ſeeds to be diſturbed, which is often the fault of ſome impatient people, who think, becauſe the plants do not riſe the firſt year, that they will never come up, and ſo dig up the ground again, whereby their ſeeds are buried; but if they are let remain, they ſeldom fail to grow, though ſometimes it is two years after ſowing before they come up. When the plants come up they muſt be carefully weeded, and in dry weather ſhould be refreſhed with water, which will greatly forward their growth; and the autumn following they ſhould have a little rotten tan laid between them, to keep out the froſt. In this bed the plants may remain till they have had two years growth, then they ſhould be tranſplanted into other beds, as was directed before for the other ſorts, obſerving to preſerve a ball of earth to their roots; and after they are planted, if the ſeaſon proves dry, they muſt be carefully watered, and the ſurface of the ground covered with mulch, to prevent the ſun and wind from entering the earth to dry their fibres; but they ſhould not be too much watered, which often proves injurious to theſe trees, by rotting their tender fibres ſoon after they are emitted, whereby the plants have been often deſtroyed.

In theſe beds they may remain two years, obſerving to keep them clear from weeds; and in winter you ſhould lay a little freſh mulch upon the ſurface of the ground round their roots, which will prevent the froſt from penetrating to them, and effectually preſerve them; for while the plants are ſo young, they are liable to be injured by hard froſts, when too much expoſed thereto; but when they have attained a greater ſtrength, they will reſiſt the ſevereſt of our cold.

After two years, they ſhould either be removed into a nurſery (as was directed for the common Juniper) or tranſplanted where they are deſigned to remain, obſerving always to take them up carefully, otherwiſe they are ſubject to fail upon tranſplanting; as alſo to mulch the ground, and water them as was before directed, until they have taken root; after which they will require no farther care, than only to keep the ground clear about their roots, and to prune up their ſide branches to make them aſpire in height.

The ſoil in which you plant theſe trees ſhould be freſh and light, but muſt not be dunged, eſpecially at the time when they are planted; for dung is very hurtful to them, if it be not quite rotted to mould; therefore the mulch which is laid upon the ſurface of the ground ſhould not be dung, but rather ſome old tanners bark or ſea-coal aſhes, which will prevent the froſt from penetrating deep in the ground.

Theſe trees being thus managed, will in a few years riſe to a conſiderable ſtature, and by the variety of their evergreen leaves and manner of growth, will greatly add to the beauty of all plantations, if rightly diſpoſed, which indeed is what we ſeldom obſerve in any of the Engliſh gardens or wilderneſſes; for there are few people who conſider the different growths of the ſeveral trees with which they compoſe ſuch plantations, ſo as to place the talleſt growing trees the backwardeſt from ſight, and the next degree to ſucceed them, and ſo gradually diminiſhing till we come to the common Juniper, and others of the ſame growth, whereby all the trees will be ſeen, and the gradual declivity of their tops will appear like a verdant ſlope, and be much more agreeable to the ſight, as alſo more advantageous to the growth of the trees, than to place ſhrubs of humble growth near ſuch plants as will grow to the firſt magnitude, whereby the ſhrub is hid from ſight, and will be over-ſhadowed and deſtroyed; nor can the diſtance which each tree requires, be ſo juſtly proportioned any other way; for in this diſtribution, the largeſt trees being ſeparated by themſelves, may be placed at a due diſtance; and then thoſe of a middling growth ſucceeding, may be accordingly allowed ſufficient room; and the ſmaller, which are next the ſight, being placed much cloſer, will hide the naked ſtems of the larger trees, and have an agreeable effect to the ſight.

The timber of theſe trees is of excellent uſe in America, for building of veſſels, wainſcotting houſes, and for making many ſorts of utenſils, it abounding with a bitter reſin, which prevents its being deſtroyed by vermin, but it is very brittle, therefore not ſo proper for ſtubborn uſes; but however, by increaſing the number of our timber trees, we ſhall find many advantages, beſides the pleaſure their variety affords; for we may hereby have trees of very different kinds, which are adapted to grow in various ſoils and ſituations, whereby we ſhall never want proper trees for all the different ſorts of ſoils in England, if proper care be taken in their choice; which would be a great improvement to many parts of this kingdom, which now lie unplanted, becauſe the owner, perhaps, find that neither Oaks nor Elms will thrive there, and conſequently concludes, that no other ſort of tree will, which is a great miſtake; for if we conſider how different the ſtructure of trees are (being deſigned by the wiſe Author and contriver of all things, to grow on different ſoils and ſituations) and only obſerve what ſorts are adapted for growing on dry barren mountains, and what are deſigned for the lower and richer valleys, we need never be at a loſs for proper trees for all ſorts of ground.

The Bermudas Cedar being a native of that iſland, and alſo of the Bahama Iſlands, is much tenderer than either of the former ſorts, except that of Jamaica, ſo is not likely to thrive well in this country; for although many of theſe plants have lived ſeveral years in the open air in England, yet whenever a ſevere winter happens, it either kills them, or ſo much defaces them, that they do not recover their verdure in a year or two after.

Theſe plants are propagated by ſeeds in the ſame manner as the former, with only this difference, that theſe ſhould be ſown in pots or tubs of earth, that they may be removed into ſhelter in the winter time, otherwiſe the young plants are often hurt by hard froſts; but they will require no more care than only to be placed under a common hot-bed frame, where the glaſſes may be conſtantly kept off in mild weather, when they cannot have too much free air, and only covered in hard froſts. Theſe ſeeds conſtantly remain in the ground until the ſecond year before they come up, therefore the earth in the pots ſhould not be diſturbed; and in the ſummer time they ſhould be placed in the ſhade, to prevent the earth from drying too faſt; and in very dry weather they ſhould be often watered, but do not give too much water to them at once, which would rot the ſeeds.

The ſpring following, when the young plants come up, they muſt be carefully cleared from weeds, and in dry weather refreſhed with water; but ſhould ſtand, during the ſummer ſeaſon, in a place defended from ſtrong winds; and in winter muſt be placed under frames, where they may be covered in hard froſty weather, but muſt have open air when the weather is mild. In April following you ſhould tranſplant them each into a ſingle halfpenny pot filled with freſh light earth, being careful to raiſe them up with a ball of earth to their roots; and when they are planted, you ſhould water them, to ſettle the earth to their roots; then place the pots in a warm ſituation, where they may be defended from ſun and wind: but if you will beſtow a moderate hot bed to plunge the pots in, it will greatly promote their taking new root; however, you muſt carefully defend them from the great heat of the ſun, which is injurious to them when freſh removed; but when they have taken root, you may expoſe them by degrees to the open air. If you ſuffer the pots to remain plunged all the ſummer, it will preſerve the earth therein from drying ſo faſt as it would do, if they were ſet upon the ground.

In October you ſhould again remove theſe plants into ſhelter, or elſe plunge their pots into the ground under a warm hedge, where they may be protected from the cold north and eaſt winds; and in the ſpring following you muſt ſhift the plants into pots a ſize larger, taking away ſome of the earth from the outſide of the ball, and adding ſome freſh, which will promote their growth; and ſo continue to manage them as was before directed, until you plant them out in the places where they are deſigned to remain; which ſhould not be done till they are four or five years old, by which time they will be ſtrong enough to bear the cold of our common winters.

The reaſon for my directing theſe plants to be preſerved in pots until they are planted out for good is, becauſe they are difficult to tranſplant, and being tender will require ſome ſhelter while young; and whoever obſerves the method here laid down, will find the plants ſo managed to gain two years growth in ſix, from thoſe raiſed in the open air, and be in leſs danger of being deſtroyed; and as the trouble and expence in raiſing them this way is not great, ſo it is worth practiſing, ſince in a few years the trees will recompenſe the trouble.

The timber of this tree is of a reddiſh colour, and very ſweet, and is commonly known in England by the name of Cedar Wood; though there are divers ſorts of wood called by that name, which come from very different trees, eſpecially in the Weſt-Indies, where there are ſeveral trees of vaſtly different appearances and genera, which have that appellation: it is this wood which is uſed for pencils, as alſo to wainſcot rooms, and make ſtair-caſes, it enduring longer ſound than moſt other ſorts of timber, which, perhaps, may be owing to ſome extreme bitter taſte in the reſin, with which the tree abounds; for it is very remarkable, that the worms do not eat the bottoms of the veſſels built with this wood, as they do thoſe built with Oak; ſo that the veſſels built with Cedar are much preferable to thoſe built with any other ſort of timber, for the uſe of the Weſt-India ſeas, but they are not fit for ſhips of war, the wood being ſo brittle as to ſplit to pieces with a cannon ball.

The Jamaica Juniper is more impatient of cold than the Bermudas, ſo will not live through the winter in the open air in England, and the plants muſt be preſerved in pots and houſed in the winter; this is propagated by ſeeds, in the ſame way as the Bermudas Cedar; but if the pots are plunged into a moderate hot-bed the ſecond ſpring after the ſeeds are ſown, it will bring up the plants ſooner, and they will have more time to get ſtrength before winter.

All the other ſorts are hardy enough to live in the open air, ſo are very well worth propagating, as they will add to the variety of Evergreen plantations; ſome of the ſorts will riſe to a very conſiderable height, ſo may prove to be uſeful timber, and may be adapted to ſuch ſoils as will not ſuit many other trees.

The common Savin ſhould not be neglected, becauſe it is ſo very hardy as never to be injured by the ſevereſt froſt; and as this ſpreads its branches near the ground, ſo if the plants are placed on the borders of woods, they will have a good effect in winter, by ſcreening the nakedneſs of the ground from ſight.

All theſe ſorts are propagated by their ſeeds, which may be ſown in the ſame way as the common Juniper, and the plants afterward ſo managed; and moſt of the ſorts may be propagated by cuttings, which, if planted in autumn in a ſhady border will take root; but thoſe plants which are raiſed from cuttings will never grow ſo upright, nor to ſo large a ſize as the plants which are raiſed from ſeeds; ſo that when theſe can be procured, it is much the better method, but the other is frequently practiſed on thoſe ſorts which do not perfect their ſeeds in England.

As ſeveral of theſe ſorts grow to the height of eighteen or twenty feet, the procuring as many of the ſorts as can be gotten from the countries of their growth, will be adding to the variety of our Evergreen plantations, which cannot be too much propagated in England, where, in general, our winters are temperate enough for them to thrive to advantage; and as the ſorts which are a little more tender than the others obtain ſtrength, they will be in leſs danger of ſuffering by ſevere winters, as we find by many other plants, which were ſo tender as not to live in the open air at firſt, but now defy the ſevereſt cold of our climate.

JUSSIÆA. Lin. Gen. Plant. 478.

The Characters are,

It hath a ſmall permanent empalement, divided into five ſegments at the top, ſitting upon the germen. The flower has five roundiſh ſpreading petals, and ten ſhort ſlender ſtamina, terminated by roundiſh ſummits. The oblong germen ſupports a ſlender ſtyle, crowned by a flat ſtigma, marked with five ſtripes. The germen afterward becomes a thick oblong capſule, crowned by the empalement, which opens lengthways, and is filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, which includes the plants whoſe flowers have ten ſtamina and one ſtyle.

The Species are,

1. Jussiæa (*Suffruticoſa*) erecta villoſa, floribus tetrapetalis, decandriis ſeſſilibus. Lin. Sp. Plant. 555. *Upright hairy Juſſiæa, with flowers ſitting cloſe to the ſtalks, having four petals and ten ſtamina.* Lyſimachia Indica non pappoſa, flore luteo minimo, ſiliquis caryophyllum aromaticum æmulantibus. H. L. 396. *Indian Primroſe with a very ſmall yellow flower, and pods reſembling Cloves.*
2. Jussiæa (*Pubeſcens*) villoſa, caule erecto ramoſo, floribus pentapetalis, decandriis ſeſſilibus. *Hairy Juſſiæa with an erect branching ſtalk, flowers having five petals, and ten ſtamina which ſit cloſe to the ſtalk.* Lyſimachia lutea erecta, non papposa major, foliis hirſutis, fructu caryophylloide. Sloan. Cat. Jam. 85. *Yellow upright larger Tree-Primroſe with hairy leaves, and a fruit like Cloves.*
3. Jussiæa (*Erecta*) erecta glabra, floribus tetrapetalis octandris ſeſſilibus. Flor. Zeyl. 170. *Smooth upright Juſſiæa with four petals, and eight ſtamina to the flowers, which ſit cloſe to the ſtalk.* Lyſimachia lutea non papposa, erecta, foliis glabris, fructu caryophylloide. Sloan. Cat. Jam. 85. *Yellow upright Tree-Primroſe with ſmooth leaves, and a fruit like Cloves.*
4. Jussiæa (*Onagra*) caule erecta ramoſo glabro, floribus tetrapetalis octandris ſeſſilibus, foliis lanceolatis. *Juſſiæa with an upright, branching, ſmooth ſtalk, flowers having four petals, and eight ſtamina ſitting cloſe to the ſtalk, and ſpear-ſhaped leaves.* Onagra foliis perſicariæ amplioribus, parvo flore luteo. Plum. Cat. 7. *Tree-Primroſe with a large Arſeſmart leaf, and a ſmall yellow flower.*
5. Jussiæa (*Hirſuta*) caule erecto ſimplici hirſuto, foliis lanceolatis, floribus pentapetalis decandris ſeſſilibus. *Juſſiæa with a ſingle, upright, hairy ſtalk, ſpear-ſhaped leaves, and flowers which have five petals, and ten ſtamina ſitting cloſe to the ſtalk.* Onagra erecta, caule rubro hirſuto, foliis oblongis, flore magno luteo. Houſt. MSS. *Upright Primroſe with a hairy leaf of a reddiſh colour, oblong leaves, and a large yellow flower.*

The firſt ſort grows naturally at Campeachy, from whence the ſeeds were ſent me by the late Mr. Robert Millar; this riſes with a ſhrubby ſtalk near three feet high, ſending out ſeveral ſide branches, which are garniſhed with oblong hairy leaves placed alternate. The flowers come out from the ſide of the ſtalks ſingly, having ſhort foot-ſtalks; they have four ſmall yellow petals with eight ſtamina; theſe ſit upon the germen, which afterward becomes an oblong ſeed-veſſel, crowned by the four-leaved empalement, and has a great reſemblance to Cloves. This plant flowers in July and Auguſt, and the ſeeds ripen in October.

The ſecond ſort grows naturally in Jamaica. The ſeeds of this were ſent me by the late Dr. Houſtoun; this riſes with a hairy branching ſtalk two feet high, and is garniſhed with narrow ſpear-ſhaped leaves, placed alternate. The flowers come out toward the end of the branches ſingly from the wings of the leaves, ſitting cloſe to the ſtalk; they are compoſed of five pretty large yellow petals, and ten ſtamina; theſe ſit upon a long germen, which afterward becomes the ſeed-veſſel, crowned by the empalement; theſe are filled with ſmall ſeeds. It flowers and ſeeds about the ſame time with the laſt.

The third ſort grows naturally in Jamaica, from whence the ſeeds were ſent me with thoſe of the former ſort; this riſes with a ſmooth erect ſtalk three feet high, garniſhed with long, narrow, ſmooth, ſpear-ſhaped leaves. The flowers are large and yellow, ſitting cloſe to the ſtalk; theſe are ſucceeded by long ſeed-veſſels, ſhaped like thoſe of the other ſorts. It flowers and ſeeds at the ſame time with the former.

The fourth ſort was ſent me from Carthagena by the late Dr. Houſtoun; this hath a branching ſmooth ſtalk near three feet high, garniſhed with ſpear-ſhaped leaves, ſtanding upon ſhort foot-ſtalks. The flowers are ſmall, yellow, and are compoſed of four petals and eight ſtamina; theſe ſit very cloſe to the ſtalk, and are ſucceeded by ſeed-veſſels, ſhaped like thoſe of the former ſorts.

The fifth ſort was ſent me from La Vera Cruz, by the late Dr. Houſtoun; this riſes with ſingle upright red ſtalks three feet high, which are hairy and channelled. The leaves are ſpear-ſhaped, and placed alternate on the ſtalks, ſtanding nearer together than in any of the other ſorts. The flowers come out from the wings of the leaves, toward the top of the ſtalk; they are compoſed of five large yellow petals, and ten ſtamina ſitting cloſe to the ſtalks, and are ſucceeded by ſeed-veſſels which are one inch long, and ſhaped like thoſe of the former ſorts.

The firſt, ſecond, and fourth ſorts are annual plants, at leaſt they are ſo in England; for if the plants are raiſed early in the ſpring, they will flower in July, and ripen their ſeed the beginning of October; and thoſe plants which are raiſed later in the ſpring, cannot be preſerved through the winter, though they are placed in a warm ſtove; nor do their ſtalks ever grow ligneous, or ſhew any ſigns of their being perennial in their native country.

The third and fifth ſorts have continued through the winter in the bark-ſtove, but thoſe have been ſuch plants as did not flower and ſeed the firſt year; for after they had perfected ſeeds, the following ſummer the plants decayed.

All theſe ſorts are propagated by ſeeds, which ſhould be ſown early in the ſpring, in pots filled with a ſoft loamy ſoil, and plunged into a moderate hot-bed; but as theſe ſeeds often lie a whole year in the ground before they vegetate, the earth muſt be kept moiſt, and the glaſſes of the hot-bed ſhaded in the heat of the day, by this method the ſeeds may be brought ſoon to vegetate; when the plants come up, and are fit to remove, they ſhould be each planted into a ſmall ſeparate pot, filled with light loamy earth, and plunged into a hot-bed of tanners bark, where they ſhould be ſhaded from the ſun till they have taken new root; after which they ſhould have free air admitted to them every day, in proportion to the warmth of the ſeaſon; they muſt alſo be frequently refreſhed with water, but it muſt not be given to them in too great plenty: when the roots of the plants have filled theſe ſmall pots, the plants ſhould be removed into others a ſize larger; and if the plants are too tall to ſtand under the frames of the hot-bed, they ſhould be removed into the bark-ſtove, where they may remain to flower and perfect their ſeeds; for when the plants riſe early in the ſpring, and are brought forward in hot-beds, all the ſorts will flower and perfect their ſeeds the ſame year, which is better than to have them to keep through the winter.

JUSTICIA. Houſt. Nov. Gen. Lin. Gen. Plant. 27. Adhatoda. Tourn. Inſt. R. H. 175. tab. 79. This plant was ſo named by the late Dr. Houſtoun, in honour of James Juſtice, Eſq; a great lover and encourager of gardening and botany.

The CHARACTERS are,

The empalement of the flower is ſmall, and divided into five acute ſegments at the top. The flower hath one petal, which is divided into two lips almoſt to the bottom, which are entire. The upper lip is raiſed archways, and the under is reflexed. It hath two awl-ſhaped ſtamina ſituated under the upper lip, terminated by erect ſummits which are bifid at their baſe. It hath an oblong germen, ſupporting a ſlender ſtyle which is longer than the petal, crowned by a ſingle ſtigma. The germen afterward becomes an oblong capſule with two cells, divided by a partition, which is contrary to the two valves, which open with an elaſticity, and caſt out the roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, intitled Diandria Monogynia, which includes thoſe plants whoſe flowers have two ſtamina and one ſtyle. To this genus of Dr. Houſtoun's is joined the Adhatoda of Tournefort, but there is a diſtinction in their flowers; the two lips of Juſticia are entire, but the upper lip of Adhatoda is indented at the end, and the under is divided into three parts; and in the capſule of Juſticia there are ſeldom more than two ſeeds, but in Adhatoda ſeveral.

The SPECIES are,

1. JUSTICIA (*Scorpioides*) foliis oblongo-ovatis hirſutis, ſeſſilibus, floribus ſpicatis alaribus, caule fruticoſo. *Juſticia with oblong, oval, hairy leaves ſitting cloſe to the ſtalks, and flowers growing in ſpikes proceeding from the ſide of the ſtalks, which are ſhrubby.* Juſticia frutescens, floribus ſpicatis majoribus, uno verſu diſpoſitis. Houſt. MSS. *Shrubby Juſticia with larger flowers growing in ſpikes, which are ranged on one ſide.*
2. JUSTICIA (*Sexangularis*) caule erecto ramoſo hexangulari, foliis ovatis oppoſitis, bracteis cuneiformibus confertis. *Juſticia with an erect branching ſtalk, having ſix angles, oval leaves placed oppoſite, and wedge-ſhaped ſmall leaves (or bracteæ) growing in cluſters.* Juſticia annua hexangulari caule, foliis Circææ conjugatis, flore miniato. Houſt. MSS. *Annual Juſticia with an hexangular ſtalk, Enchanters Nightſhade leaves ſet by pairs, and a carmine flower.*
3. JUSTICIA (*Fruticoſa*) foliis ovato-lanceolatis, pediculatis, hirſutis, bracteis cordatis acuminatis, caule fruticoſo. *Juſticia with oval ſpear-ſhaped leaves growing on foot-ſtalks, heart-ſhaped acute-pointed bracteæ, and a ſhrubby ſtalk.* Juſticia fruteſcens & hirſuta, foliis oblongis pediculis longiſſimis, flore rubro. Houſt. MSS. *Shrubby and hairy Juſticia with oblong leaves growing on very long foot-ſtalks, and a red flower.*
4. JUSTICIA (*Adhatoda*) arborea, foliis lanceolato-ovatis, bracteis ovatis perſiſtentibus, corollarum galeâ concavâ. Flor. Zeyl. 16. *Tree-Juſticia with oval ſpear-ſhaped leaves, oval permanent bracteæ, and a concave helmet to the flower.* Adhatoda Zeylanenſium. H. L. 642. *Adhatoda of Ceylon, commonly called Malabar Nut.*
5. JUSTICIA (*Hyſſopifolia*) fruticoſa, foliis lanceolatis integerrimis, pedunculis trifloris ancipitibus, bracteis calyce brevioribus. Lin. Sp. Plant. 15. *Shrubby Juſticia with entire ſpear-ſhaped leaves, foot-ſtalks having three flowers placed different ways, and a bractea ſhorter than the empalement.* Adhatoda Indica, folio ſaligno, flore albo. Boerh. Ind. alt. 1. 239. *Indian Adhatoda with a Willow leaf and white flower, commonly called Snap-tree.*
6. JUSTICIA (*Spinoſa*) ſpinoſa, foliis oblongo-ovatis emarginatis, caule fruticoſo ramoſo. *Prickly Juſticia with oblong oval leaves indented at their edges, and a ſhrubby branching ſtalk.* Adhatoda Antegoana, Lycii facie, ſpinoſa. Petiv. *Prickly Adhatoda of Antigua, with the appearance of Boxthorn.*
7. JUSTICIA (*Arborea*) arborea, foliis lanceolato-ovatis ſeſſilibus, ſubtus tomentoſis, floribus ſpicatis congeſtis terminalibus. *Tree-Juſticia with ſpear-ſhaped oval leaves,*

woolly on their under ſide, ſitting cloſe to the ſtalks, with ſpikes of flowers growing in cluſters at the ends of the branches. Adhatoda arborea, foliis oblongis, ſubtus villoſis, floribus ſpicatis albis. Houſt. *Tree-Adhatoda with oblong leaves, hairy on their under ſide, and ſpikes of white flowers.*

8. Justicia (*Ecbolium*) arborea, foliis lanceolato ovatis, bracteis ovatis deciduis mucronatis, corollarum galeâ reflexâ. Flor. Zeyl. 17. *Tree-Juſticia with ſpear-ſhaped oval leaves, oval-pointed bracteæ which fall off, and a reflexed helmet to the flowers.* Adhatoda ſpicâ longiſſimâ, flore reflexo. Burman. Zeyl. 7. tab. 4. f. 1. *Adhatoda with a very long ſpike, and a reflexed flower.*

The firſt ſort was diſcovered growing naturally at La Vera Cruz, by the late Dr. Houſtoun, who ſent the ſeeds to England; this riſes with a ſhrubby brittle ſtalk five or ſix feet high, ſending out many branches, which are garniſhed with oblong oval leaves, two inches long, and one inch broad, which are hairy and placed oppoſite; from the wings of the leaves come out the ſpikes of flowers, which are reflexed like a ſcorpion's tail. The flowers are large, of a carmine colour, and ranged on one ſide of the ſpike; theſe are ſucceeded by ſhort pods about half an inch long.

The ſecond ſort was diſcovered by the ſame gentleman, in the ſame country; this is an annual plant with an upright ſtalk, having ſix angles, which riſes two or three feet high, dividing into many branches, garniſhed with oval leaves placed oppoſite, an inch and a half long, and one inch broad; they are ſmooth, as are alſo the ſtalks. At each joint come out cluſters of ſmall wedge-ſhaped leaves, which are by Dr. Linnæus termed bracteæ, and long before the ſtalks decay, moſt of the larger leaves fall off, ſo there are only theſe ſmall leaves remaining. The flowers are produced in ſmall ſpikes at the ſide of the branches, ſitting very cloſe among the leaves; they are of a beautiful carmine colour, and have but one petal, which has two lips. The upper lip is arched, bending over the lower, which is alſo a little reflexed, but both are entire. The flowers are ſucceeded by ſhort wedge-ſhaped capſules, opening lengthways, incloſing two ſmall oval ſeeds.

The third ſort was diſcovered by the ſame gentleman at Campeachy; this riſes with a hairy ſhrubby ſtalk four or five feet high, dividing into ſeveral branches, garniſhed with oval, ſpear-ſhaped, hairy leaves, four inches long, and two inches and a half broad, ſtanding upon foot-ſtalks which are above an inch long, placed oppoſite. At the baſe of the foot-ſtalks come out a cluſter of ſmall heart-ſhaped leaves, ending in acute points, which are termed bracteæ. The flowers come out in looſe cluſters from the wings of the ſtalks, toward the end of the branches; they are of a pale red colour, and ſhaped like thoſe of the former ſort.

Theſe plants are propagated by ſeeds, which ſhould be ſown early in the ſpring, in ſmall pots filled with freſh light earth, and plunged into a moderate hot-bed of tanners bark, obſerving to water the earth gently as it appears dry. The ſeeds of theſe plants frequently lie a year in the ground, ſo that the pots muſt not be diſturbed, if the plants do not come up the ſame year; but in the winter ſhould be kept in the ſtove, and the ſpring following plunged into a freſh hot-bed, which will bring up the plants if the ſeeds were good. When the plants begin to appear, the glaſſes of the hot-bed ſhould be raiſed every day, when the weather is warm, to admit freſh air to them. The plants muſt alſo be frequently watered in warm weather; but water ſhould not be given in large quantities while the plants are young, becauſe they are then very tender, and ſubject to rot at the bottom of their ſtems, with much moiſture.

When the plants are about two inches high, they ſhould be carefully taken up, and each tranſplanted into a ſeparate ſmall pot filled with freſh light earth, and then plunged into the hot-bed again, being careful to water and ſhade them until they have taken new root; after which time they ſhould have air admitted to them every day, in proportion to the warmth of the ſeaſon, and ſhould be duly watered every two or three days in hot weather.

As the plants advance in their growth, they ſhould be ſhifted into larger pots, for if their roots are too much confined, the plants will not make any conſiderable progreſs; but they ſhould not be over potted, for that will be of worſe conſequence than the other; becauſe when they are planted in very large pots, they will ſtarve and decay, without producing any flowers. They are too tender to endure the open air in this country, therefore they ſhould always remain in the hot-bed, being careful to let them have a due proportion of air in hot weather; and the annual ſort ſhould be brought forward as faſt as poſſible in the ſpring, that the plants may flower early, otherwiſe they will not produce good ſeeds in England.

The firſt and third ſorts ſhould remain in the hot-bed during the ſummer ſeaſon (provided there is room under the glaſſes, without being ſcorched;) but at Michaelmas they ſhould be removed into the ſtove, and plunged into the bark-bed, where they muſt remain during the winter ſeaſon, obſerving to keep them warm, as alſo to water them gently once or twice a week, according as they ſhall require. The following ſummer theſe plants will flower, and abide ſeveral years, but they rarely produce good ſeeds in Europe.

The fourth ſort grows naturally in the iſland of Ceylon, but has been long in the Engliſh gardens, where it is commonly known at preſent by the title of Malabar Nut; but was formerly called Beetle Nut, and was by ſome ſuppoſed to be the tree of which the Chineſe chew the leaves and nuts: this, though a native of ſo warm a country, is hardy enough to live in a good green-houſe in England, without any artificial heat. It riſes here with a ſtrong woody ſtalk to the height of twelve or fourteen feet, ſending out many ſpreading branches, which are garniſhed with ſpear-ſhaped oval leaves more than ſix inches long, and three inches broad, placed oppoſite. The flowers are produced on ſhort ſpikes at the end of the branches, which are white, with ſome dark ſpots; theſe appear in July, but are not ſucceeded by any ſeeds in England.

This ſort may be propagated by cuttings, which, if planted in pots in June or July, and plunged into a very moderate hot-bed, will take root; but they muſt be every day ſcreened from the ſun, and if the external air is excluded from them, they will ſucceed better than when it is admitted to them. It may alſo be propagated by laying down their young branches, which will take root in the tubs or pots in one year; then the young plants ſhould be put each into a ſeparate pot, filled with ſoft loamy earth, and placed in the ſhade till they have taken new root, when they may be placed in a ſheltered ſituation during the ſummer, but in winter they muſt be houſed, and treated in the ſame way as Orange-trees, with only this difference, that theſe require more water.

The fifth ſort grows naturally in India; this riſes with a ſhrubby ſtalk from three to four feet high, ſending out branches on every ſide from the bottom, ſo as to form a kind of pyramid; theſe are covered with a white bark, and garniſhed with ſpear-ſhaped entire leaves, near two inches long, and one third of an inch broad; they are ſmooth, ſtiff, and of a deep green, ſtanding oppoſite. At the baſe of the foot-ſtalks come out cluſters of ſmaller leaves, of the ſame ſhape and texture. The flowers come out upon ſhort foot-ſtalks from the ſide of the branches, each foot-ſtalk ſupporting one or two white flowers, having long empalements; theſe are ſucceeded by oblong ſeed-veſſels, which, when ripe, caſt out their ſeeds with an elaſticity, from whence it had the title of Snap-tree.

This is propagated by cuttings during any of the ſummer months; they ſhould be planted in pots filled with light loamy earth, and plunged into a moderate hot-bed, and ſhaded from the ſun, and now and then gently refreſhed with water, and not too much air admitted to them. In about two months the cuttings will have taken root, then they muſt be gradually inured to bear the open air, into which they ſhould be removed, placing them in a ſheltered ſituation, where they may ſtay till autumn; but if they get root pretty early in the ſummer, it will be proper to ſeparate them each into a ſingle ſmall pot, ſetting them in the ſhade till they have taken new root, after which they may be placed as before directed; but when it is late in the ſeaſon before they take root, it will be better to let them remain in the ſame pots till the following ſpring. In winter theſe plants muſt be placed in a warm green-houſe, or in a moderately warm ſtove, for they are impatient of cold and damp, nor will they thrive in too much warmth; they will often require water in winter, but during that ſeaſon it muſt be given them moderately; in ſummer they muſt be removed into the open air, but ſhould have a warm ſheltered ſituation, and in warm weather they muſt have plenty of water. This plant flowers at different ſeaſons, but never produces fruit here.

The ſixth ſort grows naturally in Jamaica, from whence the late Dr. Houſtoun ſent it to England; this riſes with many ſhrubby ſlender ſtalks about five feet high, ſending out branches on every ſide from the root upward, which grow erect, and are covered with a whitiſh bark, garniſhed with ſmall, oblong, oval leaves, coming out on each ſide the ſtalk oppoſite, and under the leaves are placed at every joint two ſharp thorns like thoſe of the Berberry; the flowers come out ſingly from the wings of the leaves, they are ſmall, and of a pale red colour, ſhaped like thoſe of the other ſorts.

The ſeventh ſort was found by the late Dr. Houſtoun, growing naturally at Campeachy. This riſes with a ſtrong woody ſtem twenty feet high, dividing into many crooked irregular branches, covered with a light brown bark, garniſhed with ſpear-ſhaped oval leaves, near four inches long and two broad, which are covered with a ſoft down on their under ſide. The flowers grow in ſpikes from the end of the branches, three, four, or five of theſe ſpikes ariſing from the ſame point, the middle ſpike being near three inches long, and the others about half that length. The flowers are ſmall and white, but ſhaped like thoſe of the other ſpecies.

The eighth ſort grows naturally at Malabar and in Ceylon; this riſes in its native ſoil with a ſtrong woody ſtem ten or twelve feet high, dividing into many branches, which are garniſhed with ſpear-ſhaped oval leaves five inches long, and two and a half broad, of a lucid green, placed oppoſite. The flowers grow in very long ſpikes from the end of the branches, they are of a greeniſh colour with a ſhade of blue; the helmet of the flower is reflexed.

Theſe three ſorts are propagated by ſeeds in the ſame manner as the three firſt, and the plants muſt be treated in the ſame way, eſpecially while they are young; but afterward the eighth ſort may be more hardily treated, when they have gotten ſtrength. This ſort may alſo be propagated by cuttings, in the ſame manner as the fifth ſort; and when the plants are two or three years old, they will thrive in a moderate degree of warmth in winter, and in the ſummer they may be placed abroad for two months in the warmeſt ſeaſon of the year; but they ſhould have a warm ſheltered ſituation, and when the nights begin to grow cold, they muſt be removed into the ſtove, but they muſt have free air admitted to them at all times when the weather is warm. The other two ſorts ſhould conſtantly remain in the bark-ſtove, and require the ſame treatment as other tender plants from the warmeſt countries.

IXIA. Lin. Gen. Plant. 54. Siſyrinchium. Com. Hort. Amſt.

The Characters are,

It hath oblong permanent ſpathæ (or ſheaths) which incloſe the germen; the flower has ſix oblong ſpear-ſhaped petals which are equal, and three awl-ſhaped ſtamina which are ſhorter than the petals, ſituated at equal diſtances, terminated by ſingle ſummits. It hath an oval three-cornered germen ſituated below the flower, ſupporting a ſingle ſtyle which is the length of the ſtamina, crowned by a thick trifid ſtigma; the germen afterward becomes an oval three-cornered capſule with three cells, filled with roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, which includes thoſe plants whoſe flowers have three ſtamina and one ſtyle.

The Species are,

1. Ixia (*Chinenſis*) foliis enſiformibus, floribus remotis panicula dichotoma, floribus pedunculatis. Hort. Upſal. 16. *Ixia with ſword-ſhaped leaves, and flowers ſtanding remote in forked panicles upon foot-ſtalks.* Bermudiana iridis folio majori flore croceo, eleganter punctato. Krauſ. Hort. 25. tab. 25. *Bermudiana with a larger Iris leaf, and a Saffron-coloured flower, which is beautifully ſpotted.*
2. Ixia (*Africana*) floribus capitatis, ſpathis laceris. Lin. Sp. Plant. 36. *Ixia with flowers growing in heads, having ragged ſheaths.* Bermudiana Capenſis, capitulis lanugipoſis. Pet. Hort. Sicc. 242. *Bermudiana from the Cape of Good Hope, with woolly heads.*
3. Ixia (*Scillariis*) foliis gladiolatis, nervoſis, hirſutis, floribus ſpicatis terminalibus. Icon. tab. 155. fig 1. *Ixia with ſword-ſhaped, hairy, veined leaves, and flowers growing in ſpikes at the ends of the ſtalks.*
4. Ixia (*Polyſtacia*) foliis lineari-gladiolatis, floribus alaribus & terminalibus. Icon. tab. 155. fig. 2. *Ixia with narrow ſword-ſhaped leaves, and flowers proceeding from the ſides and tops of the ſtalk.*
5. Ixia (*Crocata*) foliis gladiolatis glabris, floribus corymboſis terminalibus. Icon. tab. 156. *Ixia with ſmooth ſpear-ſhaped leaves, and flowers growing in a corymbus terminating the ſtalk.* Siſyrinchium Africanum majus, flore luteo maculâ notato. Olden. *Greater African Siſyrinchium with a yellow ſpotted flower.*
6. Ixia (*Bulbifera*) foliis lineari-gladiolatis, floribus alternis, caule bulbifero. *Ixia with narrow ſword-ſhaped leaves, flowers placed alternate, and ſtalks bearing bulbs.*
7. Ixia (*Sparſa*) foliis gladiolatis, floribus diſtantibus. *Ixia with ſword-ſhaped leaves, and flowers growing diſtant.*
8. Ixia (*Flexuoſa*) foliis lineari-gladiolatis, floribus ſpicatis ſeſſilibus terminalibus. *Ixia with narrow ſword-ſhaped leaves, and ſeſſile flowers growing in ſpikes at the top of the ſtalk.*

The firſt ſort grows naturally in India, where the ſtalks riſe to the height of five or ſix feet, but in England they are ſeldom more than half that height. It hath a pretty thick fleſhy root, divided in knots or joints of a yellowiſh colour, ſending out many fibres; the ſtalk is pretty thick, ſmooth, and jointed, garniſhed with ſword-ſhaped leaves a foot long and one inch broad, with ſeveral longitudinal furrows embracing the ſtalks with their baſe, ending in acute points; the upper part of the ſtalk divaricates into two ſmaller, with a foot-ſtalk ariſing between them, which ſupports one flower; the ſmaller branches divaricate again in the ſame manner into foot-ſtalks, which are two inches long, each ſuſtaining one flower. At each of theſe joints is a ſpatha or ſheath embracing the ſtalk, which at the lower joints are three inches long, but the upper are not more than one inch, ending in acute points which are permanent; the flowers are compoſed of ſix equal petals, of a yellow colour within, and variegated with dark red ſpots; the outſide is of an Orange colour. Theſe appear in July and Auguſt, and in warm ſeaſons are ſucceeded by ſeeds.

This ſort may be propagated either by ſeeds or parting of the roots: if by ſeeds they ſhould be ſown in pots, and plunged into a moderate hot-bed, which will bring up the plants much ſooner than when they are ſown in the full ground; when the plants are fit to remove, they ſhould be each planted in a ſmall ſeparate pot filled with light earth, and if they are placed under a frame till they have taken good root in the pots, it will greatly forward their growth; afterward they may be placed in the open air in a ſheltered ſituation, where they may remain till the autumn, when they muſt be placed under a frame to ſcreen them from froſt; and in the ſpring moſt of the plants may be turned out of the pots and planted in a warm border, where they will abide through the common winters very well, but in ſevere froſts they are often killed, unleſs they are covered with tan, or other covering to keep out the froſt; therefore a few of the plants may be kept in pots, and ſheltered under a frame in winter.

The ſtalks and leaves of this plant decay to the root in autumn, ſo that if the ſurface of the ground about the roots is covered two or three inches thick with tan, it will ſecure them from the danger of froſt; and in the ſpring, before the roots ſhoot, will be the beſt time to remove and part the roots; but this ſhould not be done oftener than every third year, for when they are often parted they will be weak, and will not flower ſo well.

The ſecond ſort grows naturally at the Cape of Good Hope; this is a low plant, which rarely riſes more than three or four inches high; the leaves are narrow and veined, the flowers are ſmall, growing in a downy head on the top of the ſtalk, but they make little appearance, ſo are only kept for the ſake of variety.

The third ſort I raiſed from ſeeds, which were ſent me from the Cape of Good Hope. This hath a round bulbous root a little compreſſed, covered with a red ſkin, from which ariſe five or ſix ſword-ſhaped leaves about three or four inches long, hairy, and with ſeveral longitutinal furrows; theſe embrace each other at their baſe, but ſpread aſunder at the top; between theſe come out the flower-ſtalk, which riſes ſix or eight inches high, is naked to the top, and terminated by a cluſter of flowers, each having a ſpatha or hood, which dries and is permanent; the flowers are of a deep blue colour, and appear in May; theſe are ſucceeded by roundiſh three-cornered ſeed-veſſels with three cells, filled with roundiſh ſeeds which ripen in July, then the leaves and ſtalks decay.

The fourth ſort was raiſed from ſeeds in the Chelſea garden, which came with thoſe of the former ſort. This hath a ſmall round bulbous root, from which ariſe four or five narrow, long, ſword-ſhaped leaves, ſix or ſeven inches long; between theſe come out a very ſlender round ſtalk about ten inches long, from the ſide of which there comes out one or two cluſters of flowers, ſtanding upon ſhort foot-ſtalks, and at the top of the ſtalk the flowers grow in a looſe ſpike; they are of a pure white, and ſhaped like thoſe of the other ſpecies. Theſe appear in May, and the ſeeds ripen in July.

The ſeeds of the fifth ſort were ſent me from the Cape of Good Hope; this has an oval bulbous root which is a little compreſſed, from which come up three or four narrow, thin, ſword-ſhaped leaves, near a foot long; the flower-ſtalk riſes a little above the leaves, it is very ſlender, naked, and terminated by a round cluſter of flowers, each having a ſpatha or hood; they are compoſed of ſix pretty large oblong petals which are concave, and of a deep yellow colour, each having a large black ſpot at the baſe. This flowers early in May, and the ſeeds ripen the latter end of June.

The ſixth ſort hath narrow ſpear-ſhaped leaves about ſix or ſeven inches long; the ſtalk riſes near a foot and a half high, garniſhed with one leaf at each of the lower joints, of the ſame ſhape with the other, but ſmaller; theſe embrace the ſtalk with their baſe, and ſtand erect; the upper part of the ſtalk is adorned with flowers, compoſed of ſix oblong oval petals of a ſulphur colour, which are placed alternate on the ſtalk, which is bent at each joint where the flowers ſtand; the flowers have three ſhort ſtamina which are joined at their baſe, terminated by long, flat, erect ſummits; the germen is ſituated under the flower, ſupporting a long ſlender ſtyle, crowned by a trifid ſtigma; the germen afterward becomes a roundiſh capſule with three cells, filled with roundiſh ſmall ſeeds. The ſtalks at each of the lower joints thruſt out ſmall bulbs, which, if planted, will grow and produce flowers.

The ſeventh ſort hath ſhorter and broader leaves than the former; the ſtalk is ſlender and furrowed, and at each of the lower joints is garniſhed with one leaf of the ſame ſhape, embracing the ſtalk with their baſe; the flowers come out toward the top of the ſtalk, at two or three inches diſtance, each ſtalk ſupporting two or three ſulphur-coloured flowers, which are each compoſed of ſix ſpear-ſhaped petals an inch and a half long, equal in their ſize and regular in poſition; they have a ſhort permanent empalement, cut into two long and two ſhorter acute ſegments; theſe are ſucceeded by round capſules with three cells, filled with round ſeeds. This ſort flowers in March, and the ſeeds ripen about two months after.

The eighth ſort hath very ſmall, round, bulbous roots, from which ariſe three or four long, ſlender, Graſs-like leaves, of a dark green colour; between theſe come out the ſtalk, which is very ſlender and round, riſing a foot and a half high; at the top the flowers are collected in a ſpike ſitting cloſe to the ſtalk, each having a thin, dry, permanent ſpatha or ſheath, which covers the capſule after the flower is fallen. The flowers are of a pure white, and ſhaped like thoſe of the other ſpecies, but are ſmaller; they are ſucceeded by ſmall round ſeed-veſſels with three cells, each containing two or three round ſeeds. It flowers the latter end of May, and the ſeeds ripen in July.

There are ſome other varieties of this genus, which have flowered in the Chelſea garden, differing only in the colour of their flowers, ſo are not ſuppoſed to be diſtinct ſpecies; one of which is purple on the outſide, and white within; another has white flowers, with a blue ſtripe on the outſide of each petal, and a third has white flowers with yellow bottoms. Theſe have already flowered in the Chelſea garden, where there are many more, which have been ſince raiſed from ſeeds, whoſe flowers have not as yet appeared; and at the Cape of Good Hope, where theſe plants grow naturally, there are more than thirty varieties mentioned in a catalogue of Dr. Herman's. The roots of moſt, if not all theſe ſorts, are frequently eaten by the inhabitants at the Cape of Good Hope, who greatly eſteem them.

All the ſorts multiply very faſt by offſets, ſo that when once obtained, there will be no occaſion to raiſe them from ſeeds; for the roots put out offſets in great plenty, moſt of which will flower the following ſeaſon, whereas thoſe from ſeeds are three or four years before they flower. Theſe plants will not live through the winter in the full ground in England, ſo ſhould be planted in ſmall pots filled with light earth, and placed under a frame in winter, where they may be protected from froſt, but in mild weather ſhould enjoy the free air; but during the winter they muſt be guarded from mice, who are very fond of theſe roots, and if not prevented will devour them.

IXORA. Lin. Gen. 131. Jaſminum. Burman.

The CHARACTERS are,

It hath a ſmall permanent empalement cut into four ſegments; the flower has one funnel-ſhaped petal, having a ſlender tube, cut into four ſegments at the top. It hath four ſhort ſtamina ſituated in the diviſions of the petal, terminated by oblong ſummits, and a roundiſh germen ſituated at the bottom of the involucrum, ſupporting a ſlender ſtyle the length of the tube, crowned by a bifid ſtigma; the germen afterward becomes a berry with two cells, containing two convex angular ſeeds.

This genus of plants is ranged in the firſt order of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flowers having four ſtamina and one ſtyle.

The SPECIES are,

1. IXORA (*Coccinea*) foliis ovatis ſemiamplexicaulibus, floribus faſciculatis. Flor. Zeyl. 22. *Ixora with oval leaves half embracing the ſtalks, and flowers growing in bunches.* Jaſminum Indicum lauri folio, inodorum umbellatum, floribus coccineis. Pluk. Phyt. tab. 59. f. 2.

2. **Ixora** (*Alba*) foliis ovato-lanceolatis, floribus faſciculatis. Lin. Sp. 160. *Ixora with oval ſpear-ſhaped leaves, and flowers growing in bunches.* Jaſminum Indicum, lauri folio, inodorum, floribus albicantibus & ſchetti album. Pluk. Phyt. 109. f. 2.

3. **Ixora** (*Americana*) foliis ternis lanceolato-ovatis, floribus thyrſoideis. Amœn. Acad. 5. p. 393. *Ixora with oval ſpear-ſhaped leaves placed by threes, and flowers in a looſe ſpike.* Pavetta foliis oblongo-ovatis oppoſitis, ſtipulis ſetaceis. Brown. Jam. tab. 6. f. 2.

The firſt ſort grows naturally in India, where it riſes with a woody ſtalk five or ſix feet high, ſending out many ſlender branches covered with a brown bark, garniſhed with oval leaves, placed ſometimes oppoſite, and at others there are three or four at each joint. The flowers terminate the branches in cluſters; they have very long ſlender tubes, are cut into four oval ſegments at the top, and are of a deep red colour.

The ſecond ſort grows alſo in India; this hath a woody ſtalk riſing ſix or ſeven feet high, ſending out weak branches, garniſhed with oval ſpear-ſhaped leaves placed oppoſite, ſitting cloſe to the branch; the flowers terminate the branches in ſmall cluſters; they have long ſlender tubes, divided into four ſegments at the top, and are white, without ſcent.

The third ſort grows naturally in Jamaica, and ſome other iſlands in the Weſt-Indies, where it is called Wild Jaſmine. This riſes with a ſhrubby ſtalk four or five feet high, ſending out ſlender branches oppoſite, which are garniſhed with oval ſpear-ſhaped leaves placed oppoſite, which are ſix inches long, and two inches and a half broad, having ſhort foot-ſtalks; the flowers are produced at the end of the branches in a looſe ſpike, they are white, and have a ſcent like Jaſmine.

Theſe plants are propagated by ſeeds, when they can be procured from the countries where they grow naturally, for they do not perfect any ſeeds in England. They ſhould be ſown in ſmall pots as ſoon as they arrive, and plunged into a hot-bed; if they arrive in autumn or winter, the pots may be plunged in the tan-bed in the ſtove, between the other pots of plants, ſo will take up little room; but when they arrive in the ſpring, it will be beſt to plunge them in a tan-bed under frames; the ſeeds will ſometimes come up in about ſix weeks, if they are quite freſh; otherwiſe they will lie in the ground four or five months, and ſometimes a whole year, therefore the earth ſhould not be thrown out of the pots till there is no hopes of their growing; when the plants come up, and are fit to remove, they ſhould be each planted in a ſeparate ſmall pot, filled with light earth, and afterward treated in the manner directed for the Coffee-tree.

They may alſo be increaſed by cuttings during the ſummer months, and planted in ſmall pots plunged into a moderate hot-bed, covering them cloſe either with bell or hand-glaſſes to exclude the external air, ſhading them carefully from the ſun during the heat of the day, until they have put out good roots, when they ſhould be parted, and each put into a ſeparate pot, treating them as the ſeedling plants.

K.

KALI. See Salsola.

KALMIA. Lin. Gen. Plant. 482. Chamærhododendros. Tourn. Inſt. R. H. 604. tab. 373.

The Characters are,

The flower has a ſmall permanent empalement cut into five parts, and one petal cut into five ſegments, which ſpread open and are roundiſh. It hath ten ſtamina the length of the petal, which decline in the middle, terminated by oval ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſlender ſtyle as long as the petal, crowned by an obtuſe ſtigma. The germen afterward becomes an oval or globular capſule with five cells, filled with very ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, which includes thoſe plants whoſe flowers have ten ſtamina and one ſtyle.

The Species are,

1. **Kalmia** (*Latifolia*) foliis ovatis, corymbis terminalibus. Amœn. Acad. 3. p. 19. *Kalmia with oval leaves, and flowers growing in bunches terminating the branches.* Chamædaphne foliis tini, floribus bullatis umbellatis. Cateſb. Carol. 2. p. 98. tab. 98. *Dwarf Laurel with a Tinus leaf, and ſtudded flowers growing in umbels, commonly called Ivy-tree in America.*
2. **Kalmia** (*Anguſtifolia*) foliis lanceolatis corymbus lateralibus. Lin. Gen. Nov. 1079. *Kalmia with ſpear-ſhaped leaves, and flowers growing in round bunches on the ſides of the ſtalk.* Chamædaphne ſempervirens, foliis oblongis anguſtis, foliorum faſciculis oppoſitis. Cateſb. Carol. 3. p. 17. *Evergreen Dwarf Laurel, with oblong narrow leaves growing in bunches, which are placed oppoſite.*

The firſt ſort grows naturally upon rocks and in barren ſoils in Virginia and Penſylvania, where it riſes with a branching ſtalk to the height of ten or twelve feet, garniſhed with very ſtiff leaves, which are two inches long and one broad, of a lucid green on their upper ſide, but of a pale green on their under; they have ſhort foot-ſtalks, and ſtand without order round the branches; between theſe the buds are formed for the next year's flowers, at the extremity of the branches; theſe buds ſwell during the autumn and ſpring months, till the beginning of June, when the flowers burſt out from their empalements, forming a round bunch (or corymbus) ſitting very cloſe to the branch; they are of a pale bluſh colour, the outſide of the petal is of a Peach colour. The flower has but one petal, whoſe baſe is tubulous, but is cut into five roundiſh ſegments, ſtudded with purple ſpots, which are prominent; after the flowers are paſt, the germen in the center becomes an oval capſule, crowned by the permanent ſtyle, having five cells, which are full of very ſmall ſeeds. This ſhrub in its native ſoil continues flowering great part of the ſummer, and is one of the greateſt ornaments to the country; but as yet it is not ſo well naturalized to our climate as could be wiſhed, though the plants are not injured by the cold, and ſome of them have flowered ſeveral years paſt in the Chelſea garden.

In the country where this ſhrub grows naturally, it ſends out plenty of ſuckers from the roots, ſo that they form thickets which are almoſt impaſſable; but here they have not as yet produced any ſuckers, nor do the ſeeds come to maturity, ſo that the plants are not very common in England; for the ſeeds which are ſent from America lie in the ground a whole year before the plants appear, and afterward they make very ſlow progreſs, which has diſcouraged moſt people from attempting to raiſe the plants in that method. The only perſon who has ſucceeded well in the raiſing of theſe, is Mr. James Gordon of Mile End, who has a good number of the plants which have ariſen from ſeeds.

The ſecond ſort is a native of the ſame country with the firſt, where it riſes from three to ſix feet high, dividing into ſmall ligneous branches which are very cloſe, covered with a dark gray bark, garniſhed with ſtiff leaves about two inches long and half an inch broad, of a lucid green, placed without order upon the branches, ſtanding upon ſlender foot-ſtalks; the flowers grow in looſe bunches on the ſide of the branches, upon ſlender foot-ſtalks; they are of one petal, having a ſhort tube, but ſpread open at the top, where they are cut into five angles: the flowers are of a bright red colour when they firſt open, but afterward fade to a bluſh or Peach bloom colour; theſe are ſucceeded by roundiſh compreſſed ſeed-veſſels crowned by the permanent ſtyle, divided into five cells, which are filled with ſmall roundiſh ſeeds. This ſhrub flowers great part of ſummer in its native country, but is not yet ſo well naturalized to this country as to do the like.

The leaves of this elegant plant are ſuppoſed to have a noxious quality, deſtroying ſheep and oxen when they feed upon them, yet the deer eat them with impunity.

Both theſe ſorts multiply by their creeping roots in their native ſoil, and at Whitton, where they have ſtood unremoved a conſiderable time, they put out ſuckers in pretty great plenty; and as theſe plants which come from ſuckers, are much more likely to produce others than thoſe which are raiſed from ſeeds, and will flower much ſooner, ſo the plants ſhould not be removed, but encouraged to ſpread their roots and ſend out ſuckers.

KARATAS, the Penguin or wild Ananas.

The Characters are,

It hath a tubulous bell-ſhaped flower, which is divided into three parts at the mouth, from whoſe empalement where the germen is ſituated ariſes the pointal, fixed like a nail in the hinder part of the flower, attended by ſix ſhort ſtamina; the germen afterward becomes a fleſhy almoſt conical fruit, which is divided by membranes into three cells, that are full of oblong ſeeds.

There is but one ſort of this plant at preſent known in England, which is,

Karatas (*Penguin*) foliis ciliato ſpinoſis mucronatis, racemo terminali. *The wild Ananas or Penguin.*

Father Plumier has made a great miſtake in the figure and deſcription of the characters of this plant, and the Caraguata; for he has joined the flower of the Caraguata to the fruit of the Karatas, and vice verſâ; this has led many perſons into miſtakes, who have joined the Bromelia and Ananas to this, making them all of the ſame genus, whereas by their characters they ſhould be ſeparated.

This plant is very common in the Weſt-Indies, where the juice of its fruit is often put into punch, being of a ſharp acid flavour. There is alſo a wine made of the juice of this fruit which is very ſtrong, but it will not keep good very long, ſo is only for preſent uſe. This wine is very intoxicating and heats the blood, therefore ſhould be drank very ſparingly.

In England this plant is preſerved as a curioſity, for the fruit ſeldom arrives to any degree of perfection in this country, though it has often produced fruit in the gardens, which ſometimes has ripened pretty well; but if it were to ripen as thoroughly here as in its native country, it would be little valued on account of its great auſterity, which will often take the ſkin off from the mouths and throats of thoſe people who eat it incautiouſly.

This plant is propagated by ſeeds, for though there are often ſuckers ſent forth from the old plants, yet they come out from between the leaves, and are ſo long, ſlender, and ill-ſhapen, that if they are planted they ſeldom make regular plants. Theſe ſeeds ſhould be ſown early in the ſpring, in ſmall pots filled with light rich earth, and plunged into a hot-bed of tanners bark. When the plants are ſtrong enough to tranſplant, they ſhould be carefully taken up, and each planted into a ſeparate pot filled with light rich earth, and plunged into the hot-bed again, obſerving to refreſh them frequently with water, until they have taken new root, after which time they ſhould have air and water in proportion to the warmth of the ſeaſon. In this bed the plants may remain till Michaelmas, at which time they ſhould be removed into the ſtove, and plunged into the bark-bed, where they ſhould be treated in the ſame manner as the Ananas.

Theſe plants will not produce their fruit in England until they are three or four years old, ſo they ſhould be ſhifted into larger pots, as the plants advance in their growth; for if their roots are too much confined, they will make but little progreſs. They ſhould alſo be placed at a pretty great diſtance from each other, for their leaves will be three or four feet long, which turning downward occupy a large ſpace.

The leaves of this plant are ſtrongly armed with crooked ſpines, which renders it very troubleſome to ſhift or handle the plants; for the ſpines catch hold of whatever approaches them by their crooked form, being ſome bent one way, and others the reverſe, ſo that they catch both ways, and tear the ſkin or clothes of the perſons who handle them, where there is not the greateſt care taken of them.

The fruit of this plant is produced in cluſters, growing upon a ſtalk about three feet high, and having generally a tuft of leaves growing on the top, ſo has, at firſt ſight, the appearance of a Pine Apple; but, when cloſer viewed, they will be found to be a cluſter of oblong fruit, each being about the ſize of a finger.

A **KATKIN** is an aggregate of ſummits, hanging down in form of a rope, or Cat's tail, as in the Sallow, Hazel, Birch, &c. and is called in Latin iulus.

KÆMPFERIA. Lin. Gen. Plant. 7.

The Characters are,

It hath a ſingle ſpatha (or ſheath) of one leaf; the flower hath one petal, with a long ſlender tube, divided into ſix parts above; three of them are alternately ſpear-ſhaped and equal, the other are oval, and at bottom cut into two ſegments which are vertically heart-ſhaped. It hath but one ſtamen, which is membranaceous, oval, and indented, terminated by a linear ſummit, faſtened to it all the length, ſcarcely emerging out of the tube of the petal. It hath a round germen ſupporting a ſtyle the length of the tube, crowned by an obtuſe ſtigma; the germen afterward becomes a roundiſh three-cornered capſule with three cells, filled with ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's firſt claſs, intitled Monandria Monogynia, which includes thoſe plants whoſe flowers have one ſtamen and one ſtyle.

The Species are,

1. Kæmpferia (*Galanga*) foliis ovatis ſeſſilibus. Flor. Zeyl. 8. *Kæmpferia with oval leaves ſitting cloſe to the root.* Katſjuli Kelengu. Hort. Mal. and the Wanhom. Kæmpf. Amœn. 901. *Galangale.*
2. Kæmpferia (*Rotunda*) foliis lanceolatis petiolatis. Flor. Zeyl. 9. *Kæmpferia with ſpear-ſhaped leaves having foot-ſtalks.* Zedoaria rotunda. C. B. P. *Round Zedoary.*

Theſe plants are both natives of the Eaſt-Indies, where their roots are greatly uſed in medicine as ſudorific and carminative. The firſt ſort hath much the ſcent of green Ginger, when freſh taken out of the ground; the roots are divided into ſeveral fleſhy tubers, which are ſometimes jointed, and grow about four or five inches long; the leaves are oval, about four inches long and two broad; theſe are without foot-ſtalks, growing cloſe to the root, and ſeem as if ſet on by pairs, ſpreading open each way; and from between theſe leaves the flowers are produced ſingly, having no foot-ſtalks, but are cloſely embraced by the leaves; the flowers are white, having a bright purple bottom. Theſe are not ſucceeded by any fruit in England.

The ſecond ſort hath roots ſomewhat like thoſe of the firſt, but are ſhorter, growing in large cluſters, covered with an Aſh-coloured ſkin, but within are white; from the roots ariſe the leaves, which fold over each other at their baſe; they are ſix or eight inches long, and three broad in the middle, gradually ending in acute points; the flowers ariſe immediately from the roots, each having a ſpatha (or ſheath) at bottom cut into two ſegments, which cloſely embrace the foot-ſtalk; theſe have ſix petals, the three lower which decline downward are long and narrow, the two upper are divided ſo deeply as to appear like a flower with four petals, and the ſide petal is bifid; they are of mixed colours, blue, purple, white and red, having a fragrant odour: they flower in July and Auguſt, but do not produce ſeeds in England.

Theſe plants being natives of hot countries, will not bear the open air in England, ſo requires a warm ſtove to preſerve them through the winter; but as their leaves decay in the autumn, ſo the plants ſhould not have too much wet while they are in an inactive ſtate. If the plants are placed in the bark-ſtove, and treated in the ſame manner as is directed for the Ginger, they will thrive, and produce plenty of flowers every ſummer. They are both propagated by parting of their roots; the beſt time for this is in the ſpring, juſt before they begin to put out their leaves.

KETMIA. See Hibiscus.

KIGGELARIA. Lin. Gen. Plant. 1001. Laurus. Sterb. We have no Engliſh title for this plant.

The Characters are,

It hath male and hermaphrodite flowers ſituated on different trees; the male flowers have an empalement of one leaf, cut into five concave ſegments, and five concave petals which are longer than the empalement, ſhaped like a pitcher; each of the petals have a honey gland faſtened to their baſe, which have three obtuſe lobes and are coloured, faſtened to the tails of the petals; they have ten ſmall ſtamina, terminated by oblong ſummits. The hermaphrodite flowers have empalements and petals like the male, but few of them have ſtamina. In the center is ſituated a roundiſh germen, ſupporting five ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes a rough globular fruit with a thick cover, having one cell, filled with angular ſeeds.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Decandria; but it ſhould be removed to his twenty-third claſs, as the hermaphrodite flowers are fruitful, tho' they are ſituated upon diſtinct plants, whoſe male flowers have ten ſtamina.

We have but one Species of this genus, viz.

Kiggelaria (*Africana.*) Hort. Cliff. 462. fol. 29. Euonymo-affinis Æthiopica ſempervirens, fructu globoſo ſcabro, foliis ſalicis rigidis ſerratis. H. L. 139. *An Ethiopian Evergreen plant reſembling the Spindle-tree, with a rough globular fruit, and ſtiff ſawed Willow leaves.*

This plant grows naturally at the Cape of Good Hope, where it riſes to be a tree of middling ſtature; but as it will not live in the open air here, they cannot be expected to grow to a great magnitude in England. There are plants of it in the Chelſea garden upward of ten feet high, with ſtrong woody ſtems and pretty large heads; the branches have a ſmooth bark, which is firſt green, but afterward changes to a purpliſh colour; the leaves are about three inches long and one broad, of a light green colour, and ſawed on their edges, ſtanding upon ſhort foot-ſtalks alternately. The flowers come out in cluſters from the ſide of the branches, and hang downward; they are of an herbaceous white colour, and appear in May, at which time the plants are thinly garniſhed with leaves, for moſt of the old leaves drop juſt before the new ones appear. The male flowers fall away ſoon after their farina is ſhed, but the hermaphrodite flowers are ſucceeded by globular fruit about the ſize of common red Cherries; the cover of theſe is very rough, and of a thick conſiſtence, opening in five valves at the top, having one cell filled with ſmall angular ſeeds. Theſe fruit have grown to their full ſize in the Chelſea garden, but the ſeeds have rarely come to maturity here.

Theſe plants were not very common in Europe ſome years paſt, being very difficult to propagate, unleſs by ſeeds, which ſome plants both in Holland and England have lately produced, ſo that they are now much more plenty than they were in both countries; for when any of the young branches are laid down, they are two years before they put out roots, and ſcarce one in five will then have any roots; nor do the cuttings ſucceed better, for not one in twenty of them will take root, when planted with the utmoſt care: the beſt time to plant the cuttings is in the ſpring, juſt before the plants begin to ſhoot; theſe ſhould be planted in pots filled with a ſoft loamy earth, and plunged into a very moderate hot-bed, covering them cloſe with a glaſs, to exclude the air from them, and ſhade them every day from the ſun; they ſhould have very little water after their firſt planting. If any of them grow, they ſhould be planted into ſeparate ſmall pots, filled with loamy earth, and may be expoſed to the air in a ſheltered ſituation till autumn, when they muſt be removed into the green-houſe, and treated in the ſame manner as Orange-trees.

KITCHEN-GARDEN. A good Kitchen-garden is almoſt as neceſſary to a country ſeat, as a kitchen to the houſe; for without one, there is no way of being ſupplied with a great part of neceſſary food; the markets in the country being but poorly furniſhed with eſculent herbs, and thoſe only upon the market days, which are ſeldom oftener than once a week; ſo that unleſs a perſon has a garden of his own, there will be no ſuch thing as procuring them freſh, in which their goodneſs conſiſts; nor can any variety of theſe be had in the country markets; therefore whoever propoſes to reſide in the country, ſhould be careful to make choice of a proper ſpot of ground for this purpoſe; and the ſooner that is made and planted, the produce of it will be earlier in perfection; for fruit-trees and Aſparagus require three years to grow, before any produce can be expected from them; ſo that the later the garden is made, the longer it will be before a ſupply of theſe things can be had for the table. And although the uſefulneſs of this garden is acknowledged by almoſt every one, yet there are few who make a proper choice of ſoil and ſituation for ſuch a garden; the modern taſte, which is, perhaps, carried to as extravagant lengths, in laying open and throwing every obſtruction down, as the former cuſtom of incloſing within walls was ridiculous; ſo that now one frequently ſees the Kitchen-garden removed to a very great diſtance from the houſe and offices, which is attended with great inconveniencies; and often ſituated on a very bad ſoil, ſometimes too moiſt, and at others without water, ſo that there is a great expence in building walls and making the garden, where there can be little hopes of ſucceſs.

Nor will a Kitchen-garden be well attended to, when it is ſo ſituated as to be out of ſight of the poſſeſſor, eſpecially if the gardener has not a love and value for it, or if it lies at a great diſtance from his habitation, or the other parts of the garden; for when it ſo happens, a great part of the labourer's time will be loſt in going from one part to the other: therefore, before the general plan of the pleaſure-garden is ſettled, a proper piece of ground ſhould be choſen for this purpoſe, and the plan ſo adapted, as that the Kitchen-garden may not become offenſive to the ſight, which may be effected by proper plantations of ſhrubs to ſcreen the walls; and through theſe ſhrubs may be contrived ſome winding walks to lead to the Kitchen-garden, which will have as good an effect as thoſe which are now commonly made in gardens for pleaſure only. In the choice of the ſituation, if it does not obſtruct the view of better objects, or ſhut out any material proſpect, there can be no objection to the placing it at a reaſonable diſtance from the houſe or offices; for as particular things may be wanted for the kitchen, which were not thought of at the time when directions were given to the gardener what to bring in; ſo if the garden is ſituated at a great diſtance from the houſe, it will be found very inconvenient to ſend thither as often as things are wanting: therefore it ſhould be contrived as near the ſtables as poſſible, for the conveniency of carrying the dung thither; which, if at a great diſtance, will add to the expence of the garden.

As to the figure of the ground, that is of no great moment, ſince in the diſtribution of the quarters all irregularities may be hid; though if you are at full liberty, an exact ſquare or an oblong, is preferable to any other figure.

The great thing to be conſidered is, to make choice of a good ſoil, not too wet, nor over dry, but of a middling quality; nor ſhould it be too ſtrong or ſtubborn, but of a pliable nature, and eaſy to work; and if the place where you intend to make the Kitchen-garden ſhould not be level, but high in one part and low in another, I would by no means adviſe the levelling it; for by this ſituation you will have an advantage which could not be obtained on a perfect level, which is, the having one part dry ground for early crops, and the low part for late crops, whereby the kitchen may be the better ſupplied throughout the ſeaſon with the various ſorts of herbs, roots, &c. And in very dry ſeaſons, when in the upper part of the garden the crop will greatly ſuffer with drought, then the lower part will ſucceed, and ſo vice verſâ; but I would by no means direct the chuſing a very low moiſt ſpot of ground for this purpoſe; for although in ſuch ſoils garden-herbs are commonly more vigorous and large in the ſummer ſeaſon, yet they are ſeldom ſo well taſted or wholeſome as thoſe which grow upon a moderate ſoil; and eſpecially ſince in this garden your choice fruits ſhould be planted, it would be wrong to have a very wet ſoil.

This garden ſhould be fully expoſed to the ſun, and by no means overſhadowed with trees, buildings, &c. which are very injurious to your kitchen plants and fruit-trees; but if it be defended from the north wind by a diſtant plantation, it will greatly preſerve your early crops in the ſpring; as alſo from the ſtrong ſouth-weſt winds, which are very hurtful in autumn to fruit and garden-herbs. But theſe plantations ſhould not be too near nor very large; for I have generally found where Kitchen-gardens are placed near woods or large plantations, they have been much more troubled with blights in the ſpring, than thoſe which have been more expoſed.

The quantity of ground neceſſary for a Kitchen-garden muſt be proportioned to the largeneſs of the family, or the quantity of herbs deſired: for a ſmall family, one acre of ground may be ſufficient; but for a large family, there ſhould not be leſs than three or four acres; becauſe, when the ground is regularly laid out, and planted with eſpaliers of fruit-trees, as will hereafter be directed, this quantity will be found little enough, notwithſtanding what ſome perſons have ſaid on this head.

This ground muſt be walled round, and if it can be conveniently contrived, ſo as to plant both ſides of the walls which have good aſpects, it will be a great addition to the quantity of wall fruit; and thoſe ſlips of ground which are without ſide of the walls, will be very uſeful for planting of Gooſeberries, Currants, Strawberries, and ſome ſorts of kitchen plants, ſo that they may be rendered equally uſeful with any of the quarters within the walls; but theſe ſlips ſhould not be too narrow, leſt the hedge, pale, or plantation of ſhrubs, which incloſe them, ſhould ſhade the borders where the fruit-trees ſtand: the leaſt width of theſe ſlips ſhould be twenty-five or thirty feet, but if they are double that, it will be yet better, and the ſlips will be more uſeful, and the fruit-trees will have a larger ſcope of good ground for their roots to run. Theſe walls ſhould be built about twelve feet high, which will be a ſufficient height for any ſort of fruit.

If the ſoil where you intend to place your Kitchen-garden be very ſtrong, then you ſhould plough or dig it three or four times before you plant any thing therein; and if you throw it up in ridges to receive the froſt in winter, it will be of great ſervice to meliorate and looſen its parts.

The manure which is moſt proper for ſuch ſoils, is ſea-coal aſhes, and the cleanſing of ſtreets or ditches, which will render it light much ſooner than any other dung or manure; and the greater the quantity of aſhes the better, eſpecially if the ground be cold; and where theſe aſhes are not to be obtained in plenty, ſea-ſand is a very proper dreſſing, where it can be eaſily procured, or rotten wood, or the parts of vegetables rotted are very good; all which will greatly looſen the ſoil, and cauſe it to be not only eaſier to work, but alſo more advantageous for the growth of plants.

But, on the contrary, if your ſoil be light and warm, you ſhould manure it with rotten neats dung, which is much preferable to any other dreſſing for hot ſoils; but if you uſe horſe dung, it muſt be well rotted, otherwiſe it will burn up the crops upon the firſt hot dry weather.

The ſoil of this garden ſhould be at leaſt two feet deep, but if deeper it will be ſtill better, otherwiſe there will not be depth enough of ſoil for many ſorts of eſculent roots, as Carrots, Parſneps, Beets, &c. which run down pretty deep in the ground, and moſt other ſorts of eſculent plants delight in a deep ſoil; and many plants, whoſe roots appear ſhort, yet if their fibres by which they receive their nouriſhment are traced, they will be found to extend to a conſiderable depth in the ground; ſo that when theſe are ſtopped by meeting with gravel, chalk, clay, &c. the plants will ſoon ſhew it by their colour and ſtinted growth.

You ſhould alſo endeavour to have a ſupply of water in the different parts of the garden, which, if poſſible, ſhould be contained in large baſons or reſervoirs, where it may be expoſed to the open air and ſun, that it may be ſoftened thereby; for ſuch water as is taken out of wells, &c. juſt as it is uſed, is by no means proper for any ſort of plants.

In the diſtribution of this garden, after having built the walls, you ſhould lay out banks or borders under them, which ſhould be at leaſt eight or ten feet broad, whereby the roots of the fruit-trees will have greater liberty than in ſuch places where the borders are not above three or four feet wide; and upon theſe banks you may ſow many ſorts of early crops, if expoſed to the ſouth; and upon thoſe expoſed to the north, you may have ſome late crops; but I would by no means adviſe the planting any ſort of deep rooting plants too near the fruit-trees, eſpecially Peas and Beans; tho' for the advantage of the walls, to preſerve them in winter, and to bring them forward in the ſpring, the gardeners in general are too apt to make uſe of thoſe borders, which are near the beſt aſpected walls, to the great prejudice of their fruit-trees; but for theſe purpoſes it is much better to have ſome Reed-hedges fixed in ſome of the warmeſt quarters, under which you ſhould ſow and plant early Peas, Beans, &c. where they will thrive as well as if planted under a wall, and hereby your fruit-trees will be entirely freed from ſuch troubleſome plants.

Then you ſhould proceed to dividing the ground out into quarters, which muſt be proportioned to the largeneſs of the garden; but I would adviſe never to make them too ſmall, whereby your ground will be loſt in walks; and the quarters being incloſed by eſpaliers of fruit-trees the plants therein will draw up ſlender, and never arrive to half the ſize as they would do in a more open expoſure.

The walks of this garden ſhould be alſo proportioned to the ſize of the ground, which in a ſmall garden ſhould be four feet, but in a large one ſix; and on each ſide of the walk ſhould be allowed a border five or ſix feet wide between the eſpalier and the walk, whereby the diſtance between the eſpaliers will be greater, and the borders being kept conſtantly worked and manured, will be of great advantage to the roots of the trees; and in theſe borders may be ſown ſome ſmall ſallad, or any other herbs, which do not continue long or root deep, ſo that the ground will not be loſt.

The breadth of theſe middle walks which I have here aſſigned them, may by many perſons be thought too great; but my reaſon for this is to allow proper room between the eſpaliers, that they may not ſhade each other, or their roots interfere and rob each other of their nouriſhment: but where the walks are not required of this breadth, it is only enlarging of the borders on each ſide, and ſo reducing the walks to the breadth deſired.

But the walks of theſe gardens ſhould not be gravelled, for as there will conſtantly be occaſion to wheel manure, water, &c. upon them, they would ſoon be defaced, and rendered unſightly; nor ſhould they be laid with turf; for in green walks, when they are wheeled upon or much trodden, the turf is ſoon deſtroyed, and thoſe places where they are much uſed, become very unſightly alſo; therefore the beſt walks for a Kitchen-garden are thoſe which are laid with a binding ſand; but where the ſoil is ſtrong and apt to detain the wet, there ſhould be ſome narrow under ground drains made by the ſide of the walks, to carry off the wet, otherwiſe there will be no uſing of the walks in bad weather; and where the ground is very wet, and the water is detained by the ſtiffneſs of the ſoil, if ſome lime-rubbiſh, flints, chalk, or any ſuch material as can be procured with the leaſt expence, and is laid at the bottom of theſe walks; or if neither of theſe can be had, a bed of Heath or Furze ſhould be laid, and the coat of ſand laid over it; the ſand will be kept drier, and the walks will be found and good in all ſeaſons. Theſe ſand-walks when they are well laid, are by much the eaſieſt kept of any; for when either weeds or Moſs begin to grow, it is but ſcuffling them over with a Dutch hoe in dry weather, and raking them over a day or two after, and they will be as clean as when firſt laid.

The beſt figure for the quarters to be diſpoſed into, is a ſquare or an oblong, where the ground is adapted to ſuch a figure; otherwiſe they may be triangular, or of any other ſhape, which will be moſt advantageous to the ground.

When the garden is laid out in the ſhape intended, if the ſoil is ſtrong, and ſubject to detain the moiſture, or is naturally wet, there ſhould always be underground drains made, to carry off the wet from every quarter of the garden, for otherwiſe moſt ſorts of kitchen plants will ſuffer greatly by moiſture in winter; and if the roots of the fruit-trees get into the wet, they will never produce good fruit, ſo that there cannot be too much care taken to let off all ſuperflous moiſture from the Kitchen-garden.

Theſe quarters ſhould be conſtantly kept clear from weeds, and when any part of the ground is unoccupied, it ſhould always be trenched up into ridges, that it may ſweeten and imbibe the nitrous particles of the air, which is of great advantage to all ſorts of land, and the ground will then be ready to lay down whenever it is wanted.

The ground in theſe quarters ſhould not be ſown or planted with the ſame crop two years together, but the crops ſhould be annually changed, whereby they will prove much better than when they conſtantly grow upon the ſame ſpot. Indeed the kitchen-gardeners near London, where the land is dear, are often obliged to put the ſame crop upon the ground for two or three years together; but then they dig and manure their land ſo well every year, as to render it almoſt new; though notwithſtanding all this, it is conſtantly obſerved, that freſh land always produces the beſt crops.

In one of theſe quarters, which is ſituated neareſt to the ſtables, and beſt defended from the cold winds; or if either of the ſlips without the garden wall, which is well expoſed to the ſun, lies convenient, and is of a proper width, that ſhould be preferred for a place to make hot-beds for early Cucumbers, Melons, &c. The reaſons for my giving the preference to one of theſe ſlips, is, firſt, there will be no dirt or litter carried over the walks of the Kitchen-garden in winter and ſpring, when the weather is generally wet, ſo that the walks will be rendered unſightly; ſecondly, the view of the hot-beds will be excluded from ſight; and laſtly, the convenience of carrying the dung into theſe ſlips, for by making of a gate in the hedge, or pale, wide enough for a ſmall cart to enter, it may be done with much leſs trouble than that of barrowing it thro' the garden; and where there can be a ſlip long enough to contain a ſufficient number of beds for two or three years, it will be of great uſe; becauſe by the ſhifting of the beds annually, they will ſucceed much better than when they are continued for a number of years on the ſame ſpot of ground; and as it will be abſolutely neceſſary to fence this Melon-ground round with a Reed-hedge, it may be ſo contrived as to move away in pannels; and then that hedge which was on the upper ſide the firſt year, being carried down to a proper diſtance below that which was the lower hedge, and which may remain, there will be no occaſion to remove more than one of the croſs hedges in a year; therefore I am perſuaded, whoever will make trial of this method, will find it the moſt eligible.

The moſt important points of general culture conſiſt in well digging and manuring the ſoil, and giving a proper diſtance to each plant, according to their diffrent growths (which is conſtantly exhibited in their ſeveral articles in this book) as alſo in keeping them clear from weeds; for if weeds aae permitted to grow until their ſeeds are ripe, they will ſhed upon the ground, and fill it ſo as not to be gotten out again in ſeveral years. You ſhould alſo obſerve to keep your dunghills always clear from weeds, for it will be to litte purpoſe to keep the garden clean, if this is not obſerved; for the ſeeds falling among the dung, will be brought into the garden, whereby there will be a conſtant ſupply of weeds yearly introduced, to the no ſmall damage of your plants, and a perpetual labour occaſioned to extirpate them again. Another thing which is abſolutely neceſſary to be obſerved, is, to carry off all the refuſe leaves of Cabbages, the ſtalks of Beans and haulm of Peaſe, as ſoon as they are done with, for the ill ſcent which moſt people complain of in the Kitchen-gardens, is wholly occaſioned by theſe things being ſuffered to rot upon the ground; therefore when the Cabbages are cut, all leaves ſhould be carried out of the garden while they are freſh, at which time they may be very uſeful for feeding of hogs, or other animals, and this will always keep the garden neat and free from ill ſcents. As for all other neceſſary directions, they will be found in the articles of the ſeveral ſorts of kitchen plants, which renders it needleſs to be repeated in this place.

KLEINIA. See Cacalia.

KNAUTIA. Lin. Gen. Plant. 109. Lychni-Scabioſa. Boerh. Ind. I. 131.

This name was applied to this plant by Dr. Linnæus, in honour of the memory of Dr. Chriſtian Knaut, who publiſhed a method of claſſing plants.

The Characters are,

It hath a ſingle oblong empalement, containing ſeveral floſcular flowers, which are ranged ſo as to appear regular, but each irregular, having tubes the length of the empalement, but are cut at the brim into four irregular ſegments, the outer being the biggeſt; it hath four ſtamina the length of the tube, inſerted in the receptacle, terminated by oblong incumbent ſummits; and a germen under the petal, ſupporting a ſlender ſtyle, crowned by a thick bifid ſtigma, *which afterward becomes a four-cornered ſeed with a hairy apex.*

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, intitled Tetrandria Monogynia, the flowers having four ſtamina and one ſtyle.

The Species are,

1. Knautia (*Orientalis*) foliis omnibus pinnatifidis, corollis calyce longioribus. Lin. Sp. App. 1679. *Knautia with all the leaves wing-pointed, and the petal longer than the empalement.* Lychni-ſcabioſa, flore rubro, annua. Boerh. Ind. alt.
2. Knautia (*Propontica*) foliis ſuperioribus lanceolatis indiviſis, corollis calyce æqualibus. Lin. Sp. App. 1666. *Knautia whoſe upper leaves are ſpear-ſhaped and whole, and the petal of the flower equal to the empalement.* Scabioſa Orientalis villoſa, flore ſuaverubente, fructu pulchro oblongo. Tourn. Cor. 35.

Theſe plants are natives of the Eaſt, they are both annual; the firſt has been long cultivated in the Engliſh gardens; this riſes with an erect branching ſtalk four feet high, garniſhed with wing-pointed leaves; the branches are terminated by ſingle foot-ſtalks, each ſupporting one flower, having a tubular empalement cut into four ſegments at the top, and each contain four florets of a bright red colour, cut into four unequal ſegments, the outer being much larger than the other; theſe have four ſtamina the length of the tube of the petal, terminated by oblong ſummits; and the flowers are ſucceeded by oblong four-cornered ſeeds, which, when ripe, ſoon fall out of the cup if they are not gathered.

The ſecond ſort differs from the firſt in its upper leaves being whole, and the petal of the flower being equal to the cup. The lower leaves of this are ſawed on their edges, and terminate in acute points.

Theſe plants propagate eaſily; if their ſeeds are permitted to ſcatter in the autumn, the plants will come up ſoon after; and if ſome of theſe are planted in the borders of the pleaſure-garden, or among low ſhrubs near the walks in October, the plants will live through the winter, and flower in June; ſo their ſeeds will ripen the end of July or beginning of Auguſt, therefore require no other culture but to keep them clean from weeds.

KNIGHTS CROSS, or SCARLET CROSS, is the Scarlet Lychnis. See Lychnis.

L.

LABIATE FLOWERS are ſuch as have lips, or more properly a labiated flower, is an irregular monopetalous flower, divided into two lips; the upper is called the creſt, the under the beard; ſometimes the creſt is wanting, and then the ſtyle and chives ſupply its place, as in the Ground Pine, Scordium, Bugula, &c. but the greateſt part have two lips, which, in ſome ſpecies the upper lip is turned upwards, as the Ground Ivy, &c. but moſt uſually the upper lip is convex above, and turns the hollow part down to the lower lip, and ſo repreſents a kind of helmet, or monk's hood, from whence theſe are called galeate, cucullate, and galericulate flowers, in which form are moſt of the verticillate plants.

LABLAB. See Phaseolus.

LABRUM VENERIS. See Dipsacus.

LABRUSCA. See Vitis.

LABURNUM. See Cytisus.

LABYRINTH [Λαϐύρινθος,] a winding, mazy, and intricate turning to and fro, through a wilderneſs or a wood.

The deſign of a Labyrinth is, to cauſe an intricate and difficult labour to find out the center, and the aim is, to make the walks ſo intricate, that a perſon may loſe himſelf in them, and meet with as great a number of ſtops and diſappointments as is poſſible, they being the moſt valuable that are moſt intricate.

As to the contrivance of them, it will not be poſſible to give directions in words, there are ſeveral plans and deſigns in books of gardening; they are rarely met with but in great and noble gardens, as Hamptoncourt, &c.

There are two ways of making them, the firſt is with ſingle hedges; this method has been practiſed in England. Theſe, indeed, may be beſt, where there is but a ſmall ſpot of ground to be allowed for the making them, but where there is ground enough, the double are moſt eligible.

Double ones, or thoſe that are made with double hedges of a conſiderable thickneſs of wood between hedge and hedge, are approved as much better than ſingle ones, as is the manner of making them in France, and other places, of all which, that of Verſailles is allowed by all to be the nobleſt of its kind in the world.

It is an error in Labyrinths in making them too narrow, for by that means the hedges muſt be kept cloſe clipped; whereas, if the walks are made wider, according to the foreign practice, they will not ſtand in ſo much need of it.

The walks are made with gravel, and the hedges are uſually ſet with Hornbeams; the palliſades ought to be ten, twelve, or fourteen feet high; the Hornbeam ſhould be kept cut, and the walks rolled.

LACRYMA JOBI [ſo called, becauſe the ſeed of it reſembles a tear, or drop.] Job's Tears. See Coix.

LACTIFEROUS PLANTS are ſuch as abound with a milky juice, as the Euphorbia, Sonchus, Lactuca, &c.

LACTUCA. Tourn. Inſt. R. H. 473. tab. 267. Lin. Gen. Plant. 814. [ſo called from lac, *Lat.* milk, becauſe the leaves, ſtalks, flower, and branch, being broken, plentifully emit a milk, or white milky juice, quickly turning yellow and bitteriſh.] Lettuce; in French, *Laitue*.

The Characters are,

The flowers are compoſed of ſeveral hermaphrodite florets, incloſed in one ſcaly oblong empalement; theſe lie over each other like the ſcales of fiſh. The florets have one petal, which is ſtretched out on one ſide like a tongue, and is ſlightly indented at the end in three or four parts; theſe have each five ſhort hairy ſtamina; the oval germen ſup-

ports a ſlender ſtyle, crowned by two reflexed ſtigmas, and afterward becomes one oblong pointed ſeed, crowned with a ſingle down, ſitting in the ſcaly empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia æqualis, which includes thoſe plants whoſe flowers are compoſed of all hermaphrodite, or fruitful florets, and have their ſtamina and ſtyle connected.

It would be beſide my purpoſe to mention in this place the ſeveral ſorts of Lettuce that are to be found in botanic writers, many of which are plants of little uſe, and are never cultivated but in botanic gardens for variety; ſome of them are found wild in many parts of England. I ſhall therefore paſs over thoſe, and only mention the ſeveral varieties which are cultivated in the kitchen-garden for uſe: 1. Common or Garden Lettuce. 2. Cabbage Lettuce. 3. Cilicia Lettuce. 4. Dutch Brown Lettuce. 5. Aleppo Lettuce. 6. Imperial Lettuce. 7. Green Capuchin Lettuce. 8. Verſailles, or Upright White Cos Lettuce. 9. Black Cos. 10. Red Capuchin Lettuce. 11. Roman Lettuce. 12. Prince Lettuce. 13. Royal Lettuce. 14. Egyptian Cos Lettuce.

The firſt of theſe ſorts is commonly ſown for cutting very young, to mix with other ſmall ſallad herbs, and is only different from the ſecond ſort, in being a degeneracy therefrom, or otherwiſe the ſecond is an improvement by frequent cultivation from the firſt; for if the ſeeds are ſaved from ſuch plants of the ſecond ſort as did not cabbage cloſely, the plants produced from that ſeed will degenerate to the firſt ſort, which is by the gardeners called Lapped Lettuce, to diſtinguiſh it from the other, which they call Cabbage Lettuce. The ſeeds of the firſt, which are commonly ſaved from any of the plants, without having regard to their goodneſs, are generally ſold at a very cheap rate (eſpecially in dry ſeaſons, when theſe plants always produce the greateſt quantity of ſeeds,) though ſometimes this ſeed is ſold in the ſeed-ſhops, and by perſons who make a trade of ſelling ſeeds, for the Cabbage Lettuce, which is often the occaſion of peoples being diſappointed in their crop; ſo that this ſort ſhould never be cultivated but to be cut up very young, for which purpoſe this is the only good ſort, and may be ſown any time of the year, obſerving only in hot weather to ſow it in ſhady borders; and in the ſpring and autumn upon warm borders, but in winter it ſhould be ſown under glaſſes, otherwiſe it is ſubject to be deſtroyed by ſevere froſts.

The Cabbage Lettuce may alſo be ſown at different times of the year, in order to have a continuation of it through the whole ſeaſon. The firſt crop is generally ſown in February, which ſhould be upon a warm ſpot of ground, and when the plants are come up, they ſhould be thinned out to the diſtance of ten inches each way, which may be done by hoeing them out, as is practiſed for Turneps, Carrots, Onions, &c. provided you have no occaſion for the ſuperfluous plants, otherwiſe they may be drawn up, and tranſplanted into another ſpot of good ground at the ſame diſtance, which, if done before the plants are too large, they will ſucceed very well, though they will not be ſo large as thoſe which are left upon the ſpot where they were ſown, but they will come ſomewhat later, which will be of ſervice where people do not continue ſowing every fortnight or three weeks in ſummer.

You muſt alſo obſerve in ſowing the ſucceeding crops, as the ſeaſon advances, to chuſe a ſhady moiſt ſituation, but not under the drip of trees, otherwiſe, in the heat of ſummer they will run up to ſeed before they cabbage. In the beginning of Auguſt you ſhould ſow the laſt crop, which is to ſtand over winter; the ſeeds ſhould be ſown thin upon a good light ſoil, in a warm ſituation, and when the plants are come up they muſt be hoed out, ſo as they may ſtand ſingly, and cut down all the weeds to clear them. In the beginning of October they ſhould be tranſplanted into warm borders, where, if the winter is not very ſevere, they will ſtand very well; but in order to be ſure of a crop, it will be adviſeable to plant a few upon a bed pretty cloſe together, where they may be arched over with hoops, and in ſevere froſts they ſhould be covered with mats and ſtraw, or Peas-haulm, to ſecure them from being deſtroyed; and in the ſpring of the year they may be tranſplanted out into a warm rich ſoil, at the diſtance before-mentioned; but ſtill thoſe which grew under the wall, if they eſcaped the winter, and were ſuffered to remain, will cabbage ſooner than thoſe which are removed again; but you muſt obſerve not to place them too cloſe to the wall, which would occaſion their growing up tall, and prevent their being large or hard.

In order to ſave good ſeeds of this kind, you ſhould look over your Lettuces when they are in perfection, and ſuch of them as are very hard, and grow low, ſhould have ſticks thruſt into the ground, by the ſides of as many of them as you intend for ſeed, to mark them from the reſt; and you ſhould carefully pull up all the reſt from amongſt them as ſoon as they begin to run up, if any happen to be left, leſt when they are run up to flower, they ſhould, by the intermixing their farina with the good ones, degenerate the ſeeds. It may be ſome perſons may object, that ſuppoſe ſome bad ones ſhould happen to be left among them (for ſeeds to ſow for ſmall ſallads,) yet the good ones being marked, the ſeeds need not be mixed, and ſo no danger can enſue from thence; but notwithſtanding ever ſo much care be taken to keep the ſeeds ſeparate, yet, whether from the intermixing of the farina during the time of their being in flower, or what other cauſe, I cannot ſay, but it hath been frequently obſerved, that where good and bad plants have been left for ſeed upon the ſame ſpot, the ſeeds of the good plants which were carefully ſaved ſeparately, have very much degenerated, and proved worſe than ſuch as have ſeeded by themſelves. The ſeeds ſhould always be ſaved either from thoſe which ſtood through the winter, or thoſe which were ſown early in the ſpring, for the late ones very ſeldom perfect their ſeeds.

The Cilicia, Imperial, Royal, Black, White, and Upright Cos Lettuces may be ſown at the following times; the firſt ſeaſon for ſowing theſe ſeeds is at the latter end of February, or the beginning of March, upon a moderate hot-bed, or on a warm light ſoil in a ſheltered ſituation; and when the plants are come up and are fit to tranſplant, thoſe which were ſown on the hot-bed ſhould be planted on another warm bed about four inches aſunder, row from row, and two inches diſtance in the rows, obſerving to ſhade them from the ſun till they have taken new root; after which they ſhould have a larger ſhare of air admitted to them daily, to prevent their drawing up weak; but if the ſeaſon proves favourable, they ſhould be tranſplanted the beginning of April to the place where they are to remain, allowing them ſixteen inches room every way, for theſe large ſorts muſt not be planted too near each other; thoſe which were ſown in the full ground will be later before they come up, ſo ſhould be either hoed out, or tranſplanted into another ſpot of ground (as was directed for thoſe ſown on the hot-bed allowing them as much room) eſpecially if the ſoil be good; after they have taken new root, you muſt carefully keep them clear from weeds, which is the only culture they will require, except the Black Cos Lettuce, which ſhould be tied up when they are full grown (in the manner as was directed for blanching of Endive,) to whiten their inner leaves, and render them criſp, otherwiſe they are ſeldom good for much, rarely cabbaging without this aſſiſtance.

When your Lettuces are in perfection, you ſhould look over them, and mark as many of the beſt of them as you intend for ſeed (in the ſame manner as was before directed for the common Cabbage Lettuce,) being very careful not to ſuffer any ordinary ones to ſeed amongſt them, as was before obſerved, which would prove more injurious to theſe ſorts than to the common, as being more inclinable to degenerate with us, if they are not carefully ſaved.

You may alſo continue theſe ſorts through the whole ſeaſon of Lettuce, by ſowing them in April, May, and June, obſerving, (as was before directed) to ſow the late crops in a ſhady ſituation, otherwiſe they will run up to ſeed before they grow to any ſize; but in the middle of September you may ſow of theſe ſorts, to abide the winter; which plants ſhould be tranſplanted either under glaſſes, or into a bed, which ſhould be arched over with hoops, in order to be covered in the winter, otherwiſe in hard winters they are often deſtroyed; but you muſt conſtanly let theſe plants have as much free air as poſſible, when the weather is mild, only covering them in hard rains or froſty weather; for if they are kept too cloſely covered in winter, they will be ſubject to a mouldineſs, which ſoon rots them.

In the ſpring theſe plants ſhould be planted out into a rich light ſoil, allowing them at leaſt ſixteen inches diſtance each way; for if they are planted too cloſe, they are very ſubject to grow tall, but ſeldom cabbage well; and from this crop, if they ſucceed well, it will be proper to ſave your ſeeds; though you ſhould alſo ſave from that crop ſown on the hot-bed in the ſpring, becauſe ſometimes it happens, that the firſt may fail by a wet ſeaſon, when the plants are full in flower, and the ſecond crop may ſucceed, by having a more favourable ſeaſon afterwards; and if they ſhould both ſucceed, there will be no harm in that, ſince the ſeeds will grow very well when two years old, and if well ſaved, at three, but this will not always happen.

The moſt valuable of all the ſorts of Lettuce in England, are the Egyptian Green Cos, and the Verſailles, or White Coſs, and the Cilicia, though ſome people are very fond of the Royal and Imperial Lettuces, but they ſeldom ſell ſo well in the London markets as the other, nor are ſo generally eſteemed. Indeed of late years, ſince the White Cos has been commonly cultivated, it has obtained the preference of all the other ſorts, until the Egyptian Green Cos was introduced, which is ſo much ſweeter and tenderer than the White Cos, that it is by all good judges eſteemed the beſt ſort of Lettuce yet known. This ſort will endure the cold of our ordinary winters full as well as the White Cos; but at the ſeaſon of its cabbaging, if there happens to be much wet, this being very tender, is very ſubject to rot.

The Brown Dutch and Green Capuchin Lettuces are very hardy, and may be ſown at the ſame ſeaſons as was directed for the common Cabbage Lettuce, and are very proper to plant under a wall, or hedge, to ſtand the winter, where many times theſe will abide, when moſt of the other ſorts are deſtroyed, and therefore they will prove very acceptable at a time when few other ſorts are to be had; they will alſo endure more heat and drought than moſt other ſorts of Lettuce, which renders them very proper for late ſowing; for it very often happens, in very hot weather, that the other ſorts of Lettuce will run up to ſeed in a few days after they are cabbaged, whereas theſe will abide near a fortnight in good order, eſpecially if care be taken to cut the forwardeſt firſt, leaving thoſe that are not ſo hard cabbaged to be laſt. If ſome plants of theſe two laſt ſorts are planted under frames, on a moderate hot-bed in October, they will be fit for uſe in April, which will prove acceptable to thoſe who are lovers of Lettuce, and being covered by glaſſes, will render them tender. In ſaving of theſe ſeeds, the ſame care ſhould be taken to preſerve only ſuch as are very large and well cabbaged, otherwiſe the ſeeds will degenerate, and be good for little.

The Red Capuchin, Roman, and Prince Lettuces are pretty varieties, and cabbage very early, for which reaſon a few of them may be preſerved, as may alſo ſome of the Aleppo, for the beauty of its ſpotted leaves; though very few people care for either of theſe ſorts at table, when the other more valuable ones are to be obtained; but in a ſcarcity, theſe may ſupply the place pretty well, and theſe ſorts are very proper for ſoups. The ſeeds of theſe muſt alſo be ſaved from ſuch as cabbage beſt, otherwiſe they will degenerate, and be good for little.

In ſaving ſeeds of all theſe ſorts of Lettuce, you ſhould obſerve never to let two ſorts ſtand near each other, for by their farina mixing, they will both vary from their original, and partake of each other; and there ſhould be a ſtake fixed down by the ſide of each, to which the ſtem ſhould be faſtened, to prevent their being broken, or blown out of the ground by wind, to which the Cilicia, Cos, and the other large growing Lettuces, are very ſubject when they are in flower. You muſt alſo obſerve to cut ſuch branches of the large growing Lettuce as ripen firſt, and not wait to have the ſeed of the whole plant ripe together, which never happens; but, on the contrary, ſome branches will be ripe a fortnight or three weeks before others; and when you cut them, they muſt be ſpread upon a coarſe cloth in a dry place, that the ſeeds may dry, after which you ſhould beat them out, and dry them again, and then preſerve them for uſe, being careful to hang them up where mice and other vermin cannot come at them; for if they do, they will ſoon eat them up.

LACTUCA AGNINI. See VALERIANELLA.

LADY's SLIPPER. See CYPRIPEDIUM.

LADY's SMOCK. See CARDAMIN.

LAGŒCIA, Baſtard Cumin.

The CHARACTERS are,

It hath many flowers collected into a head, which have one common empalement, compoſed of eight indented leaves, but the ſimple empalement to each flower hath five leaves, which are very narrow and pinnated, ending in many hair-like points. The flower conſiſts of five horned petals, which are ſhorter than the empalement; at the bottom of each flower is ſituated the germen, ſupporting a ſtyle crowned by a ſimple ſtigma, attended by five ſtamina, which are long and narrow; the germen afterward changes to an oval ſeed, crowned with the empalement.

There is but one SPECIES of this plant, viz.

LAGOECIA (*Cuminoides.*) Lin. Hort. Cliff. *Baſtard, or Wild Cumin.*

We have no other Engliſh name for this plant, nor is this a very proper one, but as it has been titled by ſome of the antient botaniſts Cuminum ſylveſtre, i. e. Wild Cumin, and by Dr. Tournefort it is made a diſtinct genus, by the title of Cuminoides, it may be ſtyled Wild, or Baſtard Cumin.

This is an annual plant, which grows about a foot high. The leaves reſemble thoſe of the Honeywort. The flowers, which are of a greeniſh yellow colour, are collected in ſpherical heads at the extremity of the ſtalks; but there being little beauty in the plant, it is rarely cultivated, except in botanic gardens. It grows plentifully about Aix, in Provence, as alſo in moſt of the iſlands of the Archipelago. It is annual, and periſhes ſoon after the ſeeds are ripe. The ſeeds of this plant ſhould be ſown in autumn on a warm border, ſoon after they are ripe; or if they are permitted to ſcatter, the plants will come up, and require no other care but to clear them from weeds. When the ſeeds are ſown in the ſpring, they commonly remain in the ground a year before they grow, and ſometimes I have known them to lie two or three years in the ground, ſo that if the plants do not come up the firſt year, the ground ſhould not be diſturbed.

LAGOPUS. See TRIFOLIUM.

LAMINATED ſignifies platted. Thoſe things are ſaid to be laminated, whoſe contexture diſcovers ſuch a diſpoſition as that of plates lying over one another, or the ſcales of fiſh.

LAMIUM. Tourn. Inſt. R. H. 183. tab. 89. Lin. Gen. Plant. 636. Dead Nettle, or Archangel.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, which is tubulous, and cut into five equal ſegments at the top, which end in beards. The flower is of the lip kind; it hath one petal, with a ſhort cylindrical tube, ſwollen at the chaps and compreſſed; the upper lip is arched, roundiſh, obtuſe, and entire; the under is ſhort, heart-ſhaped, reflexed, and indented at the end. It hath four awl-ſhaped *ſtamina joined to the upper lip, two of which are longer than the other, terminated by oblong hairy ſummits. It hath a four-cornered germen, ſupporting a ſlender ſtyle ſituated with the ſtamina, and crowned by an acute two-pointed ſtigma; the germen afterward become four three-cornered ſeeds, ſitting in the open empalement.*

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, in which he ranges thoſe plants whoſe flowers have two long and two ſhorter ſtamina, and are ſucceeded by naked ſeeds ſitting in the empalement.

The Species are,

1. Lamium (*Purpureum*) foliis cordatis obtuſis petiolatis. Hort. Cliff. 314. *Dead Nettle with heart-ſhaped obtuſe leaves ſtanding on foot-ſtalks.* Lamium purpureum fœtidum, folio ſubrotundo, ſive Galeopſis Dioſcoridis. C. B. P. *Purple ſtinking Archangel, or Dead Nettle, or the Galeopſis of Dioſcorides with a roundiſh leaf.*
2. Lamium (*Album*) foliis cordatis acuminatis ſerratis petiolatis. Hort. Cliff. 314. *Dead Nettle with pointed heart-ſhaped leaves, which are ſawed, and have foot-ſtalks.* Lamium album, non fœtens, folio oblongo. C. B. P. *White Archangel or Dead Nettle which does not ſtink, with an oblong leaf.*
3. Lamium (*Garganicum*) foliis cordatis pubeſcentibus, corollis fauce inflata, tubo recto dente utrinque gemino. Lin. Sp. 808. *Dead Nettle with heart-ſhaped hairy leaves, and the chaps of the flower inflated, indented with two teeth.* Lamium garganicum ſubincanum, flore purpuraſcente, cum labio ſuperiore crenato. Micheli. *Hoary Dead Nettle with a purpliſh flower, whoſe upper lip is crenated.*
4. Lamium (*Moſchatum*) foliis cordatis obtuſis glabris, floralibus ſeſſilibus, calycibus profundè inciſis. *Dead Nettle with heart-ſhaped, obtuſe, ſmooth leaves, the upper ſitting cloſe to the ſtalks, and empalements deeply cut.* Lamium Orientale, nunc moſchatum, nunc fœtidum, magno flore. Tourn. Cor. *Eaſtern Dead Nettle, ſometimes ſweet-ſcented and ſometimes ſtinking, with a large flower.*
5. Lamium (*Meliſſæfolium*) foliis cordatis nervoſis ſerratis, petiolis longioribus, caule erecto. *Dead Nettle with heart-ſhaped veined leaves which are ſawed, and longer foot-ſtalks with an erect ſtalk.* Lamium montanum meliſſæ folio. C. B. P. 231. Icon. Pl. 158. *Mountain Dead Nettle with a Balm leaf.*

There are ſeveral other ſpecies of this genus, as alſo ſome varieties of it, but as moſt of them are weeds, I have paſſed them over, for there are few who care to admit them into their gardens.

The firſt ſort grows naturally in moſt parts of England, under hedges and by the ſide of highways; it is alſo a troubleſome weed in gardens, but as it ſtands in moſt of the diſpenſaries as a medicinal plant, I have choſen to inſert it. This is an annual plant, whoſe ſtalks ſeldom riſe more than four or five inches high; the under leaves are heart-ſhaped, blunt, and ſtand upon pretty long foot-ſtalks, but the upper leaves ſit nearer to the ſtalks; the flowers come out in whorls on the upper part of the ſtalk; they are of a pale purple colour, and are ſucceeded by four naked ſeeds ſitting in the empalement; after the ſeeds are ripe the plant decays. It flowers in the middle of March, when the autumnal ſelf-ſown plants appear; theſe are ſucceeded by others, which continue in ſucceſſion all the ſummer.

The ſecond ſort is commonly called Archangel; this is alſo uſed in medicine, for which reaſon I have enumerated it here. The roots of this are perennial, and creep much in the ground, ſo is difficult to extirpate, where it happens to grow under buſhes and hedges; for the roots intermix with thoſe of the buſhes, and every ſmall piece of them grow and ſpread. The ſtalks of this riſe much higher than thoſe of the laſt, the flowers are larger, white, and grow in whorls round the ſtalks; theſe continue in ſucceſſion moſt part of the ſummer.

The third ſort grows naturally upon the mountains in Italy; this hath a perennial creeping root, from which ariſe many thick ſquare ſtalks a foot high, garniſhed with heart-ſhaped leaves which are hairy, placed oppoſite, ſtanding upon pretty long foot-ſtalks; the flowers come out in whorls at the upper joints of the ſtalk, they are large, and of a pale purpliſh colour; theſe continue in ſucceſſion moſt part of the ſummer, and the flowers are ſucceeded by ſeeds which ripen about ſix weeks after. This may be propagated by ſeeds, but as the roots ſpread greatly in the ground, ſo when once it is obtained, it will propagate faſt enough without culture.

The fourth ſort grows naturally in the Archipelago; this is an annual plant, which, if permitted to ſcatter its ſeeds, the plants will come up and thrive better than when ſown by the hand. The plants come up in the autumn, and during the winter their leaves make a pretty appearance, for they are marked with white ſomewhat like thoſe of the autumnal Cyclamen; the ſtalks riſe eight or nine inches high, and are garniſhed with ſmooth heart-ſhaped leaves placed oppoſite; theſe in dry weather have a muſky ſcent, but in wet weather are fetid; the flowers are white, ſtanding in whorls round the ſtalks. They appear in April, and the ſeeds ripen in June, then the plants decay; this requires no culture, but to keep the plants clear from weeds.

The fifth ſort grows naturally in Portugal; this hath a perennial root and an annual ſtalk, which riſes a foot and a half high; it is ſtrong, ſquare, and grows erect; the leaves are large, heart-ſhaped, and much veined; they are deeply ſawed on their edges, and are placed oppoſite. The flowers come out in whorls round the ſtalks at every joint; they are very large, and of a deep purple colour; thoſe on the lower part of the ſtalks appear the beginning of May, which are ſucceeded by others above, ſo that there is a continuance of flowers almoſt two months on the ſame ſtalks. This plant very rarely produces good ſeeds in England, nor do the roots propagate very faſt, ſo that it is not common here.

The beſt time to remove and part theſe roots is in October, but they muſt not be tranſplanted oftener than every third year if they are required to flower ſtrongly; for the great beauty of this plant conſiſts in the number of ſtalks, which are always proportional to the ſize of the plants; for ſmall plants will put out one or two ſtalks only, whereas the larger ones will have eight or ten. The roots are hardy, and will thrive beſt in a ſoft loamy ſoil.

LAMPSANA. See Lapsana.

LAND. Its improvement.

1. By incloſing.

Incloſing of Lands, and dividing the ſame into ſeveral fields, for paſture or tillage, is one of the principal ways of improvement; firſt, by aſcertaining to every man his juſt property, and thereby preventing an infinity of treſpaſſes and injuries, that Lands in common are ſubject unto, beſide the diſadvantage of being obliged to keep the ſame ſeaſons with the other people who have Land in the ſame field; ſo that the ſowing, fallowing, and tilling the ground, muſt be equally performed by all the landholders; and when there happens a ſlothful negligent perſon, who has Land intermixed with others, it is one of the greateſt nuiſances imaginable. Secondly, it being of itſelf a very great improvement; for where Land is properly incloſed, eſpecially in open countries, and the hedge-rows planted with timber trees, &c. it preſerves the Land warm, and defends and ſhelters it from the violent cold nipping winds, which, in ſevere winters, deſtroy much of the corn, pulſe, or whatever grows on the open field or champain grounds. And where it is laid down for paſture, it yields much more Graſs than the open fields, and the Graſs will begin to grow much ſooner in the ſpring. The hedges and trees will afford ſhelter for the cattle from the cold winds in winter, as alſo ſhade for them in the great heats of ſummer. And theſe hedges afford the diligent huſbandman plenty of fuel, as plough-boot, cart-boot, &c. And where they are carefully planted and preſerved, furniſh him with timber and alſo maſt for his ſwine; or where the hedge-rows are planted with fruit-trees, there will be a ſupply of fruit for cyder, perry, &c. which in moſt parts of England are of no ſmall advantage to the huſbandman.

By this method of incloſing, there is alſo much more employment for the poor, and is therefore a good remedy againſt beggary; for in thoſe open countries, where there are great downs, commons, heaths, and waſtes, there is nothing but poverty and idleneſs to be ſeen amongſt the generality of their inhabitants. It is very obſervable of late years, how much advantage the incloſing of the Land in Worceſterſhire, and ſome other counties at a diſtance from London, has been to the inhabitants: for before this method was introduced amongſt them, the Lands for the moſt part lay in commons, &c. Upon which the poorer ſort of people built themſelves cottages with mud walls, where they contented themſelves with a cow or two, and ſome ſwine; and thoſe of them who were more induſtrious than the reſt, travelled to the neighbourhood of London every ſpring, where they were employed in the gardens and fields for the ſummer ſeaſon; and in autumn they returned to their native countries, where they lived in winter upon what money they had ſaved in ſummer. But ſince they have converted their waſtes and commons into incloſures, there are but few of the inhabitants of thoſe countries, who come to London for work, in compariſon to the numbers that formerly came; ſo that moſt of the labourers, who come to London for employment, are either Welch, or inhabitants of ſome more diſtant counties, or from Ireland, where this improvement hath not as yet been introduced.

The advantages of incloſing Land are now ſo generally known, that there is no occaſion for me to enumerate them here; ſince the improvements which have been made of late years in ſeveral parts of England, and the increaſe of rent that is every where made by thoſe who incloſe, are ſufficient arguments to enforce the practice, and render it general; more eſpecially in the north, where it is moſt neglected, becauſe it would greatly ſhelter the Lands, and render them much warmer than they now are.

In incloſing of Land, regard ſhould be had to the nature of the ſoil, and what it is intended for, becauſe Corn Land ſhould not be divided into ſmall parcels; for beſides the loſs of ground in hedges, &c. the Corn doth ſeldom thrive ſo well in ſmall incloſures, as in more open fields, eſpecially where the trees are large in the hedge-rows. The Graſs alſo in paſtures is not ſo ſweet near hedges, or under the drip of trees, as in an open expoſure; ſo that where the incloſures are made too ſmall, or the Land overplanted with trees, the herbage will not be near ſo good, nor in ſo great plenty, as in larger fields; therefore, before a perſon begins to incloſe, he ſhould well conſider how he may do it to the greateſt advantage; as for inſtance, it is always neceſſary to have ſome ſmaller incloſures near the habitation, for the ſhelter of cattle, and the conveniency of ſhifting them from one field to another, as the ſeaſon of the year may require; and hereby the habitation, barns, ſtables, and outhouſes, will be better defended from ſtrong winds, which often do great damage to thoſe that are expoſed to their fury. Theſe ſmall incloſures may be of ſeveral dimenſions, ſome of them three, four, ſix, or eight acres in extent; but the larger diviſions for Corn ſhould not contain leſs than twenty or thirty acres or more, according to the ſize of the farm, or the ſituation of it.

The uſual method of incloſing Land is, with a ditch and bank ſet with quick. But in marſh Land, where there is plenty of water, they content themſelves with only a ditch, by the ſides of which they uſually plant Sallows or Poplars, which being of quick growth, in a few years afford ſhade to the cattle; and when they are lopped, produce a conſiderable profit to their owners. In ſome counties the diviſion of their Lands is by dry walls made of flat ſtones, laid regularly one upon another, and laying the top courſe of ſtones in clay, to keep them together, the weight of which ſecures the under ones. But in ſome parts of Suſſex and Hampſhire, they often lay the foundation of their banks with flat ſtones, which is of a conſiderable breadth at bottom; upon which they raiſe the bank of earth, and plant the hedge on the top, which in a few years makes a ſtrong durable fence, eſpecially if they are planted with Holly, as ſome of thoſe in Suſſex are.

In marſhes and open paſtures, where there are no hedges, the ditches are generally made ſix feet wide at the top, eſpecially thoſe which are on the ſide of highways or commons; but the common ditches about incloſures are ſeldom more than three feet and a half wide at top, and one foot and a half at bottom, and two feet deep, that the ſides may have a good ſlope, and not be too upright, as they are frequently made about London, ſo that they are continually waſhing down with great rains. In theſe narrow bottomed ditches, the cattle cannot ſtand to turn themſelves, ſo as to crop the quick; but where the ditches are made wider, they ſhould be proportionally deeper: as for inſtance, if the ditch is made five feet broad, it muſt be three feet deep; and if ſix feet broad, three feet and a half deep, and ſo in proportion.

The method of incloſing Lands, by raiſing high banks of earth, on the ſide of which the quick is planted (as is too much practiſed in many places near London) is intolerable, for it is not only unſightly, but very expenſive; becauſe theſe banks are continually waſhing down, ſo that they muſt be repaired every year at leaſt, if not oftener, otherwiſe the earth will be in a few years waſhed from the roots of the quick, and for want of proper nouriſhment, the hedge will ſoon decay, which is the caſe with the greateſt number of the hedges about London: beſides, it is a very uncertain way of planting quick on the ſide of a ſteep bank, where all the moiſture runs off; ſo that if the ſpring ſhould prove dry after it is planted, there is a great hazard whether half the plants will grow, and thoſe that take ſeldom make much progreſs; whereas thoſe planted on the plain ſurface, where they enjoy the advantages of ſun and moiſture, will in four years make a better fence than one of theſe bank hedges will in eight or ten, and will continue good much longer than the other. Therefore I adviſe, that the banks on which the hedges are to be planted, ſhould not be raiſed more than one foot above the ſurface of the ground, where the Land is dry, and in wet Land not more than two feet, which will be enough.

I ſhall now mention the moſt proper plants for making of fences for the different ſoils and ſituations, ſo as to anſwer the expectation of the planter: and firſt, the white Thorn is eſteemed the beſt for fencing, and will grow upon almoſt any ſoil and in any ſituation, but it ſucceeds beſt on a hazle loam. Of this there are three or four varieties, which differ in the breadth of their leaves and the ſize of their Haws, but that ſort with the ſmalleſt leaves and Haws will make the cloſeſt fence. For it is very certain, that the branches of all ſorts of trees are produced at a diſtance, in proportion to the ſize of their leaves; ſo that Yews, and other Evergreen trees with ſmall leaves, will always make a cloſer hedge than other trees whoſe leaves are larger. Therefore, for the cloſeſt hedge, the ſmalleſt Haws ſhould be choſen; but where the moſt vigorous ſhooters are required, for the advantage of lopping, there the largeſt Haws ſhould be preferred. But as theſe hedges are uſually planted from a nurſery, where the Haws are promiſcuouſly ſown, it is very common to ſee two or three ſorts planted in the ſame hedge; which may be eaſily diſtinguiſhed, when they have obtained ſtrength, by the difference of their growth. Indeed, where a perſon is curious in raiſing of his own quick, it is worth while to gather the Haws ſeparately, and ſow them apart; and each ſort ſhould be planted in a ſeparate hedge, which will render the hedges more equal in their growth. If theſe Haws are ſown in the places where they are deſigned to remain for a fence, they will make a much greater progreſs in a few years, than thoſe which are tranſplanted; but as the ſeeds remain a whole year in the ground before the plants appear, few people care to practiſe this method; however, thoſe who are deſirous to raiſe their hedges this way, ſhould bury the Haws, by putting them in pots ſoon after they are ripe, and burying the pots two feet deep in the ground, where they may remain one year, then take them up and ſow them; by this preparation the plants will come up the following ſpring; but before they are ſown, the Haws ſhould be bruiſed with hands, and their outer coverings waſhed off, whereby the ſeeds may be ſown at a more regular diſtance; for as moſt of the Haws incloſe four or five ſeeds, ſo if they are ſown entire there will be as many plants ariſe in a cluſter, which if permitted to ſtand, will prevent each other's growth; and in drawing out the ſuperfluous plants, there will be great danger of injuring thoſe which are to remain.

The next to the white Thorn is the black Thorn, which, though not ſo generally eſteemed as the white, yet it will make an excellent fence, where proper care is taken in the planting and after management of it; and the loppings of this hedge make much the beſt buſhes for draining of Land, and are of longer duration for dead hedges than thoſe of any other ſort of tree, and are very proper to mend gaps in fences; for their branches being beſet with ſharp thorns, the cattle are not ſo apt to crop them as the white Thorn, and ſome other ſorts. Theſe hedges are alſo better, if the ſtones of the Plumbs are ſown on the ſpot where they are to remain, than where the plants are taken from a nurſery; if theſe are ſown in the autumn ſoon after the fruit is ripe, the plants will come up the ſpring following.

The Crab will alſo make a ſtrong durable fence; this may be raiſed by ſowing the kernels in the place where the hedge is deſigned; but then there ſhould be great care taken of the plants while they are young, to keep them clear from weeds, as alſo to guard them from cattle. When theſe ſtocks have obtained ſtrength, ſome of them may be grafted with Apples for cyder, where the fence is not expoſed to a public road; but theſe grafts ſhould not be nearer than thirty-five or forty feet, leſt they ſpoil the hedge, by their heads overgrowing and dripping on it.

The Holly is alſo an excellent plant for evergreen hedges, and would claim the preference to either of the former, were it not for the ſlowneſs of its growth while young, and the difficulty of tranſplanting the plants when grown to a moderate ſize. This will grow beſt in cold ſtony Lands, where, if once it takes well, the hedges may be rendered ſo cloſe and thick, as to keep out all ſorts of animals, and will grow to a conſiderable height, and is of long duration. Theſe hedges may be raiſed, by ſowing the berries, either in the place where they are deſigned to remain, or by planting young plants of three or four years growth; but as the berries continue in the ground an entire year before the plants appear, few perſons care to wait ſo long; therefore the uſual method is, to plant the hedges with plants of the before-mentioned age. But where this is practiſed, they ſhould be tranſplanted, either early in the autumn, or deferred till toward the end of March; then the ſurface of the ground ſhould be covered with mulch near their roots after they are planted, to keep the earth moiſt; and if the ſeaſon ſhould prove dry, the plants ſhould be watered at leaſt once a week, until they have taken root, otherwiſe they will be in danger of miſcarrying; for which reaſon the autumnal planting is generally preferred to the ſpring, eſpecially in dry grounds.

The Alder will alſo make a good hedge, when planted on a moiſt ſoil, or on the ſide of rivers, or large ditches; and will preſerve the bank from being waſhed away, where there are running ſtreams; for they ſpread pretty much at bottom, and ſend forth ſuckers from their roots in great plenty; but theſe hedges ſhould be ſheared at leaſt once a year, in order to make them thick. Theſe Alder hedges are very ornamental, when they are well kept in large gardens; and as they will thrive beſt on wet ſwampy Lands, where many other plants will not live, they ſhould be ſelected for ſuch ſituations.

Of late years the Furz has been much propagated for hedges in ſeveral parts of England, and indeed will make a good fence on poor, ſandy, or gravelly ſoils, where few other plants will grow. The beſt method of raiſing theſe hedges is, to ſow the ſeed about the latter end of March, or the beginning of April, in the place where the hedge is deſigned; for the plants will not bear to be tranſplanted, unleſs it be done while they are young, and then there is great hazard of their taking. The ground where the ſeeds are to be ſown ſhould be well cleanſed of weeds, and the ſurface made light; then there ſhould be two or three drills made (according to the width which the hedge is intended) about half an inch deep, into which the ſeeds ſhould be ſcattered pretty thick; and then the drills ſhould be filled up with the head of a rake, to cover the ſeeds. This work ſhould be performed in dry weather, for if much wet falls ſoon after the ſeeds are ſown, it is apt to burſt them. When the plants are come up, they ſhould be kept clear from weeds, that they may ſpread and grow thick at bottom; and if theſe hedges are ſecured from cattle brouſing on them, and are cut every ſpring juſt before they begin to ſhoot, they will make an exceeding cloſe fence; but where they are deſigned to be cut for fuel, then the beſt way is to let them ſpread in width; and when they are two years old, to cut them down in the ſpring, juſt before they begin to ſhoot, within two or three inches of the ground, which will cauſe them to ſend forth a number of ſhoots from each root, and thereby increaſe the width of the hedge; and by ſo doing, the plants will not run up tall and weak, and be in danger of being weighed down by great falls of ſnow. Theſe hedges when they are well grown, may be cut down every third or fourth year for fuel; wherefore if there is a treble row of Furz ſown, at about three feet apart, they may be cut down alternately, ſo that there will be a fence always remaining. But this is only recommended for ſuch ſandy Lands as lett for a ſmall rent, and where fuel is ſcarce. The beſt ſort of Furz for this purpoſe is the greater kind, commonly called the French Furz, which will grow to eight or ten feet high, and is not apt to ſpread ſo much as the ordinary ſmall ſort.

Elder is ſometimes planted for hedges, being very quick of growth; ſo that if ſticks or truncheons about four or five feet long be thruſt into a bank ſlopewiſe each way, ſo as to croſs each other, and thereby form a ſort of chequer work, it will make a fence for ſhelter in one year. But as this is a vigorous growing plant, it will never form a cloſe fence; and the young ſhoots being very ſoft and pithy, are ſoon broken by cattle or boys in their ſport. Beſides, where they are ſuffered to bear berries, and theſe are ſcattered over the neighbouring Land, they will come up the following ſpring, and become very troubleſome. Where theſe hedges are planted, they may be cut down every third year near the ground; and theſe ſtakes (when diveſted of their bark, ſo as to prevent their growing) will laſt longer in the ground, to ſupport Vines or any other plants, which do not require tall ſtakes, than any other ſort of tree yet known. And where the trees are ſuffered to grow to any conſiderable ſize, the wood is as hard as Box, and therefore very uſeful for turners and inſtrument makers. The beſt ſeaſon for planting theſe truncheons is ſoon after Michaelmas, becauſe the plants ſhoot very early in the ſpring. Of late years there have been many hedges, and other plantations, made of the white berried Elder, for the ſake of their fruit to make wine; which, if rightly made, hath the flavour of Frontiniac wine, and is by ſome perſons mixed with white wines, and vended for it.

There are ſome other plants which have been recommended for fences, but thoſe here enumerated are the moſt uſeful ſorts for ſuch purpoſes; wherefore I ſhall paſs over the others, as not worthy of the care of the huſbandman. And as to the farther directions for planting and preſerving of hedges, with inſtructions for plaſhing or laying them, the reader is deſired to turn to the articles of FENCES and HEDGES, where there are particular directions for theſe works exhibited, which I ſhall not here repeat.

The draining of Land is alſo another great improvement to it; for though meadows and paſtures, which are capable of being overflowed, produce a greater quantity of herbage than dry Land, yet where the wet lies too long upon the ground, the Graſs will be ſour and extremely coarſe; and where there is not care taken in time to drain this Land, it will produce little Graſs, and ſoon be overun with Ruſhes and Flags, ſo as to be of ſmall value. The land which is moſt liable to this, is cold ſtiff clays where the water cannot penetrate, but is contained as in a diſh; ſo that the wet which it receives in winter, continues till the heat of the ſun exhales the greateſt part of it.

The beſt method for draining of theſe Lands is, to cut ſeveral drains acroſs the Land, in thoſe places where the water is ſubject to lodge; and from theſe croſs drains to make a convenient number of other drains, to carry off the water to either ponds or rivers in the lower parts of the Land. Theſe drains need not be made very large, unleſs the ground be very low, and ſo ſituated as not to be near any river to which the water may be conveyed; in which caſe there ſhould be large ditches dug at proper diſtances, in the loweſt part of the ground, to contain the water; and the earth which comes out of the ditches ſhould be equally ſpread on the Land, to raiſe the ſurface. But where the water can be conveniently carried off, the beſt method is, to make under ground drains at proper diſtances, which may empty themſelves into large ditches, which are deſigned to carry off the water. Theſe ſort of drains are the moſt convenient, and as they are hid from the ſight do not incommode the Land, nor is there any ground loſt where theſe are made.

The uſual method of making theſe drains, is to dig trenches, and fill the bottoms with ſtones, bricks, Ruſhes, or buſhes, which are covered over with the earth which was dug out of the trenches; but this is not the beſt method, becauſe the water has not a free paſſage through theſe drains, ſo that whenever there is a flood, theſe drains are often ſtopped by the ſoil which the water frequently brings down with it.

The beſt method I have yet obſerved to make theſe drains, is to dig trenches to a proper depth for carrying off the water, which for the principal drains ſhould be three feet wide at their top, and ſloped down for two feet and a half depth, where there ſhould be a ſmall ledge or bank left on each ſide, upon which the croſs ſtakes or bearers ſhould be laid, and below theſe banks there ſhould be an open drain left, at leaſt one foot deep, and ten or eleven inches wide, that there may be room for the water to paſs through. Theſe larger drains ſhould be at convenient diſtances, and ſmaller drains of about ſeven or eight inches wide at top, and the hollow under the buſhes eight or nine inches deep, ſhould be cut acroſs the ground, which ſhould diſcharge the water into theſe larger drains. The number and ſituation of them muſt be in proportion to the wetneſs of the Land; and the depth of the earth above the buſhes, muſt alſo be proportioned to the intended uſe of the Land; for if it is arable Land to be ploughed, it muſt not be ſhallower than fourteen inches, that there may be ſufficient depth for the plough, without diſturbing the buſhes; but for paſture Land, one foot deep will be full enough; for when the buſhes lie too deep in ſtrong Land, they will have little effect, the ground above will bind ſo hard as to detain the wet on the ſurface.

When the drains are dug, there ſhould be prepared a quantity of good bruſh wood, the larger ſticks ſhould be cut out to pieces of about ſixteen or eighteen inches in length, which ſhould be laid acroſs upon the two ſide banks of the drain, at about four inches diſtance; then cover theſe ſticks with the ſmaller bruſh wood, Furz, Broom, Heath, or any other kind of bruſh, laying it lengthwiſe pretty cloſe; on the top of theſe may be laid Ruſhes, Flags, &c. and then the earth laid on to cover the whole. Theſe ſort of drains will continue good for a great number of years, and are never liable to the inconveniencies of the other, for the water will find an eaſy paſſage through them; and where there is plenty of bruſh wood, they are made at an eaſy expence; but in places where wood is ſcarce, it would be chargeable to make them: however, in this caſe, it would be a great advantage to theſe Lands, to plant a ſufficient number of cuttings of Willow, or the black Poplar, on ſome of the moiſt places, which would furniſh bruſh wood for theſe purpoſes in four or five years; and as the expence of planting theſe cuttings is trifling, there cannot be a greater advantage to an eſtate which wants draining, than to practiſe this method, which is in every perſon's power, ſince there is little expence attending it.

In countries where there is plenty of ſtone, that is the beſt material for making theſe under ground drains; for when theſe are properly made, they will never want repairing.

The beſt time of the year for making theſe drains is about Michaelmas, before the heavy rains of autumn fall, becauſe at this ſeaſon the Land is uſually dry, ſo that the drains may be dug to a proper depth; for when the ground is wet, it will be very difficult to dig to any depth, becauſe the water will drain in wherever there is an opening in the ground.

When theſe drains are made, and the water carried off the Land, it will be proper to pare off the Ruſhes, Flags, &c. which may be laid in heaps in proper places to rot, and will afford a good manure for the land. The ground muſt alſo be ploughed to deſtroy the roots of noxious weeds, and if it be laid fallow for one ſeaſon, and ploughed two or three times, it will greatly mend the Land. The Ruſhes and Flags which were pared off the ground when rotten, ſhould be ſpread over the ſurface, and the Graſs-ſeed ſown thereon, which will greatly forward the Graſs, ſo that it may ſoon be brought to a good turf; which Land thus mended, has been lett for four times the rent it was ſet at before.

There are ſome perſons, who, after they have pared off the Flags, Ruſhes, &c. from their Land, lay them in ſmall heaps, and burn them in dry weather, then ſpread the aſhes on the Land to improve it, which is a good method, where a perſon is in haſte to have Graſs again; but where the ground can be fallowed one year, it will looſen the ſoil, and more effectually deſtroy the roots of all noxious weeds; and the Ruſhes, &c. when rotted, will afford a much larger quantity of manure for the Land than when it is burnt: beſides, this can only be practiſed in the ſummer ſeaſon, when the weather is very dry; for if there ſhould fall much rain, the fires will go out, and it will be impracticable to burn it. But where the method of burning is practiſed, the heaps ſhould not be too great, and it ſhould burn very ſlowly; which will render the aſhes a much better manure, than when the fire is too violent, or the heaps too large; for in this caſe, the inner part will be over-burnt before the fire reaches the outſide of the heap.

As the draining of cold wet Lands is a great improvement to them, ſo the floating or watering of dry looſe Land is not a leſs advantage to them. This may be eaſily effected where there are rivers, or reſervoirs of water, which are ſituated above the level of the ground deſigned to be floated, by under ground drains (made after the manner of thoſe before directed for draining of Land,) through which the water may be conveyed at proper ſeaſons, and let out on the ground: in order to this, there muſt be good ſluices made at the heads of the drains, ſo that the water may never get out, but at ſuch times as is required;

for if this be not taken care of, the water, inſtead of improving the Land, will greatly damage it.

But where the Land lies ſo high, as that there is no water in the neighbourhood lying above its level, it will be more expenſive; becauſe in ſuch caſe, the water muſt be raiſed by machines, from reſervoirs or ſtreams which lie below it. The moſt common engine uſed for this purpoſe is the Perſian wheel (which, being well deſcribed and figured in Woolridge's Art of Huſbandry, is needleſs for me here to repeat.) Yet notwithſtanding the expence of raiſing the water, it has been found greatly advantageous in many parts of England, to drown the Lands, for the profit has many times more than doubled the charge.

The time for drowning of Land, is uſually from November till the end of April; but though this is the general practice, yet I cannot approve of it for many reaſons. The firſt is, that by the wet lying continually on the ground in winter, the roots of the finer ſort of Graſs are rotted and deſtroyed; and by letting on the water, at the ſeaſon when the ſeeds of Docks, and other bad weeds, which commonly grow by river ſides, are falling, theſe ſeeds are carried upon the Land, where they remain and grow, and fill the ground with bad weeds, which is commonly the caſe with moſt of the water meadows in England, the Graſs in general being deſtroyed; ſo that Ruſhes, Docks, and other trumpery, make up the burden of theſe Lands: but if theſe meadows were judiciouſly managed, and never floated till March or April, the quantity of ſweet good Graſs would be thereby greatly increaſed, and the beautiful verdure of the meadows preſerved: but there is little hope of convincing thoſe perſons by any arguments, who are ſo much wedded to their own prejudices, as to ſhut their eyes and ears againſt experiments or reaſon. Where the Land is very hot and dry, and it lieth convenient to be watered at a ſmall expence, it ſhould be repeated every week in dry hot weather, which will prove a great advantage to the Land. But whenever this is done, there ſhould no cattle be admitted while it is wet, for they will poach, and ſpoil the turf.

Another great improvement of Land, is by burning of it, which, for ſour, heathy, and ruſhy Land, be it either hot or cold, wet or dry, is a very great improvement; ſo that ſuch Lands will, in two or three years after burning, yield more, excluſive of the charges, than the inheritance was worth before; but this is not to be practiſed on rich fertile Land; for as the fire deſtroys the acid juice, which occaſions ſterility in the poor Land, ſo it will in like manner conſume the good juices of the richer Land, and thereby impoveriſh it, ſo that it hath been with great reaſon diſuſed in deep rich countries.

The uſual method of burning Land is, to pare off the turf with a breaſt plough, turning it over as it is cut, that it may dry the better. And if it proves hot dry weather when this work is done, then it needs no more turning; but if rain ſhould fall, it muſt be turned, and the turfs ſet a little hollow, that they may dry the better; and when they are thorough dry, they may be laid on ſmall heaps, about half a cart load on a heap, or leſs, for the ſmaller the heaps are, provided there is quantity enough to make a good fire, ſo as to conſume the whole to aſhes, it is the better; if the turf be full of fibrous roots, or hath much Moſs or Fern on it, it will burn without any additional fuel; but if it hath not, the heaps ſhould be raiſed on ſmall bundles of Heath, Fern, Gorze, &c. which will ſet the whole on fire; yet there ſhould be no more of theſe things applied, than what is neceſſary to kindle the fire, becauſe the ſlower the turf conſumes, the better will be the aſhes. When the turf is wholly conſumed, the aſhes ſhould be equally ſcattered over the ground in a calm day, leſt the wind ſhould drive it in heaps. Then the Land ſhould be gently ploughed, and the ſeeds ſown thereon; for if the ground is ploughed too deep, the aſhes will be buried too low for the roots of the Graſs or Corn to reach them for a conſiderable time; nor ſhould the aſhes lie too near the ſurface, becauſe then the roots will reach them too ſoon, and the ſtrength of the aſhes will be ſpent to nouriſh only the blade, ſo that the Corn will grow too rank in winter; and when the roots in the ſpring ſtrike down lower, they will meet with a poorer ſoil, nor will the ſtalks and ears have ſo much advantage from the improvement, as the uſeleſs blade. But when care is taken in this particular, it is wonderful what ſucceſs it hath; for by this method the pooreſt plains, and ſour heathy Lands, have been rendered as fertile as almoſt any good cultivated ground whatever.

It is alſo a very great improvement, where Land is overgrown with Broom, Furz, &c. to ſtub them up by the roots, and when they are dry, lay them on heaps, and cover them with the parings of the earth, and burn them, and ſpread the aſhes over the ground. By this method vaſt tracts of Land, which at preſent produce little or nothing to their owners, might be made good at a ſmall expence, ſo as to become good eſtates to the proprietors.

There are ſeveral other methods of improving Land beſide thoſe here mentioned, as by planting of wood, or adapting the ſeveral ſorts of plants to the particular ſoils with which they agree; but as moſt of theſe things are treated of under the ſeveral articles where theſe plants are mentioned, I ſhall forbear to repeat them in this place, but ſhall beg leave to offer a few general hints on the preſent ſituation of the Lands in England, which may probably excite ſome abler hand to undertake a fuller and more complete diſquiſition of this ſubject.

For ſome years paſt, the quantity of Corn raiſed in England, has greatly exceeded the conſumption, ſo that great quantities of Corn have been exported, by which great ſums of money have been brought into England; but this was accidental; for had not the crops failed in the neighbouring countries, there would have been no demand for the produce of England, ſo that the quantity here grown muſt have reduced the price ſo low, as to have almoſt ruined the farming intereſt; nor is it poſſible to contrive any ſcheme, in a country circumſtanced as this, whereby the public may not, at times, ſuffer from the extravagant price, which, in a ſcarcity, this commodity may be raiſed to; or, on the other hand, the farmers are ſometimes almoſt undone by the low price which it is often reduced to in times of plenty; and ſurely there can be no one thing more worthy of the ſerious attention of every perſon, who has the leaſt regard for the public welfare, than this, of always making ſuch proviſion of Corn, againſt accidental ſcarcities, as that the inhabitants may never be diſtreſſed for want of the ſtaff of life, or the price be ſo high, as that the common people cannot purchaſe it. If I am not greatly miſtaken, there has been, within the ſpace of three or four years, ſuch a diſproportion in the price of Corn, as can hardly be conceived, and this within the memory of numbers of perſons; the time I mean is between 1705 and 1709, in the compaſs of which time the peck loaf of fine bread was riſen from fourteen pence to four ſhillings and twopence; the low price of this commodity was as detrimental to the farmers, as the extravagant price was afterward to the public, neither of which would have ſo ſeverely felt the effects, had there been public granaries where the Corn might have been depoſited, and this purchaſed from the farmer, at a price by which he might live, at the public expence, and ſold out again at an eaſy rate in times of ſcarcity; but I fear this is not an age for encouraging any ſcheme for public utility, when in every thing of this kind, however beneficial it may be to the country, and though propoſed as ſuch to the public, if it meets with any reception, it is with a view to turn it to private intereſt; the practice of turning all things into private jobs, has ſo much prevailed of late years, as to have almoſt extinguiſhed every ſocial virtue; but I fear I may have incurred the cenſure of many for this digreſſion; but, be it as it will, I could not omit it, when it ſo properly came in my way; and as it is from a ſincere love and regard to my country, that I have mentioned this, ſo it may be hoped, that if any harſh expreſſion has been uſed, it will be forgiven. But to return to my ſubject; as the quantity of Land now in tillage is very great in England, from the deſtruction of woods, the ploughing up of downs, the incloſing of commons, &c. ſo that, unleſs there happens a failure in the crops of Corn in great part of England, the markets muſt be ſo low, as that the farmer will always find it difficult to ſupport his family, and pay his rent; the firſt muſt be done, let the landlord fare as he will, for the farmers know, that when the farms are occupied by the landlords, few of them can make the produce of the Land and pay their expence, ſo that the whole rent of the farm is often ſunk, beſide the trouble and fatigue of managing the farms; and it is greatly to be feared, from the preſent condition of the farmers in general, that many landlords will be obliged to undertake this diſagreeable affair, which will be the more ſo, as their Lands will be left without ſtock, and the ſoil exhauſted, and overgrown with weeds, which will require ſome years to put into proper condition, and will be attended with great expence.

The extraordinary price which Corn bore ſome years ſince, tempted the farmers to break up the downs in many parts of England; and the landlords were brought to comply with the requeſt of the farmer, for the ſake of a little advance of the rent, not conſidering the future conſequence of it; ſo that hereby great extents of downs have been ruined, and not likely to be recovered again; for the ſoil in many places was not more than four or five inches deep, upon beds of flint or chalk, which, in ploughing, were turned up on the ſurface, and the little ſoil which covered them, was in a few years ſo much exhauſted, as not to produce the quantity of grain which was ſown upon them; and as there was no probability of procuring dreſſing for the Lands, the farmers have been obliged to throw them up, which now lie waſte, and appear like quarries of flints, or beds of chalk, without Graſs, or almoſt any other plant growing upon them. By this paſſion for ploughing, the farmers have leſſened their ſtock of cattle, and, of conſequence, their quantity of manure has been leſſened in proportion, ſo that they have either been obliged to purchaſe dreſſing at a great expence, or deſtroy their Lands of their vegetative quality: by the former method, when grain bears a low price, the farmer is ruined, and by the latter, every one muſt know what will be the conſequence to both tenant and landlord; therefore it is a matter of great concern to the proprietors of Lands, to ſee that no more ground in their farms is kept in tillage, than the tenant can ſupply with dreſſing, ſo as to maintain the Land in heart; and that a proper ſtock of cattle be kept up, in proportion to the ſize of the farms, which cannot be done where there is not a proportion of paſture kept to that of the arable Land in each farm. There are many perſons, who, by a miſtake in the article of incloſing Lands, are likely to fall into a great error, by ſuppoſing, that the incloſing of commons will be a great advantage to their eſtates, and perhaps there may be tenants on their eſtates, who may encourage the gentlemen ſo to do, from a preſent intereſt of their own; but wherever this has been done, the eſtates have ſoon fallen in their rents, much lower than the addition made by incloſing the commons, which muſt always be the caſe; for if there is not common paſture, where the farmers can turn out their cattle in ſummer, it cannot be ſuppoſed they can keep up a ſtock of live cattle upon their incloſed paſture; ſo that, although the dividing and incloſing the Lands in the common fields would be a very great benefit, yet the deſtroying of paſture commons would on the other extreme be a national diſadvantage and loſs. There are many other particulars, which might be here enumerated, to ſhew the cauſe of the low condition of the farmers in general; but theſe few hints may probably lead ſome perſons of abler heads to the conſideration of this affair, ſo I ſhall not enlarge upon them here.

LANIGEROUS TREES are ſuch as bear a woolly or downy ſubſtance, as is commonly contained in the katkins of Willows, &c.

LANTANA. Lin. Gen. Plant. 683. Camara. Plum. Nov. Gen. 32. tab. 2. American Viburnum, or Camara.

The CHARACTERS are,

The empalement of the flower is cut into four ſegments. The flower is monopetalous, of an irregular ſhape, having a cylindrical tube, which extends beyond the empalement, and is ſpread open at the brim, where it is divided into five ſegments. In the center of the flower is ſituated the pointal, ſupporting a crooked ſtigma, attended by four ſtamina, two being longer than the other. The pointal afterward changes to a roundiſh fruit, opening into two cells, and incloſing a roundiſh ſeed.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, which includes thoſe plants whoſe flowers have two long and two ſhorter ſtamina, and the ſeeds are incloſed in the capſule.

The SPECIES are,

1. LANTANA (*Aculeata*) foliis oppoſitis, caule aculeato ramoſo, floribus capitato-umbellatis. Lin. Sp. 874. *Lantana with leaves growing oppoſite, a branching prickly ſtalk, and umbellated flowers growing in heads.* Viburnum Americanum odoratum, urticæ foliis latioribus ſpinoſum, floribus miniatis. Pluk. Alm. 285. tab. 223. *Sweet prickly American Viburnum, with broad Nettle leaves, and carmine flowers.*

2. LANTANA (*Inerma*) caule inermi, foliis lanceolatis dentatis alternis, floribus corymboſis. *Lantana with a ſmooth ſtalk, ſpear-ſhaped indented leaves placed alternate, and flowers growing in round bunches.* Periclymenum rectum, ſalviæ foliis majoribus oblongis, mucronatis, ſubtus villoſis, alternatim ſitis, flore & fructu minoribus. Sloan. Cat. Jam. 164. *Upright Honeyſuckle with larger, oblong, acute-pointed Sage leaves, which are hairy on their under ſide, placed alternate, and a ſmaller flower and fruit.*

3. LANTANA (*Lanuginoſa*) caule ramoſo lanuginoſo, foliis orbiculatis crenatis oppoſitis, floribus capitatis. *Lantana with a hairy branching ſtalk, round crenated leaves placed oppoſite, and flowers collected in heads.* Periclymenum rectum, ſalviæ folio rugoſo minore, ſubrotundo. Cat. Jam. 164. *Upright Honeyſuckle with a ſmaller rough roundiſh leaf.*

4. LANTANA (*Trifolia*) foliis ternis, caule inermi ſpicis oblongis imbricatis. Lin. Sp. Plant. 873. *Lantana with leaves placed by threes round the ſtalk, without ſpines, and oblong imbricated ſpikes of flowers.* Camara trifolia, purpuraſcente flore. Plum. Nov. Gen. 32. *Three-leaved Camara, with a purpliſh flower.*

5. LANTANA (*Urticæfolia*) caule aculeato, foliis oblongo-cordatis ſerratis oppoſitis, floribus corymboſis. *Lantana with a prickly ſtalk, oblong, heart-ſhaped ſawed leaves, and flowers growing in a corymbus.* Periclymenum rectum urticæ folio hirſuto majore, flore flavo. Sloan. Cat. Jam. 163. *Upright Honeyſuckle with a larger Nettle leaf, and a yellow flower.*

6. LANTANA (*Camara*) caule inermi, foliis ovato-lanceolatis, ſerratis, rugoſis, floribus capitatis lanuginoſis. *Lantana with a ſmooth ſtalk, oval, ſpear-ſhaped, rough, ſawed leaves, and flowers growing in woolly heads.* Periclymenum rectum, ſalviæ folio rugoſo, majore, ſubrotundo & bullato. Sloan. Cat. Jam. 163. *Upright Honeyſuckle with a large, rough, Sage leaf, which is roundiſh and ſtudded.*

7. LANTANA (*Bullata*) foliis oblongo-ovatis acuminatis ſerratis rugoſis alternis, floribus capitatis. *Lantana with oblong, oval-pointed, ſawed leaves, which are rough, placed alternate, and flowers growing in heads.* Periclymenum rectum, ſalviæ folio rugoſo, minore, bullato,

flore albo. Sloan. Cat. 163. *Upright Honeyſuckle with a ſmaller rough Sage leaf, which is ſtudded, and a white flower.*

8. LANTANA (*Alba*) caule inermi, foliis ovatis ſerratis, floribus capitatis alaribus ſeſſilibus. *Lantana with a ſmooth ſtalk, oval ſawed leaves, and flowers growing in heads proceeding from the wings of the leaves, ſitting cloſe to the ſtalks.* Camara foliis urticæ, floribus minoribus albis, ex alis foliorum prodeuntibus. Houſt. *Camara with a Nettle leaf, and ſmaller white flowers proceeding from the wings of the leaves.*

9. LANTANA (*Annua*) foliis quaternis, caule aſpero, ſpicis oblongis. *Four-leaved Lantana with a rough ſtalk, and oblong ſpikes of flowers.* Periclymenum rectum humilius, folio rugoſo majore, flore purpureo, fructu oblongo, eſculento purpureo. Sloan. Cat Jam. 164. *Lower upright Honeyſuckle with a larger rough leaf, a purple flower, and an oblong, purple, eſculent fruit.*

10. LANTANA (*Anguſtifolia*) caule inermi, foliis ovato-lanceolatis oppoſitis, floribus capitatis pedunculis longiſſimis. *Lantana with a ſmooth ſtalk, oval ſpear-ſhaped leaves placed oppoſite, flowers collected in heads, and very long foot-ſtalks.* Periclymenum rectum, ſalviæ folio rugoſo, longo & anguſtiſſimo. Sloan. Cat. 164. *Upright Honeyſuckle with a rough Sage leaf, which is long and narrow.*

11. LANTANA (*Africana*) foliis alternis ſeſſilibus, floribus ſolitariis. Hort. Cliff. 320. *Lantana with alternate leaves ſitting cloſe to the ſtalks, and flowers growing ſingly.* Jaſminum Africanum, illicis folio, flore ſolitario ex foliorum alis proveniente albo. Com. Plant. Rar. 6. tab. 6. *African Jaſmine with an Ilex leaf, and a ſolitary white flower coming from the wing of the leaves.*

12. LANTANA (*Salvifolia*) foliis oppoſitis ſeſſilibus, floribus racemoſis. Lin. Sp. 875. *Lantana with leaves placed oppoſite cloſe to the ſtalks, and flowers in a racemus.* Frutex Africanus, foliis conjugatis ſalviæ anguſtis, floribus hirſutis. Herm. Afr. 10.

The firſt ſort is pretty common in thoſe Engliſh gardens, where there are collections of exotic plants; this grows naturally in Jamaica, and moſt of the other iſlands in the Weſt-Indies, where it is called wild Sage, as are ſeveral of the other ſorts which are not diſtinguiſhed by the inhabitants. It riſes with a woody ſtalk five or ſix feet high, ſending out many branches, which have four angles, armed with ſhort crooked ſpines. The leaves are placed oppoſite; they are oval, ſpear-ſhaped, about an inch and a half long, and three quarters of an inch broad, hairy, and ſtand upon ſhort foot-ſtalks; toward the end of the branches the flowers come out from the wings of the ſtalks, two foot-ſtalks ariſing from the ſame joint, one on each ſide; they are near two inches long, and are terminated by roundiſh heads of flowers, thoſe which are on the outſide and form the border, are firſt of a bright red, or ſcarlet colour; theſe change to a deep purple before they fall. Thoſe flowers which are in the center are of a bright yellow, but after ſome time fade to an Orange colour. The flowers are ſucceeded by roundiſh berries, which, when ripe, turn black, having a pulpy covering over a ſingle hard ſeed. This plant in the Weſt-Indies continues to flower moſt part of the year; but in England they begin to flower in June, and continue in ſucceſſion till near Chriſtmas, and the early flowers are ſucceeded by ripe ſeeds.

The ſecond ſort grows naturally in Jamaica; this riſes with a ſlender, ſmooth, ſhrubby ſtalk, about four feet high, dividing into many ſmall quadrangular branches which grow erect, garniſhed with ſpear-ſhaped leaves about two inches long, and one inch broad, indented on their edges, and hoary on their under ſide, ſtanding alternate upon ſhort foot-ſtalks. Toward the end of the branches the foot-ſtalks of the flowers ariſe alternately from the wings of the leaves; theſe are very ſlender, and ſupport ſmall heads of pale purple flowers, which are ſucceeded by ſmall purple berries, each having one ſeed. This flowers at the ſame time with the former ſort. The ſeeds of this ſort were firſt ſent me by the late Dr. Houſtoun, from La Vera Cruz, but I have ſince received them from Jamaica.

The third ſort was ſent me from La Vera Cruz, by the late Dr. Houſtoun; this riſes with a ſhrubby ſtalk about three feet high, dividing into ſeveral upright branches. The leaves are oblong, and ſawed on their edges, ſtanding oppoſite, on the lower part of the branches, but toward the upper part they are placed by threes round the branches. The foot-ſtalks of the flowers come out from the wings of the leaves; they are near three inches long, ſuſtaining an oblong ſpike of purple flowers, which come out from imbricated ſcales, which end in acute points. The flowers are ſucceeded by pretty large purple berries. This flowers at the ſame time with the former ſorts.

The ſeeds of the fourth ſort were ſent me from the Havanna, by the late Dr. Houſtoun; this riſes with a ſhrubby ſtalk about three feet high, covered with a gray bark, which is woolly. It divides into branches by pairs, which are garniſhed with round leaves, indented on their edges, whoſe upper ſurface is corrugated and rough, like thoſe of Sage; they are placed oppoſite, ſtanding upon ſhort foot-ſtalks. At the end of the branches ariſe the foot-ſtalks of the flowers, which are ſhort, and ſuſtain a globular head of purple flowers; theſe are ſucceeded by pretty large purple berries containing one ſeed. This flowers at the ſame time with the former ſorts.

There is a variety of this with white flowers, whoſe leaves are not quite ſo round, nor are they crenated on their edges; but I ſuſpect they both come from the ſame ſeeds, ſo I have not enumerated it as a diſtinct ſpecies.

The fifth ſort was ſent me from La Vera Cruz, by the late Dr. Houſtoun; this riſes with a woody branching ſtalk four or five feet high, garniſhed with oblong heart-ſhaped leaves, which are ſawed on their edges, and end in acute points. At the end of the branches the flowers come out in round bunches, ſtanding upon ſlender upright foot-ſtalks, about one inch long. The flowers are yellow, and grow in looſer bunches or heads than thoſe of the former ſorts, but flowers at the ſame time.

The ſixth ſort riſes with a woody branching ſtalk five or ſix feet high, covered with a dark brown bark. The branches are more divided than thoſe of the other ſorts, and are much more ligneous. The leaves are two inches and a half long, and one inch and a quarter broad, deeply ſawed on their edges, and their upper ſurface very rough, and many of them cloſely ſet with white prominent ſpots as if ſtudded; theſe are placed alternately on the branches. The flowers come out from the wings of the ſtalk, ſtanding upon pretty long foot-ſtalks; they are white, and are collected in ſmall woolly heads. This flowers about the ſame time with the former ſorts.

The ſeventh ſort riſes with a branching ſhrubby ſtalk about four feet high, covered with a dark brown bark, and garniſhed with ſmall, oblong, oval leaves, ending in acute points; they are an inch long, and half an inch broad, very much veined on their upper ſide, ſtanding alternately pretty cloſe to the branches. The flowers come out at the end of the branches upon ſhort foot-ſtalks, in cloſe ſmall heads; theſe are white, and make but little appearance. It flowers at the ſame time with the former.

The eighth ſort was ſent me by the late Dr. Houſtoun, from Campeachy; this hath a ſlender ſhrubby ſtalk which riſes three or four feet high, dividing into many ſlender, ſmooth, ſquare branches, which are garniſhed with ſmall, oval, ſawed leaves placed oppoſite; from the wings of the ſtalk, at every joint, come out the flowers; they are ſmall, white, and are collected in cloſe heads; theſe come out by pairs, and ſit cloſe to the branches. This flowers at the ſame time with the former.

The ninth ſort is annual; this was firſt ſent me by the late Dr. Houſtoun from La Vera Cruz, but I have ſince received the ſeeds from the north ſide of the iſland of Jamaica; it riſes with a ſtrong, upright, rough ſtalk near three feet high, dividing toward the top into two or three erect branches, which are garniſhed with oblong, oval, ſawed leaves, ending in acute points; they are placed by fours at each joint, and are a little woolly on their under ſide. The flower-ſtalks ariſe by pairs, and ſometimes three come out at the ſame joint; they are from two to three inches long, and ſuſtain a thick ſpike of large purple flowers,' which are ſucceeded by large purple berries that are very ſucculent, and are frequently eaten by the inhabitants. This ſort flowers in July, provided the plants are raiſed early in the ſpring and brought forward, and the ſeeds will ripen in autumn, ſoon after which the plants decay.

The tenth ſort grows naturally in Jamaica, from whence the late Dr. Houſtoun ſent me the ſeeds; this riſes with a ſlender, ſmooth, branching ſtalk three feet high. The branches are garniſhed with oval ſpear-ſhaped leaves two inches long, and one inch broad; they are crenated on their edges, and rough on their upper ſide, ſtanding by pairs oppoſite, upon very ſhort foot-ſtalks, having an agreeable odour. The flowers come out from the wings of the ſtalk, upon very long foot-ſtalks; they are placed oppoſite the whole length of the young branches, ſuſtaining ſmall round heads of white flowers; theſe appear at the ſame time with the other ſorts, but rarely produce ſeeds in England.

Theſe plants are all of them eaſily propagated by cuttings except the ninth, which is an annual plant, ſo can only be propagated by ſeeds. They may alſo be propagated by ſeeds, which ſeveral of the ſorts produce in England, and the others may be eaſily procured from the Weſt-Indies, where there are a greater variety of theſe plants growing naturally, than are at preſent known in Europe; they are all of them called Wild Sage, by the inhabitants of the Britiſh Iſlands, but they do not diſtinguiſh the ſorts. Theſe ſeeds ſhould be ſown in pots filled with light earth, and plunged into a hot-bed of tan; the reaſon for my adviſing them to be ſown in pots, is, becauſe the ſeeds frequently remain long in the ground before they vegetate; therefore if the plants ſhould not come up the ſame year, the pots ſhould be placed in the ſtove in winter, and the following ſpring plunged into a new hot-bed, which will bring up the plants. When theſe are fit to remove they ſhould be each planted in a ſmall pot, and plunged into another hot-bed, obſerving to ſhade them till they have taken new root; then they ſhould have air admitted to them every day, in proportion to the warmth of the ſeaſon, to prevent their being drawn up with weak ſtalks; afterward they muſt be treated in the ſame manner as other plants from the ſame country, till they have obtained ſtrength; then they may be removed into an airy glaſs-caſe, or a dry ſtove, where they may have a large ſhare of air in warm weather, but protected from the cold. This is neceſſary for the young plants, which ſhould not the firſt year be expoſed to the open air, but afterward they may be placed abroad in the warmeſt part of ſummer, and in winter placed upon ſtands in the dry ſtove, where they will continue long in flower, and many of the ſorts will ripen their ſeeds; but in winter they ſhould be ſparingly watered, for much moiſture will rot their roots.

If they are propagated by cuttings, the beſt time for planting them is in July, after the plants have been expoſed to the open air for about a month, by which time the ſhoots will be hardened ſo as to be out of danger of rotting with a little moiſture. Theſe cuttings ſhould be planted in ſmall pots filled with light earth, and plunged into a moderate hot-bed; and if they are ſcreened from the violence of the ſun in the middle of the day, they will be rooted in about ſix weeks time, when they muſt be hardened gradually to bear the open air, and afterward treated as the old plants.

The eleventh ſort has been long in the Engliſh gardens, and is commonly called the Ilex-leaved Jaſmine. This ſort riſes with a ſhrubby ſtalk five or ſix feet high, ſending out many irregular branches, which are cloſely garniſhed with thin oval leaves ending in points, and ſawed on their edges, which embrace the branches with their baſe, and from the boſom of each leaf comes out one ſolitary white flower, which is cut at the top into five parts, and at firſt ſight has the appearance of a Jaſmine flower; but when cloſer viewed, the tube will be found curved in the ſame manner with thoſe which Dr. Linnæus titles ringent flowers. The flowers are not ſucceeded by ſeeds in England, but the plants are eaſily propagated by cuttings, which, if planted upon an old hot-bed any time in July, and covered with a bell or hand-glaſs, and ſhaded from the ſun, will put out roots in a month or five weeks; then they may be planted in pots, and placed in the ſhade till they have taken freſh root; after which they may be removed to a ſheltered ſituation, where they may remain till the froſts come on. This plant was brought from the Cape of Good Hope, ſo is not very tender, therefore may be preſerved in a good green-houſe in winter; but during that ſeaſon it muſt have a large ſhare of air in mild weather, otherwiſe it is apt to grow mouldy, and this will cauſe the tender branches to decay. In the ſummer ſeaſon it may be expoſed in the open air, with other green-houſe plants, in a ſheltered ſituation, where it will add to the variety; and although the flowers are ſmall, and are produced ſingly from between the leaves, ſo do not make any great appearance; yet as there is a ſucceſſion of theſe flowers moſt part of the year, and the leaves continuing green throughout the year, it is rendered worthy of a place in every collection of plants.

The laſt ſort is a native of Africa; this riſes with a ſhrubby four-cornered ſtalk eight or ten feet high, covered with a pale looſe bark, ſending out many ſide branches, garniſhed with rough leaves five or ſix inches long, whoſe baſe embrace the ſtalks, but they end with ſharp points, and are downy on their under ſide; the branches are terminated by looſe ſpikes of pale purple flowers, covered with a meally down; theſe appear in ſummer, but are rarely ſucceeded by ſeeds in England.

This is propagated by cuttings in the ſame manner as the eleventh ſort, and the plants require the ſame treatment.

LANUGINOUS, ſignifies downy, or to be covered with a ſoft down, as a Quince.

LAPATHUM. See Rumex.

LAPSANA. Lin. Gen. Plant. 823. Lampſana & Rhagadiolus. Tourn. Inſt. R. H. 479. tab. 272. Nipplewort.

The Characters are,

The flower is compoſed of ſeveral hermaphrodite florets, which are included in one common imbricated empalement. The florets have one petal, which is tubulous and ſtretched out at the top, in ſhape of a tongue; theſe have each five ſhort hairy ſtamina, terminated by cylindrical ſummits which coaleſce. The germen is ſituated at the bottom of the floret, ſupporting a ſlender ſtyle, crowned by a reflexed bifid ſtigma; the germen afterward becomes an oblong three-cornered ſeed, ſituated in the ſcale of the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's nineteenth claſs, intitled Syngeneſia Polygamia Æqualis, in which he ranges thoſe plants with hermaphrodite flowers which are fruitful, whoſe ſtamina and ſtyle are connected together; and to this genus he has joined the Rhagadiolus and Zacintha of Tournefort, making them only ſpecies of the ſame genus.

The Species are,

1. Lapsana (*Communis*) calycibus fructûs angulatis, pedunculis tenuibus ramoſiſſimis. Hort. Cliff. 384. *Nipplewort with angular empalements to the fruit, and very narrow branching foot-ſtalks.* Lampſana. Dod. p. 675. *Common Nipplewort.*
2. Lapsana (*Rhagadiolus*) calycibus fructûs undique patentibus, radiis ſubulatis, foliis lyratis. Hort. Upſal. 245. *Nipplewort with empalements to the fruit ſpreading open every way, awl-ſhaped rays, and ſpear-ſhaped undivided*

vided leaves. Rhagadiolus alter. Cæſalp. 511. *Another Rhagadiolus.*

3. Lapsana (*Lampſanæfoliis*) calycibus fructûs undique patentibus, radiis ſubulatis, foliis lyratis. Hort. Upſal. 245. *Nipplewort with empalements to the fruit ſpreading open every way, awl-ſhaped rays, and harp-ſhaped leaves.* Rhagadiolus Lampſanæ foliis. Tourn. Cor. 36. *Rhagadiolus with a Nipplewort leaf.*

4. Lapsana (*Zacintha*) calycibus fructûs toruloſis depreſſis obtuſis ſeſſilibus. Lin. Sp. Plant. 811. *Nipplewort with a depreſſed knotted empalement which is obtuſe, and ſits cloſe to the branches.* Zacintha ſive cichorium verrucarium. Tourn. Inſt. 476. *Zacintha, or warted Cichory.*

The firſt ſort is a common weed, which grows by the ſide of foot-paths and hedges in moſt parts of England, ſo is not permitted to have room in gardens.

The ſecond and third ſorts grow naturally in Portugal, from whence I have received their ſeeds. Theſe are annual plants, of no beauty or uſe, but are preſerved in botanic gardens for the ſake of variety. If the ſeeds of theſe are permitted to ſcatter, the plants will come up without trouble, and two or three of them will be enough to leave to keep the ſorts.

The fourth ſort grows naturally in Italy; this is alſo an annual plant, of neither uſe or beauty, but is like the others kept for variety. If the ſeeds of this ſort ſcatter in the autumn, the plants will come up better than if ſown in the ſpring. The plants require no culture, but will thrive like weeds.

LARIX. Tourn. Inſt. R. H. 586. tab. 353. Pinus. Lin. Gen. Plant. 956. The Larch-tree; in French, *Meleſe.*

The Characters are,

It hath male and female flowers growing ſeparate on the ſame tree. The male flowers are diſpoſed in a ſcaly katkin; theſe have no petal, but a great number of ſtamina which are connected in a column below, but are ſeparated at their points, and are terminated by erect ſummits. The female flowers are diſpoſed in a conical ſhape, having no petals; theſe are placed by pairs under each ſcale, having a ſmall germen, ſupporting an awl-ſhaped ſtyle, crowned by a ſingle ſtigma. The germen afterward becomes a nut with a membraneous wing, incloſed in the ſcales of the cones.

This genus of plants is ranged in the ninth ſection of Linnæus's twenty-firſt claſs, intitled Monœcia Monodelphia, the ſame tree having male and female flowers in different parts, and the ſtamina of the male flowers are united in one cluſter. Dr. Linnæus has joined this genus, and the Abies of Tournefort, to the genus of Pinus, which, according to his ſyſtem, may very well be brought together; but as Tournefort and all former botaniſts have ſeparated them by the form of their leaves, thoſe of the Abies coming out ſingle from the branches, thoſe of the Pine coming out by two, three, or five out of each ſheath, and thoſe of this genus ariſing in cluſters in the bottom, but are ſpread above like a painter's pencil; ſo theſe diſtinctions being pretty generally known by gardeners, I have choſen to continue them under their former ſeparate titles to prevent confuſion.

The Species are,

1. Larix (*Decidua*) foliis deciduis, conis ovatis obtuſis. *Larch-tree with deciduous leaves, and oval obtuſe cones.* Larix folio deciduo, conifera. J. B. 1. p. 265. *Common Cone-bearing Larch-tree.*
2. Larix (*Chinenſis*) foliis deciduis, conis mucronatis ſquamis acutis. *Larch-tree with deciduous leaves, and pointed cones having acute ſcales.*
3. Larix (*Cedrus*) foliis acutis perennantibus, conis obtuſis. *Larch-tree with acute evergreen leaves and obtuſe cones.* Cedrus conifera, foliis laricis. C. B. P. 490. *Cone-bearing Cedar with a Larch-tree leaf, or the Cedar of Lebanus.*

The firſt ſort grows naturally upon the Alps and Apennines, and of late years has been very much propagated in England. This tree is of quick growth, and will riſe to the height of fifty feet; the branches are ſlender, and their ends generally hang downward. Theſe are garniſhed with long narrow leaves, which ariſe in cluſters from one point, and ſpread open above like the hairs of a painter's bruſh; they are of a light green, and fall away in autumn like other deciduous trees. In the month of April the male flowers appear, which are diſpoſed in form of ſmall cones; the female flowers are collected into oval obtuſe cones, which in ſome ſpecies have bright purple tops, and in others they are white: theſe differences are accidental, for I have found the ſeeds taken from either of theſe varieties, will produce plants of both ſorts; the cones are about one inch long, obtuſe at their points, and the ſcales lie over each other, and are ſmooth; under each ſcale there is generally lodged two ſeeds which have wings.

There are two other varieties of this tree, one of which is a native of America, and the other of Siberia; the latter requires a colder climate than England, for they are very apt to die in ſummer here, eſpecially if they are planted on a dry ſoil. The cones of this ſort which have been brought to England, ſeem to be in general larger than thoſe of the common kind; but there is ſo little difference between the trees in their characteriſtic notes, as not to be diſtinguiſhed as different ſpecies, though by the growth of the trees there is a remarkable difference.

The cones of the ſecond ſort were ſent from China, to the Right Hon. the Earl of Northumberland, who was ſo good as to communicate ſome of the ſeeds to me, which were ſown in the Chelſea garden, where they ſucceeded, as they alſo did in his Lordſhip's garden at Stanwick. The cones of this ſort were much larger than thoſe of the common ſort, and ended in acute points; the ſcales were prominent like thoſe of the Scotch Pine, and had ſo little reſemblance to thoſe of the Larch, as that every one who ſaw them, imagined they were a ſort of Pine; they were titled, Fir good to keep up banks. As theſe plants make but little progreſs the firſt year, ſo they were weak, and in the autumn caſting off their leaves, they were ſuppoſed to be dead, and moſt of the plants were thereby loſt; but thoſe which eſcaped, afterward ſhot their branches out horizontally, ſpreading cloſe to the ground, and by their preſent appearance, ſeem to be a ſhrub which never will riſe upright. This ſort is ſo hardy, as to thrive in the open air without any protection.

The common Larch is now very plenty in moſt of the nurſeries in England, and of late years there has been great numbers of the trees planted; but thoſe which have been planted in the worſt ſoil and in bad ſituations, have thriven the beſt; for where trees of equal ſize have been planted in good garden earth at the ſame time, the others on the cold ſtiff land, have in twelve years been twice the height of thoſe planted in good ground; which is an encouragement to plant theſe trees, ſince they will thrive in the moſt expoſed ſituations, provided they are planted in clumps near each other, and not ſingle trees; nor ſhould the plants which are planted in very open expoſed places be taken from warm nurſeries, but rather raiſed as near to the ſpot where they are to remain as poſſible; nor ſhould the plants be more than three or four years growth when planted, where they are deſigned to grow large; for though trees of greater ſize will remove very well, and grow ſeveral years as well as if they had not been tranſplanted; yet after twenty or thirty years growth they will frequently fail, where the young planted trees have continued very vigorous.

Theſe trees are raiſed from ſeeds, which moſt years ripen well in England: the cones ſhould be gathered about the end of November, and kept in a dry place till the ſpring, when they ſhould be ſpread on a cloth and expoſed to the ſun, or laid before a fire, which will cauſe the ſcales of the cones to open and emit their ſeeds. Theſe ſeeds ſhould be ſown on a border, expoſed to the eaſt, where the morning ſun only comes on it; or if they are ſown on a bed more expoſed to the ſun, they ſhould be ſcreened with mats from the ſun in the middle of the day; for when the plants firſt appear above ground, they are very impatient of heat;

and when the bed is much expoſed to the ſun, the ſurface of the ground will dry ſo faſt, as to require to have water very often, which frequently rots the tender ſtems of the plants; which will be prevented by properly ſhading them while young, and afterward they will be in no danger. Theſe young plants ſhould be conſtantly kept clean from weeds, and if they have made good progreſs, they may be tranſplanted the following autumn, otherwiſe they may remain in the ſeed-bed another year, eſpecially if the plants are not too cloſe together. When they are tranſplanted, it ſhould be performed in the autumn as ſoon as their leaves decay; they may be planted in beds at about ſix inches aſunder each way, which will be diſtance enough for the growth of the plants the two following years, by which time they will be fit to tranſplant where they are to remain.

When the young trees are planted out for good, they need not be more than eight or ten feet diſtant from each other, always planting them cloſer on expoſed ſituations, than where they are more defended; after the trees are planted, they will require no other care but to keep them clean from weeds for three or four years till the trees have obtained ſtrength, when they will over-top the weeds and prevent their growth; but the ground between theſe trees ſhould not be dug, for that I have found has greatly ſtopped their growth.

The Siberian Larch is of ſlow growth in this country, for when the ſpring is mild, the trees will begin to ſhoot in February, or early in March; and there are frequently ſharp froſts after, whereby theſe ſhoots are often killed, and this ſtops the growth of the trees. Likewiſe when they are planted on a warm dry ſoil, they are frequently killed by drought in the ſummer; therefore this is a very improper tree for this country, unleſs for ſome cold, moiſt, peaty land, where they may probably thrive, and in ſuch ſituations few other trees will grow.

The American or black Larch, thrives pretty well upon moiſt land, but on dry ground will make but little progreſs. A few of theſe trees by way of variety, may be allowed to have place in every collection of trees deſigned for pleaſure; but for profit, the common Larch is to be preferred to any other ſpecies.

In Switzerland, where theſe trees abound, and they have a ſcarcity of other wood, they build moſt of their houſes with it; and great part of their furniture is alſo made of the wood, ſome of which is white, and ſome red, but the latter is moſt eſteemed. The redneſs of the wood is by ſome ſuppoſed to be from the age of the trees, and not from any difference between them, but is rather owing to the quantity of turpentine contained in them. They frequently cut out the boards into ſhingles of a foot ſquare, with which they cover their houſes, inſtead of tiles or other covering; theſe are at firſt very white, but after they have been two or three years expoſed, become as black as charcoal; and all the joints are ſtopped by the reſin, which the ſun draws out from the pores of the wood, which is hardened by the air, and becomes a ſmooth ſhining varniſh, which renders the houſes ſo covered impenetrable to either wind or rain; but as this is very combuſtible, the magiſtrates have made an order of police, that the houſes ſo covered ſhould be built at a diſtance from each other to prevent fire, which has often done great damage in villages.

In moſt countries where this wood is in plenty, it is preferred to all the kinds of Fir for every purpoſe; and in many places there are ſhips built of this wood, which they ſay are durable; therefore this may be a very proper tree for planting upon ſome of the cold barren hills in many parts of England, which at preſent produce nothing to their proprietors, and in one age may be large eſtates to their poſterity, and a national advantage; which might be effected without a great expence, where the buſineſs is properly conducted.

The beſt method for doing this, would be by making ſmall nurſeries on or near the place where the plantation is intended to be made, in thoſe nurſeries the ſeeds ſhould be ſown; and if there are any poor cottagers there, theſe may be employed in raiſing of the plants, keeping of them clean, and afterward in tranſplanting them. This will leſſen the number of indigent poor, and by employing them in this ſort of huſbandry, they may be brought to have a love and regard for trees of their own planting, ſo will not be tempted to deſtroy them themſelves, or ſuffer others to do it; and as the ſeaſon for planting happens at a time of year when the farmers have little employment for their labourers, ſo the finding them uſeful employment this way, will be of infinitely more advantage than the giving them alms from the pariſh; and the children may be taught to weed and keep the young plants clean in ſummer, whereby they may be rendered uſeful, and kept from being burdenſome to the pariſhes.

From the Larch-tree is extracted the Venice turpentine, which the inhabitants of the valley of St. Martin near Lucern, make a conſiderable merchandize of. They collect this by boring holes in the trunk of the trees, at about two or three feet from the ground, into which they fix narrow troughs about twenty inches long; the end of theſe are hollowed like a ladle, and in the middle is a ſmall hole bored for the turpentine to run into a receiver, which is placed below it; as the turpentine runs from the trees, it paſſes along the ſloping gutter or trough to the ladle, and from thence runs through the holes into the receiver. The people who gather this viſit the trees morning and evening, from the end of May to September, to collect the turpentine from out of the receivers.

The third ſort is the Cedar of Libanus, which is a tree of great antiquity; and what is remarkable, this tree is not found as a native in any other part of the world, ſo far as hath come to our knowledge.

The cones of this tree are frequently brought from the Levant, which, if preſerved entire, will preſerve their ſeeds good for ſeveral years. The time of their ripening is commonly in the ſpring, and ſo conſequently are near one year old before we receive them, for which they are not the worſe, but rather the better; the cones having diſcharged a great part of their reſin by lying, and the ſeeds are much eaſier to get out of them than ſuch as are freſh taken from the tree.

The beſt way to get the ſeeds out is to ſplit the cones, by driving a ſharp piece of iron through the center lengthways, which will ſplit the cone; then you may pull the ſeeds out with your fingers, which you will find are faſtened to a thin leafy ſubſtance called wings, as are thoſe of the Fir-tree: but before the ſeeds are taken out, it will be proper to put the cones in water for twenty-four or thirty hours, which will render them eaſier to ſplit, ſo that the ſeeds may be taken out with greater ſafety; for there will require care in the doing of it, otherwiſe many of the ſeeds will be ſpoiled, as they are very tender, and will bruiſe where there is any force employed to get them out.

Theſe ſeeds ſhould be ſown in boxes or pots of light freſh earth, and treated as was directed for the Firs (to which I refer the reader) but only ſhall obſerve, that theſe require more ſhade in ſummer while young than the Firs, and ſhould be frequently refreſhed with water.

When the plants come up they muſt be guarded from the birds, otherwiſe they will pick off their tops, as they do of the young Firs where they are not guarded; they muſt alſo be conſtantly kept clean from weeds, and not placed under the drip of trees. The plants may remain in theſe boxes or pots in which they were ſown till the following ſpring, but it will be proper to place them under a frame in winter, or cover them with mats; for while they are young they are in danger of loſing their tops, if they are pinched by froſt, for the young plants often ſhoot late in the autumn. In the ſpring, before the plants begin to ſhoot, they ſhould be carefully taken up and tranſplanted into beds at about four inches diſtance, cloſing the earth gently to their roots; theſe beds ſhould be arched over with hoops, and covered with mats in the heat of the day, to ſhade the plants from the ſun till they have taken new root; and if the nights prove froſty, it will be proper to keep the mats over them in the night, but in cloudy or moiſt weather they muſt be always open. After the plants are well rooted, they will require no other care but to keep them clean from weeds, unleſs the ſeaſon ſhould prove very dry, in which caſe it will be proper to give them ſome water once or twice a week; but it muſt be but in ſmall quantities, for too much wet is often very injurious to them; ſo that it will be better to ſcreen them from the ſun in hot weather, to prevent the earth from drying too faſt, or cover the ſurface of the ground with moſs to keep it cool, than to water the plants often.

In theſe beds the plants may ſtand two years, then they ſhould be either tranſplanted to the places where they are deſigned to remain, or to a nurſery where they may grow two years more; but the younger theſe plants are when they are planted out for good, the better the trees will thrive, and the longer they will continue.

When theſe plants begin to ſhoot ſtrong, you will generally find the leading ſhoot incline to one ſide; therefore, if you intend to have them ſtrait, you muſt ſupport them with ſtakes, obſerving to keep the leader always cloſe tied up, until you have got them to the height you deſign them, otherwiſe their branches will extend on every ſide, and prevent their growing tall.

Theſe trees are by many people kept in pyramids, and ſheared as Yews, &c. in which form they loſe their greateſt beauty; for the extenſion of the branches is very ſingular in this tree, their ſhoots for the moſt part are declining, and thereby ſhewing their upper ſurface, which is conſtantly clothed with green leaves in ſo regular a manner, as to appear at ſome diſtance like a green carpet; and theſe waving about with the wind, make one of the moſt agreeable proſpects that can be to terminate a viſta, eſpecially if planted on a riſing ground.

It is matter of ſurpriſe to me, that this tree hath not been more cultivated in England formerly, for till within a few years paſt, there were but few here; ſince it would be a great ornament to barren bleak mountains, where few other trees will grow ſo well, it being a native of the coldeſt parts of Mount Libanus, where the ſnow continues great part of the year. And from the obſervations I have made of thoſe now growing in England, I find they thrive beſt on the pooreſt ſoil; for ſuch of them as have been planted in a ſtrong, rich, loamy earth, have made but a poor progreſs, in compariſon to ſuch as have grown upon a ſtony meagre ſoil. And that theſe trees are of quick growth, is evident from four of them now growing in the phyſic garden at Chelſea, which (as I have been credibly informed) were planted there in the year 1683, and at that time were not above three feet high; two of which trees are at this time (viz. 1766) upwards of twelve feet and a half in girt, at two feet above ground, and their branches extend more than twenty feet on every ſide their trunks; which branches (though they are produced twelve or fourteen feet above the ſurface) do at every termination hang very near the ground, and thereby afford a goodly ſhade in the hotteſt ſeaſon of the year.

The ſoil in which theſe trees are planted, is a lean hungry ſand mixed with gravel, the ſurface of which is ſcarcely two feet deep before a hard rocky gravel appears. Theſe trees ſtand at four corners of a pond, which is bricked up within two feet of their trunks, ſo that their roots have no room to ſpread on one ſide, and conſequently are cramped in their growth; but whether their ſtanding ſo near the water may not have been advantageous to them, I cannot ſay, but ſure I am, if their roots had had full ſcope in the ground, they would have made a greater progreſs. I have alſo obſerved, that lopping or cutting of theſe trees is very injurious to them (more, perhaps, than to any other of the reſinous trees) in retarding their growth; for two of the four trees above-mentioned, being unadviſedly planted near a green-houſe, when they began to grow large had their branches lopped, to let the rays of the ſun into the houſe, whereby they have been ſo much checked, as at preſent they are little more than half the ſize of the other two.

Theſe trees have all of them produced, for ſeveral years, large quantities of katkins (or male flowers,) though there are but three of them which have as yet produced cones; nor is it above thirty-five years that theſe have ripened their cones, ſo as to perfect the ſeed; but now the ſeeds which fall out of the cones on the ground near them, produce plants in plenty, which come up naturally without care: and ſince we find that they are ſo far naturalized to our country as to produce ripe ſeeds, we need not fear being ſoon ſupplied with enough, without depending on thoſe cones which are brought from the Levant; as there are many trees of this kind in England, which already do, and abundance more which in a few years muſt certainly bear: but I find they are more ſubject to produce and ripen their cones in hard winters than in mild ones; which is a plain indication, that they will ſucceed, even in the coldeſt parts of Scotland, where, as well as in England, they might be propagated to great advantage.

What we find mentioned in ſcripture of the lofty Cedars, can be no ways applicable to the ſtature of this tree; ſince, from the experience we have of thoſe now growing in England, as alſo from the teſtimony of ſeveral travellers, who have viſited thoſe few remaining trees on Mount Libanus, they are not inclined to grow very lofty, but, on the contrary, extend their branches very far; to which the alluſion made by the Pſalmiſt agrees very well, when he is deſcribing the flouriſhing ſtate of a people, and ſays, They ſhall ſpread their branches like the Cedar-tree.

Rauwolf, in his Travels, ſays, there were not at that time (i. e. anno 1574) upon Mount Libanus more than 26 trees remaining, 24 of which ſtood in a circle; and the other two, which ſtood at a ſmall diſtance, had their branches almoſt conſumed with age; nor could he find any younger trees coming up to ſucceed them, though he looked about diligently for ſome. Theſe trees (he ſays) were growing at the foot of a ſmall hill, on the top of the mountains, and amongſt the ſnow. Theſe having very large branches, commonly bend the tree to one ſide, but are extended to a great length, and in ſo delicate and pleaſant order, as if they were trimmed and made even with great diligence, by which they are eaſily diſtinguiſhed at a great diſtance from Fir-trees. The leaves (continues he) are very like to thoſe of the Larch-tree, growing cloſe together in little bunches upon ſmall brown ſhoots.

Maundrel in his Travels, ſays, there were but ſixteen large trees remaining when he viſited the mountains, ſome of which were of a prodigious bulk, but that there were many more young trees of a ſmaller ſize; he meaſured one of the largeſt, and found it to be 12 yards 6 inches in girt, and yet ſound, and 37 yards in the ſpread of its boughs. At about five or ſix yards from the ground it was divided into five limbs, each of which was equal to a great tree. What Maundrel hath related, was confirmed to me by a worthy gentleman of my acquaintance, who was there in the year 1720, with this difference only, viz. in the dimenſions of the branches of the largeſt tree, which he aſſured me he meaſured, and found to be twenty-two yards diameter. Now, whether Mr. Maundrel meant thirty-ſeven yards in circumference of the ſpreading branches, or the diameter of them, cannot be determined by his expreſſions, yet either of them well agrees with my friend's account.

Monſieur Le Brun reckons about 35 or 36 trees remaining upon Mount Libanus when he was there, and would perſuade us it was not eaſy to reckon their numbers (as is reported of our Stonehenge on Saliſbury Plain.) He alſo ſays, their cones do ſome of them grow dependent. Which is abundantly confuted by the above-mentioned travellers, as alſo from our own experience, for all the cones grow upon the upper part of the branches, and ſtand erect, having a ſtrong, woody, central ſtyle, by which it is firmly annexed to the branch, ſo as with difficulty to be taken off; which central ſtyle remains upon the branches after the cone is fallen to pieces, ſo that they never drop off whole, as the Pines do.

The wood of this famous tree is accounted proof againſt all putrefaction of animal bodies; the ſawduſt of it is thought to be one of the ſecrets uſed by thoſe mountebanks, who pretend to have the embalming myſtery. This wood is alſo ſaid to yield an oil, which is famous for preſerving books and writings; and the wood is thought by my Lord Bacon, to continue above a thouſand years ſound. It is alſo recorded, that in the temple of Apollo at Utica, there was found timber of near two thouſand years old. And the ſtatue of the goddeſs, in the famous Epheſian temple, was ſaid to be of this material alſo, as was moſt of the timber work of that glorious ſtructure.

This ſort of timber is very dry and ſubject to ſplit, nor does it well endure to be faſtened with nails, from which it uſually ſhrinks, therefore pins of the ſame wood are much preferable.

LARKSPUR. See **Delphinium.**

LASERPITIUM. Tourn. Inſt. R. H. 324. tab. 172. Lin. Gen. Plant. 306. Laſerwort.

The Characters are,

It hath an umbellated flower, compoſed of many ſmall umbels; both the ſmall and principal umbels have a many-leaved involucrum. The general umbel is uniform; the flowers have five equal petals, whoſe points are heart-ſhaped and inflexed; they have five ſtamina which are as long as the petals, terminated by ſingle ſummits; the roundiſh germen is ſituated under the flower, ſupporting two thick acuminated ſtyles, crowned by obtuſe ſpreading ſtigmas. The germen afterward becomes an oblong fruit with eight longitudinal wings or membranes, reſembling the fliers of a water-mill; the fruit divides into two parts, each containing one ſeed.

This genus of plants is ranged by Dr. Linnæus's in the ſecond ſection of his fifth claſs, intitled Pentandria Digynia, which includes thoſe plants whoſe flowers have five ſtamina and two ſtyles.

The Species are,

1. **Laserpitium** (*Commune*) foliolis oblongo-cordatis, inciſo-ſerratis. *Laſerwort with oblong heart-ſhaped lobes, which are cut like a ſaw.* Laſerpitium foliis latioribus lobatis. Mor. Umbel. 29. *Laſerwort with broader leaves, having lobes.*
2. **Laserpitium** (*Latifolium*) foliolis-cordatis inciſo-ſerratis. Hort. Cliff. 96. *Laſerwort with heart-ſhaped lobes cut like a ſaw.* Laſerpitium foliis amplioribus, ſemine criſpo. Inſt. R. H. 324. *Laſerwort with large leaves and curled ſeeds.*
3. **Laserpitium** (*Paludapifolium*) foliolis ovatis obtuſis acute ſerratis. *Laſerwort with oval obtuſe lobes ſharply ſawed.* Laſerpitium humilius, paludapii folio, flore albo. Inſt. R. H. *Lower Laſerwort, with a Smallage leaf and a white flower.*
4. **Laserpitium** (*Gallicum*) foliolis cuneiformibus furcatis. Lin. Sp. Plant. 248. *Laſerwort with wedge-ſhaped forked lobes.* Laſerpitium Gallicum. 156. C. B. P. *French Laſerwort.*
5. **Laserpitium** (*Anguſtifolium*) foliolis lanceolatis integerrimis ſeſſilibus. Hort. Cliff. 96. *Laſerwort with ſpear-ſhaped entire leaves ſitting cloſe to the branches.* Laſerpitium anguſtiſſimo & oblongo folio. Inſt. R. H. 324. *Laſerwort with a very narrow oblong leaf.*
6. **Laserpitium** (*Selinoides*) foliolis trifidis acutis. *Laſerwort with acute trifid lobes.* Laſerpitium ſelinoides, ſemine criſpo. Inſt. R. H. *Laſerwort reſembling ſweet Smallage, with a curled ſeed.*
7. **Laserpitium** (*Trilobum*) foliolis trilobis inciſis. Lin. Sp. 357. *Laſerwort with trifid leaves.* Libanotis latifolia aquilegiæ folio. C. B. P. 157.
8. **Laserpitium** (*Prutenicum*) foliolis lanceolatis integerrimis extimis coalitis. *Laſerwort with ſpear-ſhaped entire lobes, whoſe outer ones coaleſce.* Laſerpitium daucoides prutenicum viſcoſo ſemine. Breyn. Cent. 167.
9. **Laserpitium** (*Peucedanoides*) foliolis lineari-lanceolatis venoſo-ſtriatis diſtinctis Amœnit. Acad. 4. p. 310. *Laſerwort with linear ſpear-ſhaped leaves, which are diſtinct and veined.* Laſerpitium exoticum, lobis anguſtiſſimis integris. Pluk. Phyt. tab. 96. f. 2.
10. **Laserpitium** (*Siler*) foliolis ovato-lanceolatis integerrimis petiolatis. Hort. Cliff. 96. *Laſerwort with oval, ſpear-ſhaped, entire leaves, having foot-ſtalks.* Siler Montanum. Mor. Hiſt. 3. p. 276.
11. **Laserpitium** (*Chironium*) foliolis oblique cordatis, petiolis hirſutis. Lin. Sp. 358. *Laſerwort with oblique heart-ſhaped lobes, having hairy foot-ſtalks.* Panax Heracleum. Mor. Hiſt. 3. p. 315. *Herculus's All-heal.*
12. **Laserpitium** (*Ferulaceum*) foliolis linearibus. Lin. Sp. 358. *Laſerwort with linear leaves.* Cachrys Orientalis, ferulæ folio tenuiore, fructu alato plano. Tourn. Cor. 23.

There are ſome other varieties, if not diſtinct ſpecies of this plant; ſome of which have been put down as diſtinct ſpecies, which differ only in the colour of their flowers, therefore ſhould not be regarded as ſuch; but the number of ſpecies has been greatly leſſened by ſome late writers, who have erred as much in leſſening, as thoſe before them had done in multiplying of the ſpecies: which miſtake they may have fallen into by ſowing of the ſeeds near old plants of the ſame genus, or on ground where ſome of theſe ſorts have grown, ſo that their ſeeds have been ſcattered and buried in the ground, where they will remain two or three years, and afterward grow; ſo that unleſs their ſeeds are ſown at a diſtance from any of the other ſpecies, there will commonly ſome other ſpecies come up, whereby people have been often confuſed in diſtinguiſhing theſe plants; nay, I have frequently obſerved the ſeeds of one ſpecies fall, and the plants come up on the head of another plant which grew near it; and this young plant, if not timely rooted out, has gotten the better of the old plant, and deſtroyed it; therefore where there is not great care taken to prevent this, the different ſorts cannot be preſerved in gardens where the ſpecies grow near each other.

Theſe plants grow naturally in the ſouth of France, in Italy, and Germany, and are preſerved in botanic gardens for the ſake of variety; but as they have no great beauty, ſo are ſeldom cultivated in other gardens: they require much room, for their roots extend far every way, and the leaves of many ſorts will ſpread three feet, when the plants are ſtrong; their flower-ſtalks riſe four or five feet high, and their umbels of flowers are very large; they have all of them perennial roots but annual ſtalks. They flower in June, and the ſeeds ripen in September.

It is generally ſuppoſed, that the Silphium of the antients was procured from one ſpecies of this genus, but from which of them we are at preſent ignorant. All the ſpecies, if wounded, drop a very acrid juice, which turns to a reſinous gummy ſubſtance, very acrimonious. This was externally applied by the antients to take away black and blue ſpots that came by bruiſes and blows, as alſo to take away excreſcences; it was alſo by ſome of the antients preſcribed in internal medicines, but others have cautioned people not to make uſe of it this way, from the effects which they mention to have ſeen produced from the violence of its acrimony.

All theſe plants are extreme hardy, except the laſt, which requires a warmer ſituation, otherwiſe will be killed in ſharp winters; the other ſorts will thrive in moſt ſoils and ſituations; they are propagated by ſeed, which if ſown in autumn, the plants will come up the following ſpring; but when they are ſown in the ſpring, the ſeeds commonly remain in the ground a whole year. The plants ſhould be tranſplanted the following autumn where they are deſigned to remain, for they ſend out long deep roots, which are frequently broken by tranſplanting if they are large; when the plants are removed, they ſhould be planted three feet aſunder, for they grow very large; they decay to the ground every autumn, and come up again the following ſpring, but the roots will continue many years, and require no other culture but to clear them from weeds, and to dig between the roots every ſpring.

LATHYRUS. Tourn. Inſt. R. H. 394. tab. 216, 217. Lin. Gen. Plant. 781. Chichling Vetch; in French, *Geſſe*.

The CHARACTERS are,

The flower has a bell-ſhaped empalement of one leaf, cut into five parts at the top, the two upper being ſhort, and the under longer. The flower is of the butterfly kind. The ſtandard is heart-ſhaped, large, and reflexed at the point. The wings are oblong and blunt; the keel is half round, the ſize of the wings. It hath ten ſtamina, nine of them joined, and one ſeparate, crowned by roundiſh ſummits. It hath an oblong, narrow, compreſſed germen, ſupporting a riſing ſtyle, which is flat, and the upper part broad, with an acute point, crowned by a hairy ſtigma. The germen afterward becomes a long compreſſed pod, ending in a point, having two valves, and filled with roundiſh ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria which includes thoſe plants whoſe flowers have ten ſtamina formed in two bodies.

The SPECIES are,

1. LATHYRUS (*Sativus*) pedunculis unifloris, cirrhis diphyllis, leguminibus ovatis compreſſis dorſo bimarginatis. Hort. Cliff. 367. *Chichling Vetch with one flower upon a foot-ſtalk, tendrils having two leaves, and oval compreſſed pods with two borders on their back part.* Lathyrus annuus, flore cæruleo, Ochri ſiliquâ. H. L. *Annual Chichling Vetch with a blue flower, and a pod like Ochrus.*
2. LATHYRUS (*Cicera*) pedunculis unifloris, cirrhis diphyllis, leguminibus ovatis compreſſis, dorſo canaliculatis. Lin. Sp. Plant. 730. *Chichling Vetch with one flower upon a foot-ſtalk, two-leaved tendrils, and an oval compreſſed pod a little channelled on the back.* Lathyrus ſativus flore purpureo. C. B. P. 344. *Cultivated Chichling Vetch with a purple flower.*
3. LATHYRUS (*Setifolius*) pedunculis unifloris, cirrhis diphyllis, foliolis ſetaceo-linearibus. Lin. Sp. 1031. *Chichling Vetch with one flower upon a foot-ſtalk, a two-leaved tendril, and linear briſtly lobes.* Lathyrus foliis anguſtis, floribus ſingularibus coccineis. Seg. Pl. Veron. *Chichling Vetch, with narrow leaves and ſingle ſcarlet flowers.*
4. LATHYRUS (*Pariſienſus*) pedunculis unifloris, cirrhis polyphyllis, ſtipulis lanceolatis. Hort. Cliff. 368. *Chichling Vetch with one flower upon a foot-ſtalk, a many-leaved tendril, and ſpear-ſhaped ſtipulæ.* Clymenum Pariſienſe flore cæruleo. Tourn. Inſt. R. H. 396. *Chichling Vetch of Paris with a blue flower.*
5. LATHYRUS (*Hiſpanicus*) pedunculis bifloris, cirrhis polyphyllis, foliolis alternis. Hort. Cliff. *Chichling Vetch with two flowers upon a foot-ſtalk, a many-leaved tendril, and the lobes placed alternate.* Clymenum Hiſpanicum, flore vario ſiliquâ articulatâ. Tourn. Inſt. R. H. 296. *Spaniſh Chichling Vetch, with a variable flower and jointed pod.*
6. LATHYRUS (*Odoratus*) pedunculis bifloris, cirrhis diphyllis, foliis ovato-oblongis, leguminibus hirſutis. Hort. Cliff. 368. *Chichling Vetch with two flowers on a foot-ſtalk, a two-leaved tendril, oblong oval leaves, and hairy pods.* Lathyrus diſtoplatyphyllos hirſutus, mollis, magno & peramæno flore odore. Hort. Cath. *The ſweet-ſcented Pea.*
7. LATHYRUS (*Hirſuta*) pedunculis bifloris, cirrhis diphyllis, foliolis lineari-lanceolatis, leguminibus hirſutis, ſeminibus ſcabris. Flor. Leyd. Prod. 363. *Chichling Vetch with two flowers on a foot-ſtalk, a two-leaved tendril, narrow ſpear-ſhaped lobes, hairy pods, and rough ſeeds.* Lathyrus anguſtifolius ſiliquâ hirſutâ. C. B. P. *Narrow-leaved Chichling Vetch with a hairy pod.*
8. LYTHYRUS (*Tingitanus*) pedunculis bifloris, cirrhis diphyllis foliolis alternis lanceolatis. Flor. Leyd. Prod. 263. *Chichling Vetch with two flowers on a foot-ſtalk, a two-leaved tendril, and ſpear-ſhaped alternate leaves.* Lathyrus Tingitanus ſiliquis orobi flore amplo ruberrimo. Mor. Hiſt. 2. 55. *Chichling Vetch of Tangier, with a bitter Vetch pod, and a large red flower.*
9. LATHYRUS (*Annuus*) pedunculis bifloris, cirrhis diphyllis, foliolis enſiformibus, leguminibus glabris, ſtipulis bipartitis. Amœn. Acad. 3. p. 417. *Chichling Vetch with two flowers on a foot-ſtalk, a two-leaved tendril, ſword-ſhaped lobes, ſmooth pods, and a bifid ſtipula.* Lathyrus luteus latifolius. Bot. Monſp. *Yellow broad-leaved Chichling Vetch.*
10. LATHYRUS (*Tuberoſus*) pedunculis multifloris, cirrhis diphyllis, foliolis ovalibus, internodis nudis. Hort. Cliff. 367. *Chichling Vetch with many flowers on a foot-ſtalk, a two-leaved tendril, oval leaves, and naked between the joints.* Lathyrus arvenſis repens tuberoſus. C. B. P. 344. *Creeping Field Chichling Vetch with a tuberous root.*
11. LATHYRUS (*Pratenſis*) pedunculis multifloris, cirrhis diphyllis, foliolis lanceolatis cirrhis ſimpliciſſimis. Hort. Cliff. 367. *Chichling Vetch with many flowers on a foot-ſtalk, a two-leaved tendril, ſpear-ſhaped leaves, and ſingle tendrils.* Lathyrus luteus ſylveſtris dumetorum. J. B. 2. p. 304. *Yellow wild Chichling Vetch of the woods.*
12. LATHYRUS (*Heterophyllus*) pedunculis multifloris, cirrhis diphyllis tetraphylliſque, foliolis lanceolatis. It. W. Goth. 75. *Chichling Vetch with many flowers on a foot-ſtalk, a two-leaved, and ſometimes four-leaved tendril, and ſpear-ſhaped leaves.* Lathyrus major Narbonenſis anguſtifolius. J. B. 2. 304. *Greater Chichling Vetch of Narbonne with narrow leaves.*
13. LATHYRUS (*Latifolius*) pedunculis multifloris, cirrhis diphyllis, foliolis lanceolatis, internodiis membranaceis. Hort. Cliff. 367. *Chichling Vetch with many flowers on a foot-ſtalk, a two-leaved tendril, ſpear-ſhaped leaves, and a membranaceous ſtalk between the joints.* Lathyrus latifolius. C. B. P. 344. *Broad-leaved Chichling Vetch, commonly called Everlaſting Pea.*
14. LATHYRUS (*Magnoflore*) pedunculis multifloris, cirrhis diphyllis foliolis ovato-lanceolatis, internodiis membranaceis. *Chichling Vetch with many flowers on a foot-ſtalk, a two-leaved tendril, oval ſpear-ſhaped leaves, and a membranaceous ſtalk between the joints.* Lathyrus latifolius minor flore majore. Boerh. Ind. alt. 2. p. 42. *Smaller broad-leaved Chichling Vetch with a larger flower, or large, red, flowering, Everlaſting Pea.*
15. LATHYRUS (*Piſiformis*) pedunculis multifloris, cirrhis polyphyllis, ſtipulis ovatis, baſi acutis. Hort. Upſal. 217. *Chichling Vetch with many flowers on a foot-ſtalk, a many-leaved tendril, and oval ſtipulæ acute at the baſe.*
16. LATHYRUS (*Niſſolia*) pedunculis unifloris, foliis ſimplicibus ſtipulis ſubulatis. Lin. Sp. Plant. 729. *Chichling Vetch with one flower on a foot-ſtalk, ſingle leaves, and awl-ſhaped ſtipulæ.* Niſſolia vulgaris. Tourn. Inſt. 656. *Crimſon Graſs Vetch.*
17. LATHYRUS (*Amphicarpos*) pedunculis unifloris calyce longioribus, cirrhis diphyllis ſimpliciſſimis ſubtus venoſis. *Chichling Vetch with ſingle flowers upon a foot-ſtalk, which are longer than the empalement, and a two-leaved ſingle tendril.*
18. LATHYRUS (*Aphaca*) pedunculis unifloris, cirrhis aphyllis, ſtipulis ſagitto-cordatis. Lin. Sp. 1029. *Chichling Vetch with one flower on each foot-ſtalk, a tendril without leaves, and a heart arrow-ſhaped ſtipula.* Aphacha. Lob. Ic. 2. p. 70.
19. LATHYRUS (*Americana*) pedunculis bifloris, foliis reniformibus ſimpliciſſimis ſubtus venoſis. *Chichling Vetch with two flowers upon a foot-ſtalk, and kidney-ſhaped ſingle leaves, which are veined on their under ſide.* Niſſolia Americana procumbens, folio rotundo, flore luteo. Houſt. MSS. *Trailing American Niſſolia, with a round leaf and a yellow flower.*

The firſt ſort grows naturally in France, Spain, and Italy; this is an annual plant, with a climbing ſtalk about two feet high. The leaves come out at each joint alternate; they are compoſed of two long narrow lobes, with a tendril or claſper riſing between, which faſtens to any ſupport near. The flowers come ſingly upon foot-ſtalks at each joint; they are blue, and ſhaped like thoſe of the Pea; theſe are ſucceeded by oval compreſſed pods, with a double membrane or wing running longitudinally on the back. This flowers in June and July, and the ſeeds ripen in September. It is ſeldom cultivated, unleſs in botanic gardens for the ſake of variety.

The ſecond ſort is cultivated in ſome countries for the ſeeds, which are uſed for feeding of poultry; this grows wild in Italy and Spain. It does not riſe ſo high as the firſt ſort. The leaves are longer, the pods are near twice the length of thoſe, and are channelled on their back ſide; this is cultivated in the ſame manner as Vetches or Tares.

The third ſort was ſent me from Verona, where it grows naturally; this is an annual plant, which ſeldom riſes more than ſix or eight inches high. The two lobes of the leaves are ſmall, and end with claſpers. The flowers are of a bright ſcarlet, and are ſucceeded by taper pods, filled with roundiſh ſeeds. This is only kept for variety in ſome botanic gardens.

The fourth ſort grows naturally about Paris; this is an annual plant, with a ſlender ſtalk about one foot high, garniſhed with leaves, compoſed of ſeveral narrow lobes placed alternate along the midrib, which end in claſpers. The flowers come out ſingly upon pretty long foot-ſtalks; they are blue, and about the ſize of thoſe of the common Tare. It grows naturally in ſome parts of England, particularly on Windſor foreſt, in moiſt meadows, and has often a variable flower.

The fifth ſort grows naturally in Spain and Italy; it is an annual plant, with a climbing ſtalk which riſes near three feet high, garniſhed with leaves compoſed of ſeveral lobes, which are ſpear-ſhaped, placed alternately along the midrib, which is terminated by very long claſpers. The foot-ſtalks of the flowers are five or ſix inches long, upon which ſtand two flowers one above the other, ſhaped like thoſe of the Pea. The ſtandard, which is large, is of a bright red colour, but the keel and wings are white. The flowers are ſucceeded by pretty long jointed pods, filled with roundiſh ſeeds. This flowers in June and July, and the ſeeds ripen in autumn.

The ſixth ſort is commonly known by the title of Sweet Pea; this grows naturally in Ceylon, but is hardy enough to thrive in the open air in England. It is an annual plant with a climbing ſtalk, which riſes from three to four feet high, garniſhed with leaves compoſed of two large oval lobes, whoſe midrib is terminated by long claſpers. The foot-ſtalks come out at the joints; they are about ſix inches long, and ſuſtain two large flowers with dark purple ſtandards; the keel and wings are of a light blue colour. The flowers have a ſtrong ſweet odour, and are ſucceeded by oblong inflated pods, which are hairy, containing four or five roundiſh ſeeds in each.

There are two other varieties of this ſort, one of which has a Pink-coloured ſtandard with a white keel, and the wings of a pale bluſh colour; this is commonly called Painted Lady Pea. The flowers of the other are all white, which are the only differences between them.

The ſeventh ſort grows naturally in Eſſex. I have found it in places which were ſpread over with Brambles, near Hockerel; this hath a perennial root, ſending out three or four weak ſtalks, which are near two feet long, garniſhed with leaves compoſed of two oblong lobes, whoſe midrib is terminated by claſpers. The foot-ſtalks are about four inches long, and ſuſtain two purple flowers, which are ſucceeded by rough hairy pods, little more than an inch long, containing three or four roundiſh ſeeds. This ſort is very rarely preſerved in gardens.

The eighth ſort was originally brought from Tangier to England; this is an annual plant, whoſe ſtalk riſes four or five feet high, garniſhed with leaves compoſed of two oval veined lobes, whoſe midrib ends with claſpers. The foot-ſtalks are ſhort, and ſuſtain two large flowers with purple ſtandards, whoſe wings and keel are of a bright red; theſe are ſucceeded by long jointed pods, containing ſeveral roundiſh ſeeds. This is ſometimes titled by the gardeners Scarlet Lupine.

The ninth ſort is an annual plant, which grows naturally about Montpelier. I have alſo received the ſeeds from Siberia; this riſes with a climbing ſtalk five or ſix feet high, which has two membranes, or wings, running along from joint to joint. The leaves are compoſed of two long narrow lobes, whoſe midrib ends with claſpers. The flowers ſtand upon long foot-ſtalks, each ſuſtaining two pale yellow flowers, which are ſucceeded by long taper pods, containing ſeveral roundiſh ſeeds.

The tenth ſort grows naturally amongſt the Corn in the South of France, and in Italy, but is cultivated in the Dutch gardens for the roots, which are there ſold in the markets, and are commonly eaten: this hath an irregular tuberous root about as big as thoſe of the Pignut, covered with a brown ſkin; theſe ſhoot up ſeveral weak trailing ſtalks, garniſhed with leaves compoſed of two oval lobes, ending with claſpers. The foot-ſtalks of the flowers are weak, about three inches long, each ſuſtaining two deep red flowers, which are ſeldom ſucceeded by pods, but the roots increaſe plentifully in the ground. This ſort will grow in moſt ſoils, but will thrive beſt on light ground.

The eleventh ſort grows naturally on the banks and under thickets in moſt parts of England; this hath a perennial creeping root, whereby it propagates ſo faſt as to be a very troubleſome weed, ſo ſhould not be admitted into gardens.

The twelfth ſort grows naturally by the ſide of hedges, and in thickets, in ſeveral parts of England; this hath a perennial creeping root, which ſends out many climbing ſtalks which riſe five or ſix feet high, garniſhed with leaves, which have ſometimes two, and at others four long narrow lobes, terminated by claſpers. The foot-ſtalks ſuſtain ſeveral ſmall flowers with pale ſtandards, whoſe wings and keels are blue; theſe are ſucceeded by long taper pods, containing ſeveral roundiſh ſeeds. It flowers in June and July, and the ſeeds ripen in autumn.

The thirteenth ſort has been found growing naturally in ſeveral parts of England, but is frequently cultivated in gardens for ornament, therefore it is doubtful if it is a native here; this hath a perennial root, from which ariſe ſeveral thick climbing ſtalks from ſix to eight feet high, which have membranaceous wings on each ſide between the joints. The leaves are compoſed of two ſpear-ſhaped lobes, and the midrib is terminated by claſpers. The foot-ſtalks are eight or nine inches long, and ſuſtain ſeveral large red flowers, which are ſucceeded by long taper pods, containing ſeveral roundiſh ſeeds. It flowers in June, July, and Auguſt, and the ſeeds ripen in autumn, ſoon after which the ſtalks die to the root, and new ones ariſe in the ſpring, from whence it is called Everlaſting Pea.

The fourteenth ſort differs from the laſt in the ſtalks, being much ſhorter and ſtronger. The leaves are broader, and of a deeper green. The flowers are much larger, and of a brighter red colour, ſo make a better appearance; theſe differences are laſting from ſeeds, for I have raiſed many plants from ſeeds within forty years paſt, and have always found them them to be the ſame as the parent plant.

The fifteenth ſort grows naturally in Siberia; this hath a perennial root and an annual ſtalk, which is garniſhed with leaves, compoſed of ſix or eight pair of oblong acute lobes. The flowers are blue, and many of them ſtand upon each foot-ſtalk; theſe are ſucceeded by pods, ſhaped like thoſe of the Pea. It flowers in June, and the ſeeds ripen in Auguſt.

The ſixteenth ſort grows naturally in moiſt meadows in many parts of England; this riſes with an upright ſtalk one foot high, which is garniſhed with long, narrow, ſingle leaves at each joint. The foot-ſtalks of the flowers come out from the joints toward the upper part of the ſtalk; they are ſlender, about three inches long, ſome having but one, and others have two bright red flowers on their tops. It flowers in May and June, and the ſeeds ripen in autumn. This is rarely kept in gardens.

The ſeventeenth ſort grows naturally in Syria; this is an annual plant with a trailing ſtalk, garniſhed with leaves compoſed of two lobes, whoſe midrib is terminated by a ſingle tendril. The foot-ſtalk ſupports one flower of a pale purple colour, and when the flowers decay, the germen is thruſt into the ground, where the pods are formed, and the ſeeds ripen.

The eighteenth ſort was diſcovered by the late Dr. Houſtoun, growing naturally at La Vera Cruz in New Spain; this is annual plant, with a trailing ſtalk a foot long, garniſhed with a ſingle kidney-ſhaped leaf at each joint. The flowers grow two together upon very ſhort foot-ſtalks; they are ſmall, and of a deep yellow colour; theſe are ſucceeded by ſhort taper pods, including three or four ſmall roundiſh ſeeds.

This ſort is tender, ſo the ſeeds ſhould be ſown upon a hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each planted into a ſmall pot filled with light earth, and plunged into a tan-bed, where they ſhould conſtantly remain, treating them in the ſame manner as other tender plants from warm countries; if they are brought forward in the ſpring, they will flower in July, and their ſeeds will ripen in autumn.

Several of the other ſorts are preſerved in curious gardens for the variety of their flowers, ſome of which make a fine appearance, and continue long in flower. Theſe may all be propagated by ſowing their ſeeds, either in ſpring or autumn; but thoſe which are ſowed in autumn ſhould have a light ſoil and a warm ſituation, where the plants will abide the winter, and come to flower early the following ſpring, and their ſeeds will ripen in July; but thoſe which are ſown in the ſpring ſhould have an open expoſure, and be planted upon almoſt any ſoil, if not too wet, for they are not tender plants, nor do they require much culture: theſe ſorts ſhould all of them be ſown where they are deſigned to remain, for they ſeldom ſucceed when they are tranſplanted, unleſs it is done while the plants are young; ſo that where they are ſown for ornament, there ſhould be four or five ſeeds ſown in a ſmall patch, in different parts of the borders of the flower-garden; and when the plants come up, they ſhould be carefully kept clear from weeds; but when they are grown two or three inches high, there ſhould be ſome ſticks put down by them to ſupport them, otherwiſe they will trail on the ground, or on whatever plants ſtand near them, and become unſightly.

The ſixth ſort, with the two varieties of it, are deſerving room in every good garden for the beauty and odour of their flowers; and the eighth ſort is by ſome cultivated for the colour of the flowers; but there are few of the other ſorts worthy of room in gardens, except the thirteenth and fourteenth ſorts, which, if they are planted in a proper ſituation, and are rightly trained, will make a fine appearance.

LATIFOLIOUS trees and plants are ſuch as have broad leaves.

LAVATERA. Tourn. Act. Gal. 1706. tab. 3. Dill. Gen. 10. Lin. Gen. Plant. 752.

The CHARACTERS are,

The flower has a double empalement; the outer is of one leaf, ſhort, obtuſe, and trifid; the inner is of one leaf, and quinquefid; they are both permanent. The flower hath five petals, which are joined at their baſe, plain, and ſpread open above. It has many ſtamina, which are joined in a column below, but above are looſe; they are inſerted in the petal, and terminated by kidney-ſhaped ſummits. It has an orbicular germen, ſupporting a ſhort cylindrical ſtyle, crowned by many briſtly ſtigmas. The empalement afterward becomes a fruit with ſeveral capſules, covered in front by a hollow ſhield, each capſule having one kidney-ſhaped ſeed.

This genus of plants is by Dr. Linnæus ranged in the fifth order of his ſixteenth claſs, intitled Monodelphia Polyandria, which includes thoſe plants whoſe flowers have many ſtamina joined in a column.

The SPECIES are,

1. LAVATERA (*Althææfolia*) foliis infimis cordato-orbiculatis, caulinis trilobis acuminatis glabris, pedunculis unifloris, caule herbaceo. *Lavatera whoſe lower leaves are orbicularly heart-ſhaped, thoſe on the ſtalks ſet with three acute ſmooth lobes, and one flower upon a foot-ſtalk, and an herbaceous ſtalk.* Lavatera folio & facie althææ. Act. R. P. 1706. *Lavatera with the leaves and appearance of Marſhmallow.*
2. LAVATERA (*Africana*) foliis infimis cordato-angulatis, supernè ſagittatis, pedunculis unifloris, caule herbaceo hirſuto. *Lavatera with the lower leaves angularly heart-ſhaped, the upper ones arrow-pointed, a ſingle flower upon each foot-ſtalk, and a hairy herbaceous ſtalk.* Lavatera Africana, flore pulcherrimo. Boerh. Ind. alt. *African Lavatera with a beautiful flower.*
3. LAVATERA (*Trimeſtris*) foliis glabris, caule ſcabro herbaceo, pedunculis unifloris, fructibus orbiculo tectis. Hort. Upſal. 203. *Lavatera with ſmooth leaves, a rough herbaceous ſtalk, one flower upon a foot-ſtalk, and an orbicular cloſed fruit.* Malva folio vario. C. B. P. *Mallow with a variable leaf.*
4. LAVATERA (*Thuringiaca*) caule herbaceo, fructibus denudatis, calycibus inciſis. Hort. Upſal. 203. *Lavatera with an herbaceous ſtalk, naked fruit, and a cut empalement.* Althæa flore majore. C. B. P. 316. *Marſhmallow with a larger flower.*
5. LAVATERA (*Hirſuta*) foliis quinquelobatis hirſutis, caule erecto fruticoſo. Icon. tab. 161. *Lavatera with hairy leaves having five lobes, and a ſhrubby upright ſtalk.*
6. LAVATERA (*Veneta*) caule arboreo, foliis ſeptemangularibus tomentoſis plicatis, pedunculis confertis unifloris axillaribus. Hort. Upſal. 202. *Lavatera with a tree-like ſtalk, woolly plaited leaves having ſeven angles, and foot-ſtalks with ſingle flowers ariſing in cluſters from the wings of the leaves.* Malva arborea veneta dicta, parvo flore. C. B. P. 215. *Tree Mallow with a ſmall flower.*
7. LAVATERA (*Triloba*) caule fruticoſo, foliis ſubcordatis ſubtrilobis rotundatis crenatis ſtipulis cordatis, pedunculis unifloris. Lin. Sp. Plant. 691. *Lavatera with a ſhrubby ſtalk, heart-ſhaped leaves having three round indented lobes, which are crenated, heart-ſhaped ſtipulæ, and foot-ſtalks with ſingle flowers.* Althæa fruteſcens, folio rotundiore incano. C. B. P. 316. *Shrubby Marſhmallow with a rounder hoary leaf.*
8. LAVATERA (*Olbia*) caule fruticoſo, foliis quinquelobo-haſtatis. Hort. Upſal. 202. *Lavatera with a ſhrubby ſtalk, and leaves having five arrow-pointed lobes.* Althæa fruteſcens, folio acuto, parvo flore. C. B. P. 316. *Shrubby Marſhmallow with an acute leaf, and a ſmall flower.*
9. LAVATERA (*Hiſpanica*) caule fruticoſo, foliis orbiculatis crenatis tomentoſis, pedunculis confertis unifloris axillaribus. *Lavatera with a ſhrubby ſtalk, round, crenated, woolly leaves, and foot-ſtalks growing in cluſters at the wings of the ſtalk, each ſuſtaining a ſingle flower.* Althæa fruteſcens Hiſpanica folio rotundiori. Tourn. Inſt. R. H. 97. *Spaniſh ſhrubby Marſhmallow with a rounder leaf.*
10. LAVATERA (*Undulata*) caule fruticoſo tomentoſo, foliis orbiculato-cordatis undatis incanis, ſerrato-crenatis, pedunculis ſæpius trifloris. *Lavatera with a ſhrubby woolly ſtalk, round heart-ſhaped hoary leaves, which are waved, ſharply indented, and foot-ſtalks which have frequently three flowers.* Althæa fruteſcens Luſitanica, folio rotundiori undulato. Tourn. Inſt. 97. *Portugal ſhrubby Marſhmallow with a rounder waved leaf.*
11. LAVATERA (*Bryonifolia*) caule fruticoſo, foliis quinquelobatis acutis crenatis tomentoſis, racemis terminalibus. *Lavatera with a ſhrubby ſtalk, woolly leaves having five acute lobes, and long ſpikes of flowers terminating*

nating the ſtalks. Althæa fruteſcens, folio bryoniæ. C. B. P. 316. *Shrubby Althæa with a Briony leaf.*

The firſt ſort grows naturally in Syria; it is an annual plant, with an erect, branching, herbaceous ſtalk, riſing two feet high; the under leaves are orbicularly heart-ſhaped, ſmooth, and ſtand upon long foot-ſtalks, the upper are divided into three acute lobes; the flowers come out upon long foot-ſtalks from the wings of the leaves; they are very large, and ſpread open like thoſe of the Marſhmallow, and are of a pale red or Roſe colour. Theſe come out in July, the ſeeds ripen in September, and the plants decay in autumn.

There is a variety of this with white flowers, which has accidentally riſen from ſeeds.

The ſecond ſort grows naturally at the Cape of Good Hope, from whence the ſeeds were brought to Holland, and the plants there cultivated, and the ſeeds have ſince been communicated to moſt parts of Europe. This differs from the firſt in the ſhape of the leaves, the lower having angles, and the upper being arrow-pointed; the ſtalks are hairy, the flowers larger, and of a brighter red colour.

This ſort is annual, and flowers at the ſame time with the former, and the ſeeds are ripe in the autumn.

The third ſort grows naturally in Spain and Sicily; this is an annual plant, which riſes with ſlender herbaceous ſtalks about two feet high, covered with a brown bark; the lower leaves are roundiſh, and the upper are angular, and ſome arrow-pointed. The flowers are not half ſo large as thoſe of either of the former, and are of a pale red colour; theſe ſtand upon ſhort foot-ſtalks, and appear about the ſame time with the former. This is certainly a diſtinct ſpecies, for I have cultivated it more than forty years, and I have never found it vary.

The fourth ſort hath a perennial root and an annual ſtalk, which riſes five or ſix feet high, is woolly, garniſhed with angular heart-ſhaped leaves, ſtanding upon long foot-ſtalks. The flowers come out from the wings of the leaves toward the top, ſitting cloſe to the ſtalks at every joint; they are of a purpliſh colour, and ſhaped like thoſe of the Marſhmallow, but are larger. Theſe appear in July and Auguſt, and the ſeeds ripen in the autumn, then the ſtalks decay to the root. It grows naturally in Auſtria and Bohemia.

The fifth ſort grows naturally at the Cape of Good Hope, the ſeeds of it were ſent me by the ingenious Mr. Storm, gardener at Amſterdam. This riſes with a ſhrubby branching ſtalk to the height of eight or ten feet, garniſhed with large hairy leaves, deeply divided into five roundiſh lobes, which are indented on their edges, of a bright green, ſtanding alternately upon long foot-ſtalks; as the plants become more ſhrubby the leaves decreaſe in ſize, ſo that the upper leaves are not more than a ſixth part of the bigneſs of the firſt or lower leaves. The flowers come out ſingly at the wings of the leaves at every joint, ſo that as the branches extend there is a ſucceſſion of flowers, whereby the plants are ſeldom deſtitute of them the whole year. The flowers are of a bright purple colour, but are not very large; theſe are ſucceeded by capſules having many partitions, in each of theſe is one kidney-ſhaped ſeed, which ripen in ſucceſſion as the flowers are produced.

The ſixth ſort is commonly called Mallow-tree; this riſes with a very ſtrong thick ſtalk the height of eight or ten feet, dividing into many branches at the top, which are garniſhed with ſoft woolly leaves that are plaited, and the edges cut into ſeveral angles. The flowers are produced in cluſters at the wings of the leaves, each ſtanding upon a ſeparate foot-ſtalk; they are of a purple colour, and ſhaped like thoſe of the common Mallow, and are ſucceeded by ſeeds of the ſame form. This ſort flowers from June to September, and the ſeeds are ripe in the autumn.

The ſeventh ſort riſes with a ſhrubby ſtalk ſeven or eight feet high, ſending out ſeveral long branches, garniſhed with woolly leaves, differing greatly in ſize and ſhape, the lower being partly heart-ſhaped at their baſe, but divide into five roundiſh lobes; the upper, which are ſmall, have three lobes, which are indented on their edges. The flowers come out from the wings of the ſtalk, three or four at each joint, upon very ſhort foot-ſtalks; they are of a light purple colour, and ſhaped like thoſe of Marſhmallow. There is a ſucceſſion of theſe flowers from June to the autumn.

The eighth ſort is a ſhrub which grows to the ſame ſize as the ſeventh, and differs from it in the ſhape of the leaves, which are divided into three or five acute-pointed lobes; the flowers are ſmaller, but of the ſame ſhape and colour, it continues in flower at the ſame time. This grows naturally in the ſouth of France.

The ninth ſort riſes with a ſhrubby ſtalk ſix or eight feet high, ſending out many branches, garniſhed with roundiſh, crenated, woolly leaves, ſtanding upon long foot-ſtalks; the foot-ſtalks of the flowers come out in cluſters from the wings of the leaves, each ſuſtaining one large pale blue flower, of the ſame ſhape with thoſe of the other ſpecies. This flowers at the ſame time with them, and the ſeeds ripen in the autumn.

The tenth ſort hath a ſoft, ſhrubby, woolly ſtalk, which riſes to the height of four or five feet; theſe ſtand more erect than either of the former ſorts, and do not branch ſo much; the leaves are heart-ſhaped at their baſe, but round on their edges, very hoary and waved, ſtanding upon long foot-ſtalks. The flowers come out in cluſters from the wings of the leaves, ſtanding upon foot-ſtalks of different lengths; theſe generally ſupport but one flower, but ſometimes they have two or three; the flowers are large, and of a pale blue colour. They appear at the ſame time with the former, and their ſeeds ripen in the autumn. It grows naturally in Portugal.

The eleventh ſort riſes with a ſhrubby ſtalk ſix or ſeven feet high, ſending out ſeveral ſhrubby branches, which are garniſhed with woolly leaves, divided into five lobes, which end in acute points, and are crenated on their edges; the lower part of the branches are adorned with a ſingle flower at each joint, ſitting cloſe to the ſtalk, but the branches are terminated by looſe ſpikes of flowers, which are of a pale blue colour, and ſhaped like thoſe of the former.

The ſix laſt mentioned ſorts, though they have ſhrubby ſtalks, yet are but of ſhort duration here; the ſixth, tenth, and eleventh ſorts, ſeldom continue longer than two years, unleſs when they happen to grow upon dry rubbiſh, where they make but little progreſs, and their ſtalks and branches being firmer, ſo are better able to reſiſt the cold; for when they are in good ground, they are very vigorous and full of ſap, ſo are killed by the froſt in common winters. The other three ſorts are not quite ſo tender, nor of ſo ſhort duration; theſe will continue three or four years, and ſometimes longer, provided the winters are not very ſevere; or if the plants ſtand in a warm ſituation and on a dry ſoil, but in moiſt rich ground they ſeldom continue long.

All theſe ſhrubby ſorts are eaſily propagated by ſeeds, which ſhould be ſown in the ſpring upon a bed of light earth; and when the plants are about three or four inches high, they ſhould be tranſplanted to the places where they are deſigned to remain; for as they ſhoot out long fleſhy roots which have but few fibres, ſo they do not ſucceed well if they are tranſplanted after they are grown large. If the ſeeds of theſe plants are permitted to ſcatter on the ground, the plants will come up the following ſpring; and when they happen to fall into dry rubbiſh, and are permitted to grow therein, they will be ſhort, ſtrong, woody, and produce a greater number of flowers than thoſe plants which are more luxuriant. As theſe plants continue a long time in flower, ſo a few plants of each ſort may be allowed a place in all gardens where there is room.

The three firſt ſorts are annual plants, which are propagated by ſeeds: the ſeaſon for ſowing them is the end of March or the beginning of April, upon a bed of freſh light earth; and when the plants are come up, you muſt carefully clear them from weeds; and in very dry weather they muſt be now and then refreſhed with water. When they are about two inches high, you muſt tranſplant them into the places where they are deſigned to remain, which ſhould be in the middle of the borders in the flower-garden; for if the ſoil is good, they will grow two or three feet high; in tranſplanting them, you muſt take them up very carefully, preſerving a ball of earth to their roots, otherwiſe they are apt to miſcarry; and alſo water and ſhade them until they have taken root, after which they will require no other care but to clear them from weeds, and to faſten them to ſtakes, to prevent their being injured by ſtrong winds. You may alſo ſow their ſeeds in autumn, and when the plants are come up, tranſplant them into ſmall pots, which, towards the end of October, ſhould be placed in a common hot-bed frame, where the plants being defended from ſevere froſts, will abide the winter very well; and in the ſpring, you may ſhake them out of the pots, and plant them into larger, or elſe into the full ground, where they may remain to flower. The plants thus managed will be larger, and flower ſtronger and earlier than thoſe ſown in the ſpring, and from theſe you will conſtantly have good ſeeds, whereas thoſe ſown in the ſpring ſometimes miſcarry. The ſeeds of the third ſort ſhould be ſown in the ſpring in the place where they are to remain, for they do not well bear removing in the ſummer.

The two firſt ſorts are very ornamental plants in a fine garden, when placed among other annuals, either in pots or borders.

The fourth ſort hath a perennial root which abides ſeveral years, but the ſtalks decay in the autumn, and new ones ariſe in the ſpring. This is propagated by ſeeds, which ſhould be ſown upon a bed of light earth in the ſpring, and when the plants are fit to remove, they ſhould be either tranſplanted to the places where they are to remain, or into pots where they may ſtand to get more ſtrength, before they are planted in the full ground. After the plants are well rooted, they will require no other care but to keep them clear from weeds. And if the winter ſhould prove very ſevere, it will be proper to cover the ground about them with old tanners bark to keep out the froſt; but they will endure the cold of our ordinary winters very well, and will produce their flowers and ripen their ſeeds annually.

The fifth ſort will not live through the winter in the open air in England, ſo the ſeeds ſhould be ſown in the ſame manner as thoſe of the other ſorts; and when the plants are fit to remove, they ſhould be each planted into a ſmall pot filled with light earth, and placed in the ſhade till they have taken new root; then they may be removed to a ſheltered ſituation, and mixed with other hardy exotic plants. As the plants advance in their growth, ſo they will require larger pots, and muſt be treated in the ſame way as other exotic plants; in the autumn they muſt be removed into the green-houſe, and placed with Myrtles and the other kinds of plants, which only require protection from hard froſt, but muſt have as much free air as poſſible in mild weather.

LAVENDULA. Tourn. Inſt. R. H. 198. tab. 93. Lin. Gen. Plant. 630. Lavender; in French, *Lavende*. [It takes its name of Lavando, *Lat.* waſhing, becauſe it was uſed to be thrown into baths for the fragrancy of the ſcent; or becauſe uſed in lye, to give a fragrancy to linen; and becauſe it is very good to waſh the face with, and give it both beauty and a grateful ſcent.]

The Characters are,

The flower hath an oval permanent empalement of one leaf, which is obſcurely indented at the brim. The flower is of the lip kind, with one petal, having a cylindrical tube longer than the empalement, but ſpreading above; the upper lip is large, bifid, and open; the under lip is cut into three equal ſegments. It hath four ſhort ſtamina ſituated within the tube of the petal, two being ſhorter than the other, terminated by ſmall ſummits. It hath a germen divided in four parts, ſupporting a ſlender ſtyle the length of the tube, crowned by an obtuſe indented ſtigma. The germen afterward turns to four oval ſeeds, ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, which includes thoſe plants whoſe flowers have two ſhort and two longer ſtamina, and have four naked ſeeds ſitting in the empalement.

The Species are,

1. Lavendula (*Spica*) foliis lanceolatis integerrimis ſpicis nudis. Hort. Cliff. 303. *Lavender with entire ſpear-ſhaped leaves and naked ſpikes.* Lavendula latifolia. C. B. P. 216. *Broad-leaved Lavender.*
2. Lavendula (*Anguſtifolia*) foliis lanceolato-linearibus, ſpicis nudis. *Lavender with ſpear-ſhaped narrow leaves, and naked ſpikes.* Lavendula anguſtifolia. C. B. P. 216. *Narrow-leaved Lavender.*
3. Lavendula (*Multifida*) foliis duplicato-pinnatifidis. Vir. Cliff. 56. *Lavender with leaves doubly wing-pointed.* Lavendula folio diſſecto. C. B. P. 216. *Lavender with a cut leaf.*
4. Lavendula (*Canarienſis*) foliis duplicato-pinnatifidis hirſutis, ſpicis faſciculatis. *Lavender with doubly wing-pointed hairy leaves, and ſpikes of flowers growing in cluſters.* Lavendula folio longiore tenuius & elegantius diſſecto. Tourn. Inſt. R. H. 198. *Lavender with a longer, narrower, and more elegant cut leaf.*

The firſt ſort is cultivated in ſeveral of the Engliſh gardens, and has been generally known by the title of Spike, or Lavender Spike; the leaves of this ſort are much ſhorter and broader than thoſe of the common Lavender, and the branches are ſhorter, more compact, and fuller of leaves. This ſort doth not often produce flowers, but when it does, the flower-ſtalks are garniſhed with leaves very different from thoſe on the other branches, approaching nearer to thoſe of the common ſort, but are broader; the ſtalks grow taller, the ſpikes of the flowers are larger, the flowers are ſmaller, and are in looſer ſpikes. It generally flowers a little later in the ſeaſon. This has been frequently confounded with the common Lavender, and has been ſuppoſed the ſame ſpecies, but is undoubtedly a different plant.

This I believe to be the ſame with what Dr. Moriſſon calls Lavendula latifolia ſterilis, for the plants will continue ſeveral years without producing flowers; during which time they have a very different appearance from thoſe of the common Lavender, as thoſe branches of the ſame plant always have which do not flower; but I have planted ſlips taken from thoſe flowering branches with narrow leaves, and others from thoſe with the broad leaves, but have always found the plants ſo propagated return to their original ſort, the cuttings with the narrow leaves have become broad again.

The ſecond ſort is the common Lavender, which is ſo well known as to require no deſcription. Both theſe ſorts flower in July, at which time the ſpikes of the ſecond ſort are gathered for uſe; there is a variety of this with white flowers.

Theſe are propagated by cuttings or ſlips; the beſt ſeaſon for which is in March, when they ſhould be planted in a ſhady ſituation, or at leaſt they ſhould be ſhaded with mats until they have taken root, after which they may be expoſed to the ſun; and when they have obtained ſtrength, may be removed to the places where they are deſigned to remain. Theſe plants will abide much longer in a dry, gravelly, or ſtony ſoil, in which they will endure our ſevereſt winters; though they will grow much faſter in the ſummer, if they are planted upon a rich, light, moiſt ſoil, but then they are generally deſtroyed in winter; nor are the plants half ſo ſtrong ſcented, or fit for medicinal uſes, as thoſe which grow upon the moſt barren rocky ſoil.

Theſe plants were formerly in uſe to make edgings to borders in gardens, for which purpoſe they are by no means proper, for they will grow too large for ſuch deſigns; and if they are often cut in very dry weather, they are ſubject to decay; and in hard winters they are very often killed, ſo that the edging will not be complete: beſides, theſe plants greatly exhauſt the goodneſs of the ſoil, whereby the plants in the borders will be deprived of their nouriſhment; ſo that they ſhould never be planted in a fine garden amongſt other choice plants and flowers, but rather be placed in beds in the phyſic-garden, or in any part of the kitchen-garden, if the ſoil is dry.

The third ſort grows naturally in Andaluſia; this is an annual plant, which riſes with an upright branching ſtalk two feet high; the ſtalks are woolly, and garniſhed with hoary leaves growing oppoſite, which are cut into many diviſions to the midrib; theſe ſegments are again divided on their borders toward the top, into three obtuſe ſegments, ſo that they end in many points. The foot-ſtalk of the flower is continued from the end of the branches, which is naked, and about ſix inches long, having four corners or angles, and is terminated by a cloſe ſpike of flowers about one inch long; the ſpike has the rows of flowers twiſted ſpirally: under this ſpike there are commonly two ſmall ones proceeding from the ſide of the ſtalk, at about an inch diſtance from the middle ſpike. This ſort flowers in July, and the ſeeds ripen in autumn. There are two varieties of this, one with blue, and the other with white flowers.

This ſort is ſown every ſpring on borders or beds of light freſh earth, and when the plants come up, they may be tranſplanted into other borders of the flower-garden, or into pots, to remain for good; where they will require no farther care, but to keep them clean from weeds. Theſe are pretty plants to place in large borders, amongſt other plants, for variety, but they are never uſed with us; they may alſo be preſerved over the winter, if placed in a green-houſe in autumn; but they never continue longer than two years with us, and many times (if they have produced ſeeds the firſt year) they will not continue longer. Nor do thoſe plants which are thus preſerved, appear handſome the following ſummer, ſo that, unleſs in bad ſeaſons, when the ſeeds do not ripen in the open air, it is not worth while to preſerve the plants. If the ſeeds of this ſort are permitted to ſcatter, the plants will come up the following ſpring without care, and may be treated in the manner before directed.

The fourth ſort grows naturally in the Canary Iſlands, from whence the ſeeds were ſent to the Biſhop of London, which were ſown in his Lordſhip's garden at Fulham, where this plant was firſt raiſed. This riſes with an upright, branching, ſquare ſtalk four feet high, garniſhed with leaves which are longer, and cut into narrower ſegments than thoſe of the third ſort. They are of a lighter green and almoſt ſmooth; the naked flower-ſtalk is alſo much longer than thoſe of the former, and terminated with a cluſter of ſpikes of blue flowers; at two or three inches below theſe, are two ſmall ſpikes of flowers, ſtanding one on each ſide the ſtalk. The flowers are ſmaller than thoſe of the common Lavender, but are of the ſame ſhape.

This ſort is tenderer than either of the former, ſo the ſeeds of this muſt be ſown on a moderate hot-bed in the ſpring; and when the plants come up, they ſhould be each planted into a ſeparate ſmall pot filled with light earth, and plunged into another hot-bed, to bring the plants forward; and in the beginning of June, they ſhould be inured to the open air, when they ſhould be placed in a ſheltered ſituation toward the end of that month; in July the plants will flower, and if the autumn proves warm, the ſeeds will ripen in September; but when they do not perfect ſeeds, the plants may be preſerved through the winter in a good green-houſe, where they will produce flowers moſt part of that ſeaſon, whereby good ſeeds may be obtained.

LAUREOLA. See Thymelæa.

LAUROCERASUS. See Padus.

LAURUS. Tourn. Inſt. R. H. 597. tab. 367. Lin. Gen. Plant. 452. The Bay-tree; in French, *Laurier*.

The Characters are,

It hath male and hermaphrodite flowers on different plants, the male flowers have no empalement: they have one petal, which is cut into ſix ſegments at the top, and nine ſtamina which are ſhorter than the petal, ſtanding by threes, terminated by ſlender ſummits. The hermaphrodite flowers have no empalement; they have one petal, which is ſlightly cut into ſix ſegments at the top. In the bottom is ſituated an oval germen, ſupporting a ſingle ſtyle of the ſame length with the petal, crowned by an obtuſe ſtigma, attended by ſix or eight ſtamina: there are two globular glands, ſtanding upon very ſhort foot-ſtalks, fixed to the baſe of the petal. The germen afterward becomes an oval berry with one cell, incloſing one ſeed of the ſame form.

This genus of plants is ranged in the firſt ſection of Linnæus's ninth claſs, intitled Enneandria Monogynia, which includes thoſe plants whoſe flowers have nine ſtamina and one ſtyle; but it ſhould be ranged in his twenty-ſecond claſs, which includes thoſe plants whoſe male and female flowers are upon different plants.

The Species are,

1. Laurus (*Nobilis*) foliis lanceolatis venoſis perennantibus, floribus quadrifidis diœciis. Hort. Cliff. 105. *Bay-tree with evergreen, ſpear-ſhaped, veined leaves, and flowers cut into four points, which are male and female on different plants.* Laurus latifolia Diſcoridis. C. B. P. *The broad-leaved Bay of Dioſcorides.*
2. Laurus (*Undulatis*) foliis lanceolatis venoſis perennantibus, marginibus undatis. *Bay-tree with evergreen ſpear-ſhaped leaves, which are veined and waved on their edges.* Laurus vulgaris folio undulato. H. R. Par. *Common Bay-tree with waved leaves.*
3. Laurus (*Tenuifolia*) foliis lineari-lanceolatis venoſis perennantibus, floribus quinquefidis diœciis. *Bay-tree with narrow ſpear-ſhaped leaves which are evergreen and veined, flowers cut into five points, which are male and female on different plants.* Laurus tenuifolia. Tab. Icon. 925. *Narrow-leaved Bay.*
4. Laurus (*Indica*) foliis venoſis lanceolatis perennantibus planis, ramulis tuberculatis cicatricibus, floribus racemoſis. Hort. Cliff. 154. *Bay-tree with evergreen, veined, ſpear-ſhaped, plain leaves, branches having tubercles and cicatrices, and flowers growing in bunches.* Laurus Indica. Ald. Hort. Farneſ. 61. *The Indian Bay.*
5. Laurus (*Borbonia*) foliis venoſis lanceolatis calycibus fructus baccatis. Lin. Sp. 529. *Bay-tree with veined ſpear-ſhaped leaves, and the empalement becomes berries.* Laurus Carolinienſis, foliis acuminatis, baccis cæruleis, pediculis longis rubris inſidentibus. Cateſb. Carol. 1. p. 63. *Carolina Bay-tree with pointed leaves, and blue berries ſitting upon long red foot-ſtalks.*
6. Laurus (*Benzoin*) foliis ovato-lanceolatis obtuſis integris annuis. *Bay-tree with oval, obtuſe, ſpear-ſhaped, entire leaves, which are annual.* Arbor Virginiana, citreæ vel limonii folio, Benzoinum fundens. Hort. Amſt. 1. p. 168. *The Benjamin-tree.*
7. Laurus (*Saſſafras*) foliis integris trilobiſque. Hort. Cliff. 154. *Bay-tree with entire leaves, or having three lobes.* Cornus mas odorato, folio trifido, margine plano, ſaſſafras dicta. Pluk. Alm. 120. *The Saſſafras.*
8. Laurus (*Enervius*) foliis venoſis oblongis acuminatis annuis, ſubtus rugoſis. *Bay-tree with oblong, acute-pointed, veined, annual leaves, which are rough on their under ſide.* Laurus foliis lanceolatis enervibus annuis. Flor. Virg. 159. *Bay-tree with ſpear-ſhaped, winged, unveined, annual leaves.*
9. Laurus (*Camphora*) foliis trinerviis lanceolato-ovatis, nervis ſupra baſin unitis. Lin. Mat. Med. 192. *Bay-tree with oval ſpear-ſhaped leaves, having three veins which unite above the baſe.* Camphora officinarum. C. B. P. 500. *The Camphire-tree.*
10. Laurus (*Americana*) foliis ovatis planis integerrimis, pedunculis racemoſis, floribus in capitulum collectis. *Bay-tree with plain, oval, entire leaves, branching*

foot-ſtalks, and flowers collected into heads. Laurus Americana, foliis ſubrotundis, floribus in capitulum collectis. Houſt. MSS. *American Bay-tree with roundiſh leaves, and flowers collected into heads.*

11. Laurus (*Cinnamomum*) foliis trinerviis ovato-oblongis nervis verſus apicem evaneſcentibus. Flor. Zeyl. 145. *Laurel with oblong leaves which diminiſh toward their end.* Cinnamomum foliis latis ovatis frugiferum. Burm. Zeyl. 62. *Cinnamon-tree.*

12. Laurus (*Canella*) foliis triplinerviis lanceolatis. Flor. Zeyl. 146. *Laurel with ſpear-ſhaped leaves, having three veins.* Cinnamomum, ſc. Canella Malabarica, ſc. Javanenſis. C. B. P. 409. *Caſſia or Wild Cinnamon.*

13. Laurus (*Perſea*) foliis venoſis ovatis coriaceis perennantibus, floribus corymboſis. Lin. Sp. 529. *Bay-tree with oval, thick, veined leaves, which continue through the year, and flowers growing in a corymbus.* Perſea. Cluſ. Hiſt. 1. p. 2.

The firſt ſort is the broad-leaved Bay, which grows naturally in Aſia, Spain and Italy; from all thoſe places I have received the berries ſeveral times. This is almoſt too tender to thrive in the open air in England, for in ſevere winters they are frequently killed, or their branches are ſo much injured as to appear ſo for a long time; therefore they are generally planted in tubs, and removed into the green-houſe in winter. The leaves of this ſort are much broader than thoſe of the common Bay, and are ſmoother: there are male and female plants of this, as there are alſo of all the other ſorts.

The ſecond is the common Bay; of this there are plants with plain leaves, and others which are waved on their edges, but they ſeem to be the ſame ſpecies; for the young plants which I have raiſed from the berries of one, have been a mixture of both ſorts; but this is undoubtedly a different ſpecies from the firſt, for this ſort thrives well in the open air, and is ſeldom hurt, except in very ſevere winters; whereas the firſt will ſcarce live abroad, while young, in common winters, without ſhelter.

The third ſort hath very long narrow leaves which are not ſo thick as thoſe of the two former, and are of a light green; the branches are covered with a purpliſh bark, and the male flowers come out in ſmall cluſters from the wings of the leaves ſitting cloſe to the branches. This ſort is too tender to thrive in the open air in England, ſo the plants are generally kept in pots or tubs, and houſed in winter as the firſt ſort.

The fourth ſort grows naturally at Madeira and the Canary Iſlands, from whence it was formerly brought to Portugal, where it has been propagated in ſo great plenty, as to appear now as if it was a native of that country. In the year 1620, this plant was raiſed in the Farneſian garden, from berries which were brought from India, and was ſuppoſed to be a baſtard ſort of Cinnamon. This grows to the height of thirty or forty feet in temperate countries, but it is too tender to thrive in the open air in England, ſo the plants are kept in pots and tubs, and removed into the green-houſe in winter.

The leaves of this ſort are much larger than thoſe of the common Laurel; they are thick, ſmooth, and of a light green, the foot-ſtalks inclining to red; the branches are regularly diſpoſed on every ſide, and the male flowers are diſpoſed in long bunches; they are of a whitiſh green colour; the berries are much larger than thoſe of the other ſorts. It is called by ſome the Royal Bay, and by others the Portugal Bay.

The fifth ſort grows naturally in Carolina in great abundance, where it is called the Red Bay; it alſo is found in ſome other parts of America, but not in ſo great plenty. In ſome ſituations near the ſea, this riſes with a ſtrait trunk to a conſiderable height, and their ſtems are large, but in the inland parts of the country they are of an humbler ſtature. The wood of this tree is much eſteemed, being of a fine grain, ſo is of excellent uſe for cabinets, &c.

The leaves of this ſort are much longer than thoſe of the common Bay, and are a little woolly on their under ſide, their edges are a little reflexed; the veins run tranſverſly from the midrib to the ſides, and the male flowers come out in long bunches from the wings of the leaves. The female trees produce their flowers in looſe bunches, ſtanding upon pretty long foot-ſtalks, which are red; theſe are ſucceeded by blue berries ſitting in red cups.

This ſort is alſo too tender to thrive in the open air in England; for although ſome plants have lived abroad in a mild winter, which were planted in a warm ſituation, yet the firſt ſharp winter has deſtroyed them, ſo that theſe plants muſt be kept in pots or tubs, and houſed in winter like the former.

Theſe five ſorts may be propagated by layers, and the common ſort is generally propagated by ſuckers; but thoſe plants never keep to one ſtem, but generally ſend out a great number of ſuckers from their roots, and form a thicket, but do not advance in height; therefore the beſt way to have good plants, is to raiſe them from the berries, when they can be procured, for the plants which come from ſeeds, always grow larger than the others, and do not put out ſuckers from their roots, ſo may be trained up with regular ſtems. The beſt way is to ſow the berries in pots, and plunge them into a moderate hot-bed, which will bring up the plants much ſooner than if they are ſown in the full ground, ſo they will have a longer time to get ſtrength before winter; but the plants muſt not be forced with heat, therefore they ſhould be inured to bear the open air the beginning of June, into which they ſhould be removed, where they may remain till autumn; then the pots ſhould be placed under a common frame, that the plants may be protected from hard froſt, but in mild weather they may enjoy the free air; for while the plants are ſo young, they are in danger of ſuffering in hard froſt, even the common ſort of Bay. The ſpring following, thoſe ſorts which will not live in the open air, ſhould be each tranſplanted into ſeparate pots; but the common ſort may be planted in nurſery-beds ſix inches aſunder each way, where they may grow two years, by which time they will be fit to plant where they are deſigned to grow. The other ſorts muſt be conſtantly kept in pots, ſo ſhould every year be new potted, and as they advance in growth, they muſt have larger pots. As theſe plants require ſhelter in winter, a few of each ſort will be enough for a large green-houſe.

The common Bay will make a variety in all evergreen plantations; and as it will grow under the ſhade of other trees, where they are not too cloſe, ſo it is very proper to plant in the borders of woods, where it will have a good effect in winter.

The ſixth ſort grows naturally in North America, where it riſes to the height of ten or twelve feet, dividing into many branches, garniſhed with oval ſpear-ſhaped leaves near three inches long, and one inch and a half broad, ſmooth on their upper ſurface, but with many tranſverſe veins on their under ſide; theſe leaves fall off in the autumn like other deciduous trees. The flowers I have but once ſeen, thoſe were all male, and of a white herbaceous colour; but if I remember right, they had but ſix ſtamina in each.

The Saſſafras-tree is alſo very common in moſt parts of North America, where it ſpreads greatly by its roots, ſo as to fill the ground with ſuckers wherever they are permitted to grow; but in England this ſhrub is with difficulty propagated. In America it is only a ſhrub, ſeldom riſing more than eight or ten feet high; the branches are garniſhed with leaves of different ſhapes and ſizes, ſome them are oval and entire, about four inches long and three broad; others are deeply divided into three lobes; theſe are ſix inches long, and as much in breadth from the extremity of the two outſide lobes; they are placed alternately upon pretty long foot-ſtalks, and are of a lucid green; theſe fall off in the autumn, and in the ſpring, ſoon after the leaves begin to come out, the flowers appear juſt below them, upon ſlender foot-ſtalks, each ſuſtaining three or four ſmall yellow flowers, which have five oval concave petals, and eight ſtamina in the male flowers, which are upon different plants from the hermaphrodite flowers, which have an oval germen, that afterward becomes an oval berry, which, when ripe, is blue, but thoſe plants do not produce fruit in England.

The eighth ſort grows naturally in North America, in ſwampy lands; this riſes with a ſhrubby branching ſtalk eight or ten feet high, covered with a purple bark. The leaves are placed oppoſite, and are near two inches long and one broad, ſmooth on their upper ſide, but are veined on their under, where they are rough. This hath not as yet produced flowers here, but the berries which were ſent me from Maryland were red, and nearly the ſize and ſhape of the common Bay-berry.

The Camphire-tree grows naturally in Japan, and in ſeveral parts of India, and alſo at the Cape of Good Hope, where it riſes to a tree of middling ſtature, dividing into many ſmall branches, garniſhed with oval ſpear-ſhaped leaves, ſmooth on their upper ſide, having three longitudinal veins which unite above the baſe; if theſe are bruiſed, they emit a ſtrong odour of Camphire, as alſo the branches when broken. Theſe are male and hermaphrodite on different trees; I have only ſeen thoſe of the male, which has flowered plentifully in England; theſe were ſmall, and compoſed of five concave yellow petals, very like thoſe of the Saſſafras-tree, and were produced three or four upon each foot-ſtalk, in like manner.

The tenth ſort was diſcovered by the late Dr. Houſtoun at La Vera Cruz; this riſes with a woody ſtalk to the height of twenty feet, dividing into many branches, which are covered with a gray rough bark; at the extremity of the branches are produced the foot-ſtalks, which are unequal in length, but divide into ſeveral ſmaller, each ſuſtaining a cluſter of ſmall white flowers, which are collected into a head or ſmall umbel, having one general involucrum; theſe are male and hermaphrodite on different trees. The hermaphrodite flowers are ſucceeded by oval berries, not quite ſo large as thoſe of the common Bay. The leaves of this tree are about two inches long and one broad, rounded at the top and entire, ſtanding upon very ſhort foot-ſtalks.

The Saſſafras-tree is commonly propagated by the berries, which are brought from America; but theſe berries generally lie in the ground a whole year, and ſometimes two or three years before they grow, when they are ſown in the ſpring; therefore the ſureſt method of obtaining the plants will be, to get the berries put into a tub of earth ſoon after they are ripe, and ſent over in the earth; and as ſoon as they arrive, to ſow the berries on a bed of light ground, putting them two inches in the earth; and if the ſpring ſhould prove dry, the bed muſt be frequently watered, and ſhaded from the great heat of the ſun in the middle of the day; with this management many of the plants will come up the firſt ſeaſon, but as a great many of the berries will lie in the ground till the next ſpring, ſo the bed ſhould not be diſturbed, but wait until the ſeaſon after, to ſee what will come up. The firſt winter after the plants come up, they ſhould be protected from the froſt, eſpecially in the autumn; for the firſt early froſt at that ſeaſon is apt to pinch the ſhoots of theſe plants, which, when young, are tender and full of ſap, ſo will do them more injury than the ſevere froſt of the winter; for when the extreme part of the ſhoots are killed, it greatly affects the whole plant.

When the plants have grown a year in the ſeed-bed, they may be tranſplanted into a nurſery, where they may ſtand one or two years to get ſtrength, and may then be tranſplanted into the places where they are to remain for good.

There have been ſome of theſe plants propagated by layers, but theſe are commonly two, and ſometimes three years before they put out roots; and if they are not duly watered in dry weather, they rarely take root; ſo that it is uncertain, whether one in three of theſe layers do ſucceed, which makes theſe plants very ſcarce in England at preſent.

The wood of this ſhrub is frequently uſed to make tea, which is eſteemed a great antiſcorbutic; and in Carolina they frequently give a decoction of the wood and leaves in intermitting fevers; but the flowers of the ſhrub are gathered, and dried by the moſt curious, and are uſed for tea.

The Benjamin-tree, as it is falſly called, may be propagated in the ſame manner as the Saſſafras, by ſowing of the berries: theſe generally lie long in the ground, ſo that unleſs they are brought over in earth, in the ſame way as before directed, they often fail, or at leaſt remain long in the ground; but this is now frequently propagated by layers in England, which put out roots pretty freely, when the young ſhoots are choſen to make layers.

The eighth ſort is alſo a native of the ſame country with the laſt, and may be propagated by ſeeds in the ſame manner as thoſe, and require the ſame treatment. This may alſo be propagated by layers, which put out roots pretty freely; and as the ſhrubs do not produce ſeeds in England, ſo this is the beſt method to propagate them.

Theſe three ſorts will live in the open air in England, but the Saſſafras is often injured by very ſevere froſts, eſpecially if they are in an expoſed ſituation; therefore theſe plants ſhould have a warm ſituation and a looſe ſoil; and in moiſt ground this, and alſo the eighth ſort, will thrive much better than in a dry ſoil; for when they are planted on a hot gravelly ſoil, they frequently die in ſummer when the ſeaſon proves dry. They are all of them now much cultivated in England, to add to the variety of ſhrubs, but they are not very ornamental plants; though indeed the Saſſafras makes a good appearance in ſummer, when it is fully clothed with its large leaves, which being of different ſhapes, makes an agreeable variety, when intermixed with ſhrubs of the ſame growth.

The Camphire-tree is very near a-kin to the Cinnamon-tree, from which it differs in the leaves, thoſe of the Cinnamon-tree having three ribs running longitudinally from the foot-ſtalk to the point, where they ſoon diminiſh; whereas the ribs of the leaves of this tree are ſmall, and extend toward the ſides, and have a ſmooth ſhining ſurface: they are both male and hermaphrodite in different trees.

In Europe this tree is propagated by layers, which are generally two years, and ſometimes longer, before they take root, ſo that the plants are very ſcarce; and as all thoſe which I have ſeen flower are male trees, ſo there can be no hopes of procuring ſeeds from them here: but if the berries of this, and alſo of the Cinnamon-tree, were procured from the places of their growth, and planted in tubs of earth, as hath been directed for the Saſſafras-tree, there may be a number of theſe plants procured in England: and if they were ſent to the Britiſh colonies in America, they might be there cultivated, ſo as to become a public advantage; eſpecially the Cinnamon-tree, which will grow as well in ſome of our iſlands in the Weſt-Indies, as it does in the native places of its growth, and in a few years the trees might be had in plenty; for they propagate eaſily by the berries, as the French experienced in their American iſlands. The Portugueze brought ſome of the Cinnamon-trees from the Eaſt-Indies, and planted them on the iſland of Princes, on the coaſt of Africa, where they now abound, having ſpread over a great part of the iſland; there is alſo one tree now growing at the Madeiras, which I have been informed is a male, ſo never produces berries.

The Camphire-tree does not require any artificial heat in winter, ſo that if they are placed in a warm dry green-houſe they will thrive very well. During the winter ſeaſon they muſt be ſparingly watered, and in the ſummer they ſhould be placed abroad in a warm ſituation, where they may be defended from ſtrong winds, and not too much expoſed to the direct rays of the ſun; but during this ſeaſon, they muſt be frequently refreſhed with water.

They may be propagated by laying down the young branches in autumn, which ſhould be treated in the ſame manner as is before directed for the Benjamin.

The tenth ſort requires a ſtove to preſerve it through the winter in England; this is propagated by ſeeds, which muſt be procured from the country where it grows naturally.

This plant requires the ſame treatment as the Coffee-tree, ſo ſhould be planted in a ſtove, with that and other tender plants of thoſe warm countries, and always remain there.

The eleventh and twelfth ſorts have been generally confounded by moſt, if not all the writers who have treated of them; though their bark, which is the material part of theſe trees in uſe, is pretty eaſily diſtinguiſhed by the dealers in theſe commodities.

Dr. Linnæus is certainly miſtaken in referring the latter to the figure of Dr. Burman, which he has given in his Hiſtory of Ceylon plants, by the title of Cinnamomum perpetuo florens, &c. which is a true repreſentation of the male Cinnamon-tree, and is not the Caſſia Lignea; but as there are plants of all theſe ſorts now in the Britiſh Iſlands of America, ſo we may hope ſoon to have their ſpecies better aſcertained.

The plants of both theſe kinds are not ſo tender as moſt people do imagine, and the treating of thoſe plants which have been brought to England ſo tenderly has deſtroyed them; for ſo far as I have made trial of their culture it has appeared, that great heat is very prejudicial to them; therefore I would adviſe thoſe perſons who may have any of the plants come under their care, to treat them in a different manner, otherwiſe there will be little hopes of keeping them; for when the plants have taken new root in the pots, they ſhould in ſummer be placed in a glaſs-caſe, where they may have plenty of air in warm weather, and in winter placed in a ſtove kept moderately warm.

LAURUS ALEXANDRINA. See Ruscus.

LAURUS TINUS. See Tinus.

LAWN is a great plain in a park, or a ſpacious plain adjoining to a noble ſeat.

As to the dimenſions of it, it ſhould be as large as the ground will permit; but never leſs, if poſſible, than thirty or forty acres; but this is to be underſtood of Lawns in large parks, for in gardens a Lawn of ſix or eight acres is a reaſonable ſize for gardens of a moderate extent, ten or twelve acres for thoſe of the largeſt ſize.

As to the ſituation of a Lawn, it will be beſt to be in the front of the houſe, and to lie open to the neighbouring country, and not pent up too much with trees.

If the houſe front the eaſt, or ſouth-eaſt, it will be moſt convenient, becauſe the rooms will be ſhaded in the afternoon, and ſo the objects to be viewed from the houſe will be much better ſeen, by the ſun's ſhining upon them at that time of the day; for if the beſt room of the houſe front the Lawn, as it always ſhould do, the afternoon being the moſt uſual time for people of faſhion to ſolace themſelves in ſuch rooms, the ſun will not be offenſive to thoſe rooms, nor will the proſpect be interrupted, but rendered more pleaſant; whereas, were it on the weſt ſide of the houſe, the ſun, by ſhining from the object, and directly againſt thoſe rooms, would, by both, hinder the proſpect, for the generality of proſpects are moſt pleaſant when the ſun ſhines upon the objects.

Beſides, there is another inconvenience, if the Lawn be on the weſt ſide of the houſe, it will give the more way to the weſt wind (which is commonly the greateſt) to injure the houſe, by its having a free paſſage to it.

If the Lawn be on the ſouth ſide of the houſe, it may do well enough, for the reaſons before-mentioned, for the ſun's rays being then darted obliquely, will not ſo much interrupt the proſpect, and the ſun ſhining moſt part of the day on that ſide of the houſe, will ſtill add to the beauty of that front, which ought to be the beſt front in the houſe, therefore a Lawn on that ſide will much help the proſpect of the houſe.

But the moſt deſirable aſpect for a Lawn is that of the ſouth-eaſt, which is generally the moſt favourable point in England; for as the ſun riſes upon the front of the houſe facing this point, ſo it will add a chearfulneſs to the rooms in the morning, and by noon the rays will be oblique to this front, and in the afternoon will have entirely left theſe apartments.

It will not be at all convenient to have the Lawn on the north ſide of the houſe, becauſe it will lay the houſe too open to the cold north winds, &c. therefore it will be more eligible to plant wilderneſſes and woods on the weſt and north ſides of the houſe, by way of ſcreen to it, provided theſe do not ſhut out agreeable objects.

As to the figure of the Lawn, ſome contend for an exact ſquare, others an oblong ſquare, ſome an oval, and others a circular figure; but neither of theſe are to be regarded, for it will be much better if contrived ſo as to ſuit the figure of the ground; and as there ſhould be trees planted for ſhade on the boundaries of the Lawn, ſo the ſides may be broken by irregular plantations of trees; for if there are not ſome good proſpects beyond the Lawn, it will be proper to have it bounded on every ſide by plantations, which may be brought round pretty near to each end of the houſe, ſo that perſons may ſoon get into ſhade, which is a very deſirable thing in hot weather; for where that is wanting, few perſons care to ſtir abroad when the ſun ſhines warm.

If in the plantations round the Lawn, the trees are placed irregularly, ſome breaking much forwarder on the Lawn than others, and not crowded too cloſe together, they will make a much better appearance than any regular plantations can poſſibly do; and if there are varieties of trees properly diſpoſed, they will have a good effect; but it ſhould be obſerved, that no other but thoſe which make a fine appearance, and that grow large, ſtrait, and handſome, ſhould be admitted here, as they are placed in the conſtant view from the houſe.

Many perſons have preferred the Lime-tree for this purpoſe, on account of their regular growth; but as the leaves of this tree often change their colour, and begin to fall very ſoon in autumn, occaſioning a great litter in the garden; and from the end of July the trees make but an indifferent appearance, ſo they are not to be eſteemed for theſe plantations.

The Elm, Oak, Beech, and Cheſtnut, among the deciduous trees, are to be preferred to all others, as they keep their leaves late in autumn; and theſe are all of them large growing trees, ſo are very proper for this purpoſe.

If there are ſome clumps of Evergreen trees intermixed with the deciduous trees in this plantation, if they are properly diſpoſed, it will add to the beauty, eſpecially in the winter ſeaſon; the beſt ſorts for this purpoſe are Lord Weymouth's Pine, the Silver and Spruce Firs, which will grow faſt, and become large trees; and as the two latter ſorts always grow pyramidically, ſo they will have a good effect to the ſight, if they are rightly placed, but they ſhould not be intermixed in the ſame clumps with the deciduous trees; but as theſe generally feather out their branches near the ground, they ſhould be planted where they do not obſtruct the view of any diſtant objects.

But as moſt perſons who take pleaſure in beautifying their ſeats in the country, are in haſte for ſhade, they generally plant the trees too cloſe together, and often in ſuch a manner as to render it difficult when the trees are advanced to reduce their number, without injury to the deſign; therefore thoſe trees ſhould be firſt planted, which are deſigned to remain, and then there may be ſome few others planted for preſent ſhade, which may afterward be taken away. When perſons who are beautifying their ſeats meet with full grown trees on the ſpot, it is a great pleaſure, for theſe ſhould not be deſtroyed, if they can poſſibly ſtand without prejudice.

LAWSONIA. Lin. Gen. Plant. 433. Henna. Ludw. 143.

The CHARACTERS are,

The flower has a ſmall permanent empalement, divided into four parts at the top. The flower is compoſed of four oval ſpear-ſhaped petals, which ſpread open, and eight ſlender ſtamina the length of the petals, which ſtand by pairs between them, terminated by roundiſh ſummits. It hath a roundiſh germen, ſupporting a ſlender permanent ſtyle, crowned by a headed ſtigma. The germen afterward becomes a globular capſule ending in a point, having four cells, filled with angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's eighth claſs, intitled Octandria Monogynia, which includes thoſe plants whoſe flowers have eight ſtamina and one ſtyle.

The SPECIES are,

1. LAWSONIA (*Inermis*) ramis inermibus. Flor. Zeyl. 134. *Lawſonia whoſe branches have no ſpines.* Liguſtrum Ægyptiacum latifolium. C. B. P. 476. *Broad-leaved Egyptian Privet, called Alhenna, or Henna, by the Arabians.*
2. LAWSONIA (*Spinoſa*) ramis ſpinoſis. Flor. Zeyl. 134. *Lawſonia with prickly branches.* Rhamnus Malabaricus MAIL-ANSKI. Pluk. Alm. 38. tab. 220. *Malabar Buckthorn, called Mail-anſki.*

The firſt ſort grows naturally in India, Egypt, and other warm countries, where it riſes with a ſhrubby ſtalk eight or ten feet high. The branches come out by pairs oppoſite; theſe are ſlender, and covered with a whitiſh yellow bark, and garniſhed with oblong ſmall leaves of a pale green, ending in acute points, placed oppoſite. The flowers are produced in looſe bunches at the end of the branches; they are of a gray or dirty white colour, and are compoſed of four ſmall petals which turn backward at the top. The flowers are ſucceeded by roundiſh capſules with four cells, filled with angular ſeeds.

The leaves of this ſhrub are much uſed by the Egyptian women to colour their nails yellow, which they eſteem an ornament.

The ſecond ſort grows naturally in both Indies, for I have received ſpecimens of it from the Spaniſh Weſt-Indies, where it was found growing naturally in great plenty.

This riſes with a woody trunk eighteen feet high or more. The wood is hard and cloſe, covered with a light gray bark. The branches come out alternate, and are garniſhed with oblong oval leaves, which ſtand without order; and at the joints where the leaves are placed, come out ſingle, ſtrong, ſharp thorns. The flowers are produced in looſe bunches from the ſide of the branches; they are of a pale yellow colour, and of a diſagreeable ſcent; they have four petals, which ſpread open; between each of theſe are ſituated two pretty ſtrong ſtamina, terminated by roundiſh ſummits. After the flowers are paſt, the germen becomes a roundiſh capſule with four cells, including many angular ſeeds.

Theſe plants are both propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring, that the plants when they come up may have time to get ſtrength before winter. When the plants are fit to remove, they ſhould be each planted in a ſmall pot filled with light ſandy earth, and plunged into a hot-bed of tanners bark, where they muſt be ſcreened from the ſun till they have taken new root; then their treatment ſhould be the ſame as that of the Coffee-tree, with this difference only, not to let theſe plants have ſo much water; but eſpecially in the winter, during which ſeaſon it ſhould be given to them very ſparingly, for by over-watering theſe plants I have known many of them deſtroyed; theſe plants are too tender to thrive in the open air in England, ſo they muſt conſtantly remain in the ſtove, but in hot weather they ſhould have plenty of free air admitted to them.

LAYERS. Many trees and ſhrubs may be propagated by Layers, which do not produce ſeeds here, ſo are not eaſily increaſed by any other method.

This is to be performed by ſlitting the branches a little way upward, and laying them under the mould about half a foot; the ground ſhould firſt be well digged and made very light, and after they are laid they ſhould have a little water given them.

If they do not comply well in the laying of them down, they muſt be pegged down with a forked ſtick cut in form of a hook to keep them down; if the Layers have taken ſufficient root by the next winter, they muſt be cut off from the main plants, and planted in the nurſery, as is directed about ſeedlings.

Some twiſt the branch or bare the rind, and if it be out of the reach of the ground, they faſten a tub or baſket near the branch, which they fill with good mould, and lay the branch in it.

Laying of Trees.

This operation is thus performed:

1ſt, Take ſome of the moſt flexible boughs and lay them into the ground about half a foot deep in fine freſh mould, faſtening them down with forked ſticks, leaving them with the end of the Layer about a foot or a foot and a half out of the ground, and keep them moiſt during the ſummer ſeaſon, and they will probably have taken root and be fit to remove in autumn, and if they have not by that time taken root they muſt lie longer.

2dly, Tie a piece of wire hard round the bark of the bough, at the place you intend to lay in the ground, and twiſt the ends of the wire, ſo that they may not untie, and prick the place above the wire through the bark, with an awl in ſeveral places, and then lay it in the ground as before directed; this will often ſucceed when the other fails.

3dly, Cut a ſlit upwards at a joint, as is practiſed in laying of Carnations, which by gardeners is called tonguing the Layers.

4thly, Twiſt the part of the branch deſigned to lay in the ground like a withy, if it is pliable, and lay it into the ground as directed in the firſt way of laying.

5thly, Cut a circle almoſt round about the bough (that is deſigned to be laid) half an inch, at the place that is moſt convenient to lay into the ground, and manage it as is directed in the firſt method of laying.

The ſeaſon for laying hardy trees that ſhed their leaves is in October, but for ſuch as are tender in the beginning of March; for Evergreens, June or July are good ſeaſons.

Though Layers may be laid at any time in the year, yet the before-mentioned ſeaſons are moſt proper, for the reaſons following, becauſe they have the whole winter and ſummer to prepare and draw root; for at theſe times of the year the ſun has ſufficient power on the ſap of the tree to feed the leaf and bud, but has not power ſufficient to make a ſhoot.

And if that ſmall quantity of ſap that does ariſe be hindered, as it will by ſome of the preceding ways of laying, the leaves and buds will gently crave of the Layer, and by that means will prepare the Layer to take root, or put forth roots a little to maintain itſelf, finding it cannot have it from the mother plant.

And therefore, becauſe it wants but little nouriſhment at that time of the year, it is better to lay Layers of trees, or to ſet cuttings than at other times, either in the autumn, when the ſap ſtirs but little, or in the ſpring when it begins to riſe, becauſe it is then apt to come too ſuddenly to draw ſap from the Layer, before the Layer has drawn or prepared for root; but for ſome ſorts the middle of ſummer is beſt.

However, the ſpring or ſummer may do well for ſmall plants, becauſe ſuch plants being but ſhort-lived draw root the quicker.

If you would lay young trees from a high ſtandard, the boughs of which cannot be bent down to the ground, then you muſt make uſe of Oſier baſkets, boxes, or pots, filled with fine mould, mixed with a little rotten Willow duſt, which will keep moiſture to aſſiſt the Layer in taking root; this baſket, box, &c. muſt be ſet upon a poſt or treſſel, &c. and the bough muſt be laid according to either of the four firſt ways of laying, but too much head muſt not be left on, leſt that be injured by the wind, or by its own motion rub off the tender root; and the ſmaller the boughs are, the leſs way they ſhould be left out of the ground, and care muſt be taken to keep them clear from weeds.

The harder the wood of the tree is, the young ſhoots will take root beſt; but if the wood be ſoft, the older boughs will take root the beſt.

There are many kinds of trees and plants which will not put out roots from their woody branches, though laid down with the utmoſt care; yet if the young ſhoots of the ſame year are laid in July, they will often put out roots very freely, ſo that when any plants are found difficult to propagate by Layers in the common way, they ſhould be tried at this ſeaſon; but as theſe ſhoots will be ſoft and herbaceous, they muſt not have too much wet, for that will cauſe them to rot; therefore it will be a better method to cover the ſurface of the ground over the Layers with Moſs, which will prevent the ground from drying too faſt, ſo that a little water now and then will be ſufficient.

LEAVES. A Leaf is defined to be a part of a plant extended into length and breadth, in ſuch a manner as to have one ſide diſtinguiſhable from the other; they are properly the moſt extreme part of a branch, and the ornament of the twigs, and conſiſt of a very glutinous matter, being furniſhed every where with veins and nerves; one of their offices is, to ſubtilize and give more ſpirit to the abundance of nouriſhing ſap, and to convey it to the little buds.

We ſhall firſt conſider the diſtinctions which are made by botaniſts in their definitions of the ſhape and form of Leaves in their titles and deſcriptions of plants, and afterward conſider their uſes in vegetation.

The Leaf of a plant or tree is diſtinguiſhed from that of flowers, the firſt is called Folium in Latin, and the other Petalum; therefore what is to be underſtood here of Leaves, are thoſe which are ranged on the branches and ſtalks of plants, and have no connection with the flower.

Theſe Leaves are either ſimple or compound.

Simple Leaves are thoſe of which the foot-ſtalk or petiole ſupports but one, compound are thoſe of which the foot-ſtalk ſuſtains many Leaves or ſmall foliola.

Simple Leaves differ in reſpect to circumſcription, angles, ſinus, apices, margin, ſuperficies and ſubſtance; circumſcription conſiders the form of the circumference of Leaves where there are no angles or ſinuations; in which reſpect Leaves are,

Orbiculate, or round Leaves (*Orbiculatum*) are ſuch whoſe breadth are equal to their length, and every part of their edges equally diſtant from the center, as in fig. 1.

A roundiſh Leaf (*Subrotundum*) when the Leaf is nearly orbiculate, as in fig. 2.

An oval or egg-ſhaped Leaf (*Ovatum*) when the length of the Leaf exceeds the breadth, and the baſe or lower part of it forms a ſegment of a circle; but the upper extremity is not in proportion, but ſmaller, as in fig. 3.

An obverſe oval Leaf is one whoſe foot-ſtalk is fixed to its ſmaller end.

An oval or elliptic Leaf (*Ovale ſive ellipticum*) is one whoſe length exceeds its breadth, and both ends are narrower than the ſegments of circles, as fig. 4.

A parabolical Leaf (*Parabolicum*) is one whoſe length exceeds its breadth, and is narrowed from the baſe upward, ſo becomes half egg-ſhaped, fig. 5.

A ſpatulated Leaf (*Spatulatum*) is of a roundiſh figure, but narrow at the baſe, and linearly lengthened, fig. 6.

A wedge-ſhaped Leaf (*Cuneiforme*) is one whoſe length exceeds the breadth, and is narrowed to the baſe, fig. 7.

An oblong Leaf (*Oblongum*) is one whoſe length greatly exceeds its breadth, and each extremity is narrower than a ſegment of a circle, fig. 8.

A ſpear-ſhaped or ſpear-pointed Leaf (*Lanceolatum*) is oblong, and grows narrower toward both ends, and terminates in a point, fig. 9.

A linear Leaf (*Lineare*) is one whoſe two ſides run almoſt parallel to each other; they are uſually narrow, and ſomewhat broader in the middle than at the two ends, fig. 10.

A chaffy Leaf (*Aceroſum*) is when the linear Leaf ſtays on the tree, and is evergreen, as in the Fir, Yew, &c. fig 11.

An awl-ſhaped Leaf (*Subulatum*) is one which is linear below, but gradually contracting towards the top, fig. 12.

A triangular Leaf (*Triangulare*) is when the diſk is ſurrounded by three prominent angles, fig. 13.

A quadrangular and quinquangular Leaf, only differ from the former in the number of their ſides or angles, fig. 14.

A deltoide Leaf is one with four angles, of which thoſe of the extremities are farther diſtant from the center than thoſe of the ſides, fig. 15.

A round Leaf (*Rotundum*) is one without any angles.

A ſinus (*or Hollow*) is uſed to expreſs thoſe openings or cavities in Leaves which diſtinguiſh them into parts.

A kidney-ſhaped Leaf (*Reniforme*) is of a roundiſh figure, and hollowed a little at the baſe, but without any angles, fig. 16.

A heart-ſhaped Leaf (*Cordatum*) when they are ovate and hollowed a little at the baſe, but without any angles, fig. 17.

A moon-ſhaped Leaf (*Lunulatum*) is a roundiſh Leaf hollowed at the baſe, with two curvilinear angles in form of ſickles, fig. 18.

An arrow-ſhaped Leaf (*Sagittatum*) is one which is triangular, and hollowed at the baſe for the inſertion of the foot-ſtalk, fig. 19.

A heart arrow-ſhaped Leaf (*Cordatum-ſagittatum*) is like the former, but the ſides of it are convex, fig. 20.

A ſpear-pointed Leaf (*Haſtatum*) is of a triangular form, the ſides and baſe of which are hollowed, and the angles ſpreading ſo as to reſemble a Leaf compoſed of three parts, fig. 21.

A fiddle-ſhaped Leaf (*Panduræ forme*) is oblong, larger at both ends than in the middle, the two ſides being compreſſed like the body of a violin, fig. 22.

A cleft or divided Leaf (*Fiſſum*) is divided by linear ſinuations and ſtrait margins; from the number of the diviſions they are termed a two, three, or many pointed leaf, fig. 23.

A lobated Leaf (*Lobatum*) is one which is divided almoſt to the midrib, into parts which ſtand diſtant from each other, and have convex margins according to the number of theſe parts; it is called bilobed, trilobed, or quadrilobed, &c. fig. 24.

A handed Leaf (*Palmatum*) is one which is divided into ſeveral longitudinal ſegments down to the baſe, where they are united, and reſemble an open hand, fig. 25.

A wing-pointed Leaf (*Pinnatifidum*) is one which is tranſverſly divided into oblong horizontal diviſions, fig. 26.

A lyre-ſhaped Leaf (*Lyratum*) is one which is divided into tranſverſe ſegments, the upper ones being larger than the lower, which are farther aſunder, fig. 27.

A laciniated or jagged Leaf (*Laciniatum*) is one whoſe ſides are variouſly divided into jags, which are again divided without any order, fig. 28.

A ſinuated Leaf (*Sinuatum*) is one which has many ſinuations on its ſides, but is not indented or notched on its edges, fig. 29.

An indented ſinuated Leaf (*Dentato-ſinuatum*) is one like the former, but the ſide lobes are of a linear figure.

A divided Leaf (*Partitum*) is one which is divided into many parts to the baſe, ſo as to appear like many Leaves till cloſely examined. Theſe are called bipartite, tripartite, &c. according to the number of parts, fig. 30.

An entire Leaf (*Integrum*) is one that is undivided, and has ſmooth edges.

Apex tip, is the extremity in which the Leaf terminates; Leaves in reſpect to theſe are termed,

A truncated Leaf (*Truncatum*) is one whoſe ſummit ſeems as though it were cut off by a ſtrait line, in a tranſverſe direction.

A bitten Leaf (*Præmorſum*) is one which is terminated by very blunt unequal cuts, fig. 31.

A blunt Leaf (*Retuſum*) is one whoſe extremity is terminated by an obtuſe ſinus, fig. 32.

A nicked Leaf (*Emarginatum*) is one whoſe extremity is a little notched, fig. 33.

An obtuſe Leaf (*Obtuſum*) is one whoſe point is terminated bluntly, or by a ſegment of a circle, fig. 34.

A ſharp Leaf (*Acutum*) is one whoſe point is terminated in an acute angle, fig. 35.

An acuminated Leaf (*Acuminatum*) is one which is terminated by an awl-ſhaped point, fig. 36.

A pointed obtuſe Leaf (*Obtuſum acumine*) is one whoſe upper part is rounded, but draws to an acute point, fig. 37.

A claſper Leaf (*Cirrhoſum*) is one which terminates with a tendril, fig. 38. as in Glorioſa, Flagellaria, &c.

The margin of a Leaf is the outermoſt boundary of its ſides, excluſive of its diſk or middle, ſo in reſpect to their margin are,

A ſpinous Leaf (*Spinoſum*) is one whoſe edge or border ends with hard ſtiff prickles, fig. 39.

An indented Leaf (*Dentatum*) is one whoſe edge has horizontal points of the ſame conſiſtence with the Leaf, but are ſeparated from each other, fig. 40.

A ſawed Leaf (*Serratum*) is one whoſe edges are ſharply notched like the teeth of a ſaw, which make acute angles bending toward the top, fig. 41.

A backward ſawed Leaf (*Retrorſo-ſerratum*) is one whoſe ſerratures or teeth, are bent toward the baſe of the Leaf.

A double ſawed Leaf (*Duplicato-ſerratum*) is one whoſe edges are ſawed with larger teeth, and the edges of theſe are again ſawed in the ſame manner.

A notched Leaf (*Crenatum*) is one whoſe edges are indented with angles, which neither turn toward the point nor baſe. When theſe indentings terminate obtuſely, it is called obtuſe crenated; when acutely, acute crenated; when the indentures are again indented, it is called double crenated (*Duplicato-crenatum,*) fig. 42.

A bowed or ſerpentine Leaf (*Repandum*) is one whoſe margin has ſeveral obtuſe ſinuſes which are inſcribed with the ſegments of circles, fig. 43.

A cartilaginous or griſly Leaf (*Cartilagineum*) is one whoſe edge is furniſhed with a firm cartilage of a different ſubſtance with the Leaf, fig. 44.

A ciliated Leaf (*Ciliatum*) is one whoſe edge is ſet with parallel hairs, ſo as to reſemble the hairs of the eye-lid, fig. 45.

A torn Leaf (*Laceratum*) is one whoſe edges are cut into ſegments of irregular ſhapes.

A gnawed Leaf (*Eroſum*) is one which is ſinuated, and the ſinuſes have their edges again indented with ſmall obtuſe ſinuations, fig. 46.

A very entire Leaf (*Integerrimum*) is one whoſe margin is entirely free of all notches or indentures.

The ſurface (*Superficies*) is the outſide, or what covers the diſk of the Leaf, and reſpects both the upper and under ſurface, ſo are termed,

A viſcous Leaf (*Viſcidum*) has its ſuperfices covered with a clammy moiſture which is not fluid, but ſticky.

A downy Leaf (*Tomentoſum*) is one whoſe ſurface is covered with a nap of interwoven hairs ſo ſhort and fine, that the eye does not diſtinguiſh them ſingly, though the Leaf is evidently downy both to the ſight and touch, fig. 47.

A woolly Leaf (*Lanatum*) is one whoſe ſurface is covered with a kind of woolly ſubſtance, like a ſpider's web, as in Salvia, Sideritis, &c.

A hairy Leaf (*Piloſum*) has its ſurface furniſhed with long diſtinct hairs, fig. 48.

A rough or ſtinging Leaf (*Hiſpidum*) is one whoſe ſurface is covered with rigid hairs, which either ſting or prick on being touched, fig. 49.

A rough Leaf (*Scabrum*) is one whoſe ſurface has on it ſeveral little irregular prominences.

A prickly Leaf (*Aculeatum*) is one whoſe ſurface is covered with ſtrong ſharp points or thorns, which adhere lightly to the ſurface.

A ſtreaked or channelled Leaf (*Striatum*) is when its ſurface has a number of parallel longitudinal furrows.

A pimpled Leaf (*Papilloſum*) is one whoſe ſurface has many little roundiſh protuberances like nipples or bladders, fig. 50.

A punctuated Leaf (*Punctatum*) is one whoſe ſurface has many hollow points diſperſed over it.

A bright or ſplendent Leaf (*Nitidum*) is one whoſe ſurface is ſmooth and ſhining, as if poliſhed by art.

A plaited Leaf (*Plicatum*) is one which has ſeveral angular riſings and hollows towards its borders, as if folded up, as in Alchimilla, fig. 51.

A waved Leaf (*Undulatum*) is one whoſe ſurface toward the edges riſes and falls convexly like the waves of the ſea.

A curled Leaf (*Criſpum*) is when the circumference of the Leaf grows larger than the diſk will admit, ſo that the whole ſurface is raiſed in waves, fig. 52.

A rough leaf (*Rugoſum*) is one whoſe veins are contracted and ſunk below the diſk, and the intermediate fleſhy parts riſe in irregular forms, ſo as to appear rough, fig. 53.

A hollow or concave Leaf (*Concavum*) is one whoſe margin contracts, ſo is leſs than the middle, and is ſunk down or hollowed.

A veined Leaf (*Venoſum*) is one whoſe veins are branched, and appear to the naked eye.

A convex Leaf (*Convexum*) is one whoſe middle riſes into a protuberant form.

A nervous Leaf (*Nervoſum*) is when the veins are extended lengthways from the baſe toward the ſummit without branching, fig. 54.

A coloured Leaf (*Coloratum*) is one which has other colours than green.

A ſmooth Leaf (*Glabrum*) is one whoſe ſurface is ſmooth, without any inequalities.

The ſubſtance of a Leaf reſpects the conditions of its ſides, in this reſpect Leaves are,

A taper Leaf (*Teres*) is one of a thick ſubſtance, and for the moſt part of a cylindrical form.

A half taper Leaf (*Semicylindraceum*) is one which is of a cylindrical form, flatted on one ſide.

A hollow Leaf (*Tubuloſum*) is one which is hollow like a pipe, as thoſe of the Onion.

A fleſhy Leaf (*Carnoſum*) is one that is ſucculent or full of pulp.

A compreſſed Leaf (*Compreſſum*) is one whoſe marginal ſides are preſſed, ſo that the ſubſtance of the Leaf is larger than the diſk.

A plane Leaf (*Planum*) is one whoſe ſurfaces are every where parallel.

A gibbous Leaf (*Gibbum*) is one which is convex on both ſides, the middle being fuller of pulp.

A depreſſed Leaf (*Depreſſum*) is one whoſe diſk is more depreſſed than the ſides.

A guttered Leaf (*Canaliculatum*) is one which has a longitudinal deep furrow running through the middle of the Leaf, and is almoſt cylindrical, fig. 55.

A double-faced Leaf (*Ancipites*) is one whoſe diſk is convex, and has two prominent longitudinal angles.

A ſword-ſhaped Leaf (*Enſiforme*) is one with thin edges, with a prominent rib running from the baſe to the point in the middle.

A faulchion or ſcymiter-ſhaped Leaf (*Acinaciforme*) is one which is fleſhy and compreſſed, with one of its edges convex and narrow, the other thick and ſtrait, fig. 56.

An ax-ſhaped Leaf (*Dolabriforme*) is one which is roundiſh, obtuſe, and compreſſed, gibbous on the outſide, the inſide ſharp-edged and taper below, fig. 57.

A tongue-ſhaped Leaf (*Linguiforme*) is linear, fleſhy, and obtuſe, convex on the under ſide, and has often cartilaginous edges, fig. 58.

A two-edged Leaf (*Anceps*) is one which has two prominent angles, running lengthways on a convex diſk.

A three-cornered Leaf (*Triquetrum*) has three longitudinal plain ſides like an awl-ſhaped Leaf.

A three-edged Leaf (*Trigonal*) is much like the former, but in this the ribs are ſharp and membranaceous, the ſurface of the Leaf being channelled. When a Leaf has four or five angles, it is called tetragonal and pentagonal, &c.

A furrowed Leaf (*Sulcatum*) is one that has ſeveral ridges running lengthways, which have obtuſe ſinuſus, fig. 59.

A keel-ſhaped Leaf (*Carinatum*) is one that has the under part of the diſk prominent the whole length, and the upper concave like the keel of a boat.

A membranaceous Leaf (*Membranaceum*) is one wholly compoſed of membranes, without any apparent pulp between.

A compound Leaf (*Compoſitum*) in general means one, which is formed of ſeveral ſmall Leaves ſtanding upon one foot-ſtalk, but theſe Leaves are diviſible again to the ſtructure and poſition of the ſmall Leaves.

1ſt, Into ſuch as are properly and diſtinctly called compound Leaves; 2dly, the decompound; 3dly, the ſupradecompound, of each of theſe in its place.

In deſcribing theſe kinds of Leaves, the whole Leaf which is the reſult of the combination, is conſidered as one Leaf, called (*Folium*) and the ſmall leaves which together compoſe it (*Folioli*) or lobes.

A ſimple compound Leaf, is one whoſe ſimple foot-ſtalk bears more than one Leaf.

A jointed one (*Articulatum*) is when one Leaf grows out of the point of another, fig. 60.

A fingered Leaf (*Digitatum*) is one which is compoſed of ſeveral ſmall Leaves joining to one foot-ſtalk at their baſe, ſpreading open like the fingers of a hand, fig. 61.

A two-lobed Leaf (*Binatum*) is one with two ſmall Leaves on one foot-ſtalk, fig. 62.

A three-lobed Leaf (*Ternatum*) is one with three ſmall leaves, which is frequently called a trifoliate Leaf, fig. 63.

A cinquefoil Leaf (*Quinatum*) has five ſmall Leaves on the ſame foot-ſtalk.

A winged Leaf (*Pinnatum*) is one which has many ſmall Leaves, ranged on each ſide a ſingle foot-ſtalk like wings; of theſe there are ſeveral kinds.

An unequal winged Leaf (*Pinnatum cum impare*) is a winged Leaf, terminated by an odd lobe or (*Folioli*) fig. 64.

A claſper-winged Leaf (*Pinnatum cum cirrho*) is a winged Leaf ending with a tendril or claſper, fig. 65.

An abrupt-winged Leaf (*Abruptum*) is a winged Leaf not terminated by an odd lobe or claſper, fig. 66.

An oppoſite-winged Leaf (*Oppoſite pinnatum*) is when the ſmall Leaves or lobes are placed oppoſite on the midrib.

An alternate-winged Leaf (*Alternatim pinnatum*) is when the ſmall Leaves ſtand alternate.

An interrupted-winged Leaf (*Interruptè pinnatum*) is when there are ſmaller lobes intermixed with larger upon the ſame midrib, fig. 67.

A jointed-winged Leaf (*Articulatè pinnatum*) is when the common foot-ſtalk is jointed, fig. 68.

A running-winged Leaf (*Decurſivè pinnatum*) is one whoſe ſmall Leaves run along the foot-ſtalk from one to another, fig. 69.

A conjugated Leaf (*Conjugatum*) is one which has but two ſmall Leaves on the ſame foot-ſtalk.

We next proceed to the decompounded Leaves.

A decompounded Leaf (*Decompoſitum*) is one whoſe foot-ſtalk is once divided, and joins together many ſmall Leaves.

A double conjugated Leaf (*Bigeminatum*) is one whoſe foot-ſtalk divides in forks, and connects four ſmall Leaves on the top, or it is compoſed of two conjugations.

A double trifoliate Leaf (*Biternatum*) is one whoſe foot-ſtalk is divided, and each diviſion ſuſtains three ſmall Leaves, fig. 70.

A double-winged Leaf (*Bipinnatum*) is one whoſe foot-ſtalk is divided, and theſe diviſions have ſmall Leaves ranged on their ſide like wings, fig. 71.

A foot-ſhaped or branched Leaf (*Pedatum*) is one whoſe foot-ſtalk is divided, and has ſome ſmall Leaves placed on the inner ſide, as in Paſſiflora and Arum, fig. 72.

A greater compounded Leaf (*Supra decompoſitum*) is one whoſe foot-ſtalk is many times divided, and each diviſion is garniſhed with ſmall Leaves.

A triternate Leaf (*Triternatum*) is one whoſe foot-ſtalk connects three double trifoliate Leaves.

A triple-winged Leaf (*Tripinnatum*) is one compoſed of ſeveral double-winged Leaves; if theſe are terminated by two ſmall Leaves, they are ſaid to be abrupt, fig. 73. but when they are terminated by an odd one, they are called an irregular, triple, winged Leaf, fig. 74.

We next come to conſider the diſtinctions of Leaves from their place, poſition, inſertion, or their direction, when joined to the other parts of plants.

A ſeed Leaf (*Seminale*) is the firſt Leaf of the plant, and is what former writers called cotyledones; theſe are different in form and ſubſtance from the other Leaves, fig. 75.

A bottom Leaf (*Radicale*) is one whoſe foot-ſtalk riſes immediately from the root.

An upper or ſtalk Leaf (*Caulinum*) is one which grows from the ſtalk of the plant, fig. 76.

An axillary Leaf (*Axillare*) is one which grows from the inſertions of the branches, fig. 77.

A flower Leaf (*Florale*) is one that is inſerted near the flower, and never appears but with it, fig. 78.

A ſtarry Leaf (*Stellate*) fig. 79. or whorled Leaf (*Verticillata*) is when ſeveral Leaves are diſpoſed in whorls round the ſtalk, fig. 80.

Oppoſite Leaves (*Oppoſita*) are when thoſe upon the ſtalks ſtand by pairs on each ſide, fig. 81.

Alternate Leaves (*Alterna*) are when they ſtand alternate above each other, fig. 82.

Sparſed Leaves (*Sparſa*) are ſuch as ſtand without order over the whole plant.

Cluſter Leaves (*Conferta*) are ſuch as come out from the ſide of the branches in cluſters, and are ſo cloſe to one another, that it is not eaſy to diſcover their exact ſituation, fig. 83.

Imbricated Leaves (*Imbricata*) are ſuch as are placed over each other like tiles on a houſe, or the ſcales of fiſhes, fig. 84.

Faſciculated Leaves (*Faſciculata*) are ſuch as grow in cluſters from the ſame point, fig. 85.

Diſticha is when the Leaves are ranged along only upon two ſides of the branches, as in the Fir-tree.

A target or ſhield-ſhaped Leaf (*Peltatum*) is one whoſe foot-ſtalk is fixed to the diſk, and not to the baſe or edge of the Leaf, fig. 86.

Petiolatum is when the foot-ſtalk is inſerted to the baſe of the margin, fig. 87.

Seſſile is when the Leaf ſits cloſe to the ſtalk or branch, and has no foot-ſtalk, fig. 88.

A running Leaf (*Decurrens*) is when the Leaf adheres to the ſtalk or branch, and is extended along the ſtalk from the baſe, ſo as to form a leafy border on each ſide the ſtalk, fig. 89.

Amplexicaule is when the baſe of the Leaf environs or embraces the ſides of the ſtalk entirely, fig. 90.

Semiamplexicaule, is when the baſe of the Leaf reach but half round the ſtalk.

A perfoliate Leaf (*Perfoliatum*) is one which is perforated by the ſtalk or branch, which do not touch the margin, fig. 91.

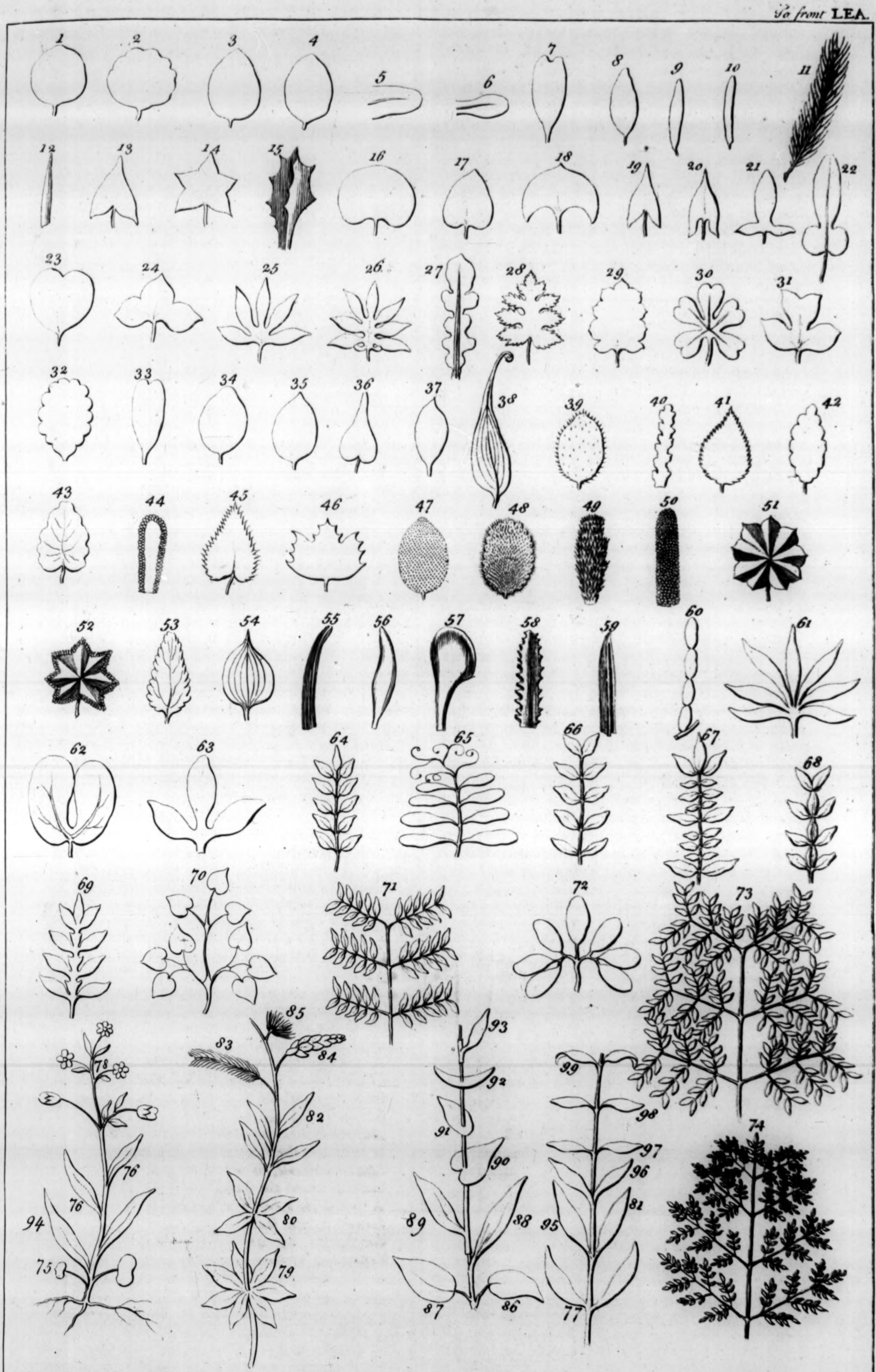
Connatum, is when the two oppoſite Leaves cohere at their baſe, ſo as to form one body embracing the ſtalk, fig. 92.

Vaginans, is when the baſe of the Leaf forms a kind of cylinder, embracing the ſtalk like a ſheath, as in Corn, Graſs, fig. 93.

The direction of Leaves.

An adverſe Leaf (*Adverſum*) is one whoſe ſides reſpect the meridian and not the heavens, as the Ginger, &c.

To front LEA.



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I. Miller Sculp.

G.R. III
BRITISH MUSEUM

An oblique Leaf (*Obliquum*) is when the baſe of the Leaf regards the ſky, and the ſummit the horizon.

An inflexed or incurved Leaf (*Inflexum*) is one which grows in form of a bow, turning its point toward the ſtalk again, fig. 94.

Adpreſſum, is when the diſk of the Leaf approaches near the ſtalk.

An erect Leaf (*Erectum*) is one ſo ſituated as to make a very acute angle with the ſtalk, fig. 95.

Patens, is when the Leaf does not make ſo acute an angle with the ſtalk as the former, and yet does not ſtand horizontal, fig. 96.

An horizontal Leaf (*Horizontale*) is one which ſtands perfectly at right angles with the ſtalk, fig. 97.

A reclined Leaf (*Reclinatum*) is one whoſe ſummit is lower than the baſe, fig. 98.

A rolled Leaf (*Revolutum*) is one whoſe upper part is rolled downward, fig. 99.

A dependent Leaf (*Dependens*) is one whoſe ſummits point to the earth.

A rooting Leaf (*Radicans*) is one which puts out roots.

A floating Leaf (*Natans*) is one which floats on the ſurface of the water, as the Water Lily, &c.

Demerſum, is uſed to expreſs a Leaf ſunk below the ſurface of the water.

Having explained the ſeveral forms of Leaves, by which botaniſts diſtinguiſh them, and alſo their poſition, both in regard to the other parts of the tree, or plant, and that of the earth, we ſhall next proceed to their ſtructure and uſes; for theſe were not deſigned by the wiſe Creator only for ornament, but they are of more important uſe in vegetation, and are as variouſly conſtructed in their ſeveral parts, as their ſeveral uſes for which they are deſigned.

Some plants have very thick fleſhy Leaves, whoſe pulpy ſubſtance is always moiſt; theſe are ſuch plants as naturally grow upon dry barren rocky places, and for the moſt part are natives of warm countries; and as they perſpire very little in compariſon of moſt other plants, they are adapted to grow in ſuch places where they can receive very little nouriſhment from the earth. Moſt of the Leaves of theſe plants have a thin compact ſkin over their ſurface, with very ſmall minute pores, whereby the deſcending moiſture is thrown off, which, if admitted into the ſubſtance of the Leaves, or ſtalks, would in a very ſhort time cauſe a mortification, and deſtroy the plant.

The Leaves of all thoſe trees and ſhrubs which continue their verdure all the year, have alſo a thin compact ſkin or cover over their ſurfaces, as is eaſily diſcovered by macerating them in water, in order to ſeparate the parenchyma from the veſſels of the leaves, which cannot be effected in any of theſe Evergreens, till the thin parchment-like cover is taken off; theſe trees and ſhrubs are found, by experiment, to imbibe and perſpire but little in the ſame ſpace of time, when compared with the deciduous trees and ſhrubs; and it is principally owing to this cloſe covering, as alſo to the ſmall proportion of moiſture contained in their veſſels, that they retain their verdure, and continue through the winter on the trees. The nutritive juices of theſe plants always abound more or leſs with an oily or terebinthinous quality, which ſecures them from the injury of froſt, ſo that many of theſe evergreen trees are adapted to grow in the coldeſt parts of the habitable world.

In all the Leaves of trees and plants which I have examined, there are two orders of veins or nerves, one belonging to each ſurface; and I have generally obſerved, that the lower lamina or under ſide of the Leaf, had the ramifications larger, and were capable of admitting a liquid to paſs through them, which thoſe of the upper ſurface would not; theſe two orders of veins are inoſculated at ſeveral places, but not ſo cloſely connected, but that they may be eaſily ſeparated, after they have been macerated in water a proper time, for ſome Leaves require a much longer time than others, to render the parenchyma ſoft enough to ſeparate eaſily from the veins without tearing them.

Theſe two laminæ, or orders of veins, are ſuppoſed to be deſtined for different purpoſes; the upper lamina is thought to be air-veſſels, or trachæ, through which the perſpiring matter is protruded, and by which the air is inſpired; that theſe are pores through which that ſubſtance paſſes, which is thrown out of the plants, is pretty evident; for the clammy ſubſtance which is commonly called honey-dew, is always found ſticking to the upper ſurface of Leaves, from whence many have ſuppoſed that this ſubſtance fell from above, and lodged upon the Leaves in the night. This is the Manna which is collected from Aſh-trees in Calabria, and from the Alhagi in Perſia, &c. and is no other than the nutritive juices, or a ſubſtance ſeparated from that, which iſſues from the pores of the Leaves, and is concreted on the ſurface of the Leaves by the cold air; but whenever this is found in quantity upon the Leaves, it is a ſure ſign of a diſeaſed plant.

The lower lamina of veins are ſuppoſed to be deſtined for another purpoſe, which is that of receiving, preparing, and conveying the moiſture imbibed from the riſing vapours of the earth, by which trees and plants are greatly nouriſhed; and for this uſe we ſee how differently the two ſurfaces are formed; the upper one is commonly ſmooth and lucid, and the under is frequently covered with hairs, or a ſoft down, the better to ſtop and detain the riſing vapours, and tranſmit them to the inner veſſels; and where the ſtructure of the Leaves are different, it is found by experience, that their functions alter; for thoſe Leaves, whoſe upper ſurfaces are garniſhed with down or hairs, are found to be the receivers and conveyers of the moiſture, and not the under ones, as in the other plants.

If the ſurfaces of theſe Leaves are altered, by reverſing the branches on which they grow, the plants are ſtopped in their growth, until the foot-ſtalks are turned, and the Leaves recover their former poſition. This ſhews how neceſſary it is to ſupport all thoſe weak ſhoots of plants, which are naturally diſpoſed for upright growth, and that either twine about the neighbouring trees for ſupport, or that put out claſpers, by which they take hold of whatever trees or plants grow near them, and are thereby ſupported; and, on the contrary, how abſurd is that practice of tying up the ſhoots of thoſe plants which are naturally diſpoſed to trail upon the ground; for, in both theſe caſes, nature is reverſed, and conſequently the growth of both ſorts of plants is greatly retarded.

This is one of the great functions for which the Leaves of trees and plants are deſigned; but, beſides this, there are others of equal importance to the well-being of plants and fruits; the firſt is that of the foot-ſtalks of Leaves nouriſhing and preparing the buds of the future ſhoots, which are always formed at the baſe of theſe foot-ſtalks, and during the continuance of the Leaves in perfect health, theſe buds increaſe in their magnitude, and, in the deciduous trees, are brought to maturity before the foot-ſtalks ſeparate from the buds in autumn; but if by accident the Leaves are blighted, or if the entire ſurface of the Leaves are cut off, and the foot-ſtalks are left remaining, yet the buds will decay, or not arrive to their proper ſize, for want of that nouriſhment which is conveyed to them from the Leaves; ſo that whenever trees are diveſted of their Leaves, or thoſe Leaves are cut, or otherwiſe impaired, though it may in either caſe happen when the buds may be nearly formed; yet if it is before the foot-ſtalks ſeparate naturally from the branches, the future ſhoots will be weakened in proportion to the time when this is done; therefore, as from all the experiments which have been made in order to know how ſerviceable the Leaves of trees and plants are to their well-being, it has been found, that where the plants have been diveſted of their Leaves, or their Leaves have been eaten, or cut, during their growth, the plants have been remarkably weakened thereby. This ſhould teach us not to pull, or cut off the Leaves of trees, or plants, on any account, while they retain their verdure or are in health. As alſo how abſurd that common practice is, of feeding down Wheat in the winter and ſpring with ſheep; for by ſo doing, the ſtalks are rendered very weak, and the ears are in proportion ſhorter; nor are the grains of Corn ſo plump and well nouriſhed, as that which is not fed down upon the ſame ground: this is a fact which I can aſſert from many years experience; for when Corn or Graſs is fed down cloſe to the root, the ſucceeding blades will be much finer than if the firſt Leaves had been left remaining; which is evident from all ſheep paſtures, where the Graſs is much finer and ſhorter than in other places; as alſo upon lawns and bowling-greens, where the Graſs is often mowed, the blades will be rendered finer in proportion to the frequency of mowing it, yet the ſpecies of Graſs is the ſame with that on the richeſt paſtures; ſo that although this may be a deſirable thing for lawns, &c. in gardens, yet where regard is had to the produce, this ſhould be avoided.

Beſides theſe, there are other uſes for which Leaves are deſigned, one of which is that of ſhading the buds for the future ſhoots from the ſun, which would exhale and dry up all their moiſture, as alſo the ſhading of the young fruit, which is abſolutely neceſſary during the time of their growth; for I have ſuſpended the Leaves of trees which were growing againſt walls, ſo as to expoſe the fruit to the ſun, and not taken any of them off the branches, yet I have always found thoſe fruits ſo expoſed, have been greatly ſtinted in their growth, and have never arrived to near the ſize of others above and below them on the ſame branches, nor were they ſo well taſted, or replete with juice.

In making this experiment, I was as careful as poſſible not to reverſe the ſurfaces of the Leaves, having been thoroughly convinced, from many repeated experiments, how prejudicial that is to all plants; but notwithſtanding this precaution, the event was as before-mentioned.

Another principal uſe of the Leaves is to throw off by tranſpiration, what is unneceſſary for the growth of the plants, anſwering to the diſcharge made by ſweat in animal bodies; and as plants receive and tranſpire much more, in equal time than large animals, ſo it appears how neceſſary the Leaves are to preſerve the plants in perfect health; for it has been found by the moſt exact calculations, made from repeated experiments, that a plant of the Sun-flower receives and perſpires, in twenty-four hours, ſeventeen times more than a man.

As naturaliſts have generally aſcribed a four-fold uſe to Leaves, I ſhall beg leave to mention them here, and then ſhall give an account of the moſt accurate experiments which have been made to aſcertain the truth of their hypotheſes.

1. Chiefly, that they do in the ſpring time receive the crude humours into themſelves, divide them very minutely, and move them ſtrongly in the utricles, and perhaps draw in from the air what is neceſſary, though unknown to us, and carry back great plenty of elaborate juice to the plant.

2. That there may be a tranſpiration of what is unprofitable, anſwering to the diſcharge made by ſweat; for ſometimes thoſe excretory veſſels of the Leaves are ſo overcharged by the great plenty of diſtending humour [juice,] that they burſt in the middle, and let go the more ſubtile parts; nor is it ſeldom, that, in a hot ſeaſon, great plenty of juices are this way diſcharged and imbibed. Thus Manna is found to exſude [ſweat forth] from the Leaves of certain trees, if a cold night ſhould follow a hot day; and the ſame thing frequently happens in divers other plants and trees, as we learn from the bees flying to the Lime-tree, that they may gather that gumous ſubſtance from their Leaves; and it is from the ſurfaces of the Leaves, as well as from the flowers, thoſe animals collect their honey; but if the heat ſhould be leſs, all the ſuperfluous humours, except thoſe which, perhaps, are tranſmitted by inſenſible tranſpiration thro' the arterial veſſels, exhaling naturally, are ſeen to return into the trunk.

3. That the bibulous veſſels, dried by the diurnal heat, and for this reaſon to be compared to veins, may imbibe, in the night-time eſpecially, thoſe watery parts, which, among others, lie hid in the air under the form of a very thin dew, and ſo make amends for the loſs made by the arteries, by the new moiſture received.

4. Laſtly, the Leaf ſerves chiefly for this purpoſe, that it may keep and nouriſh the eye, or gem, until the gem, by degrees growing out to a greater bulk, preſſes together the veſſels of the foot-ſtalk, from whence the humour is by little and little ſtopped in the Leaf, till it cannot any more return to the foot-ſtalk; which, by the ceaſing of the afflux and reflux of the nutritive juice, grows putrid, whence a conſumption being cauſed, the Leaf dies, and falls off, which is the chief cauſe of the falling of the Leaves in autumn.

The Rev. Dr. Hales, in his excellent Treatiſe of Vegetable Statics, ſpeaking of the perſpiration of plants, gives an account of the following experiments, viz.

That in July or Auguſt he cut off ſeveral branches of Apple-trees, Cherry-trees, Pear-trees, and Apricot-trees, two of a ſort; they were of ſeveral ſizes, from three to ſix feet long, with proportional lateral branches, and the tranſverſe cut of the largeſt part of the ſtems was about an inch diameter.

That he ſtripped off the Leaves of one bough of each ſort, and then ſet their ſtems in ſeveral glaſſes, pouring in known quantities of water.

The boughs with Leaves on them imbibed ſome fifteen ounces, ſome twenty, twenty-five, or thirty, in twelve hours day, more or leſs, in proportion to the quantity of Leaves they had, and when he weighed them at night, they were lighter than in the morning. While thoſe without Leaves imbibed but one ounce, and were heavier in the evening than in the morning, they having perſpired little.

The quantity imbibed by thoſe with Leaves decreaſed very much every day, the ſap-veſſels being probably ſhrunk at the tranſverſe cut, and too much ſaturate with water, to let any more paſs, ſo that uſually in four or five days the Leaves faded and withered much.

He adds, that he repeated the ſame experiments with Elm branches, Oak, Oſier, Willow, Sallow, Aſpen, Currant, Gooſeberry, and Filbert branches, but none of theſe imbibed ſo much as the foregoing, and ſeveral ſorts of Evergreens very much leſs.

He adds alſo another experiment: That on the 15th of Auguſt, he cut off a large Pippin with two inches ſtem, and its twelve adjoining Leaves: that he ſet the ſtem in a little phial of water, which imbibed and perſpired in three days one third of an ounce.

And that at the ſame time he cut off from the ſame tree another bearing twig of the ſame length, with twelve Leaves, no Apple on it, which imbibed in the ſame three days near three-fourths of an ounce.

That about the ſame time, he ſet in a phial of water a ſhort ſtem of the ſame tree, with two large Apples on it, without leaves, and they imbibed near three-fourths of an ounce in two days.

So in this experiment, the Apples and Leaves imbibed four-fifths of an ounce, the Leaves alone near three-fifths, but the two large Apples imbibed and perſpired but one third part ſo much as the twelve Leaves, then the one Apple imbibed the one-ſixth part of what was imbibed by the twelve Leaves; therefore two Leaves imbibe and perſpire as much as one Apple; whence their perſpirations ſeem to be proportionable to their ſurfaces, the ſurface of the Apple being nearly equal to the ſum of the upper and under ſurfaces of the two Leaves.

Whence it is probable that the uſe of theſe Leaves (which are placed juſt where the fruit joins to the tree) is to bring nouriſhment to the fruit.

And accordingly he obſerves, that the Leaves next adjoining to the bloſſoms are in the ſpring very much expanded, when the other Leaves on barren ſhoots are but beginning to ſhoot, and that all Peach Leaves are very large before the bloſſom goes off.

And that, in Apples and Pears, the Leaves are one-third or half grown, before the bloſſom opens, ſo provident is nature in making timely proviſion for the nouriſhing the yet embryo fruit.

He alſo adds another experiment: he ſtripped the Leaves of an Apple-tree branch, and then fixed the great end of the ſtem in the gage, it raiſed the mercury $2 + \frac{1}{2}$ inches, but it ſoon ſubſided, for want of the plentiful perſpiration of the Leaves, ſo that the air came in almoſt as faſt as the branch imbibed water.

And as a farther proof of the influence of the Leaves in raiſing the ſap, he alſo made the following experiment.

On the ſixth of Auguſt, he cut off a large Ruſſet Pippin, with a ſtalk $1 + \frac{1}{2}$ inch long, and twelve adjoining Leaves growing to it.

He cemented the ſtalk faſt in the upper end of a tube, which tube was ſix inches long, and one-fourth diameter; as the ſtalk imbibed the water, it raiſed the mercury four inches high.

That he fixed another Apple of the ſame ſize in the ſame manner, but firſt pulled off the Leaves, and it raiſed the mercury but one inch; that in the ſame manner he fixed a like-bearing twig, with twelve Leaves on it, but no Apple, and it raiſed the mercury three inches.

He then took a like-bearing twig, without either Leaves or Apple, and it raiſed the mercury one-fourth of an inch.

So a twig, with an Apple and Leaves, raiſed the mercury four inches; one with Leaves, only three inches; one with an Apple without Leaves, only one inch.

A Quince, which had two Leaves juſt at the twig's inſertion, raiſed the mercury $2 + \frac{1}{2}$ inches, and held it up a conſiderable time.

A ſprig of Mint, fixed in the ſame manner, raiſed the mercury $3 + \frac{1}{2}$ inches, = to 4 feet 5 inches height of water.

Theſe, and many more experiments of the Rev. Dr. Hales, that curious enquirer into the cauſes, ſtate, and progreſs of vegetation, evidently ſhew the great perſpiration of the Leaves of plants, and their great uſe in raiſing the ſap, and other functions of vegetable nature; to whoſe excellent treatiſe before-mentioned, I refer the curious enquirer.

I ſhall add, That nature has directed us as to the true diſtance we ought to train the branches of trees againſt walls or eſpaliers, which ſhould always be in proportion to the ſize of their Leaves; for if we regard her progreſs in the great varieties of trees, which are within our obſervation, we ſhall always find their branches grow diſtant from each other in proportion to the breadth of their Leaves; and it was upon this account that the Romans ſo much admired the Platanus, becauſe the Leaves, being large, afforded them a kindly ſhade in ſummer, but in winter, when they are deſtitute of Leaves, their branches growing at a great diſtance, eaſily admitted the beams of the ſun.

I ſhall next beg leave to mention a few, out of the many experiments which have been made by Monſ. Bonnet, of Geneva, to prove that moſt Leaves imbibe the moiſture of the air on their under ſurface, and not from their upper: they are as follow:

He gathered the Leaves of ſixteen ſorts of herbaceous plants when fully grown; of each he put ſeveral Leaves upon the ſurface of water in glaſs vaſes, ſome were poſited with their upper ſurface, and others with their under ſurface upon the water; theſe were adjuſted exactly to the ſurface of the water, with great care not to let any moiſture reach their oppoſite ſurfaces, and the ſame care was taken to prevent their foot-ſtalks from receiving any moiſture. The glaſſes in which theſe Leaves were thus placed, were kept in a cloſet, where the air was very temperate; and as the water in the glaſſes evaporated, there was from time to time a ſupply of freſh, which was added with a ſyringe, ſo that the Leaves were not diſturbed. The Leaves were taken from the following plants; the Plantain, the Mullein, the Wake Robin, the great Mallow, the Nettle, the Marvel of Peru, the Kidney-bean, the Sun-flower, the Cabbage, the Balm, the Cock's-comb, the purple-leaved Amaranth, Spinach, and the ſmaller Mallow.

Six of theſe ſorts he found continued green a long time, and theſe were with different ſurfaces upon the water; they were of the following ſorts, the Wake Robin, the Kidney-bean, the Sun-flower, the Cabbage, the Spinach, and ſmall Mallow; among the others the following ſorts were found to draw the moiſture better with their upper ſurface than their under, the Plantain, the Mullein, the great Mallow, the Nettle, the Cock's-comb, and the purple Amaranth.

The Leaves of the Nettle whoſe under ſurface was upon the water, were decayed in three weeks, whereas thoſe whoſe upper ſurface was next the water continued two months.

The Leaves of Mullein, whoſe under ſurface was next the water, did not continue freſh more than five or ſix days, but thoſe whoſe upper ſurface was next the water laſted five weeks.

The Leaves of the purple Amaranth, whoſe upper ſurface was next the water, continued freſh three months, whereas thoſe whoſe under ſurface was next the water, were decayed in a week.

The Leaves of the Marvel of Peru and the Balm, appeared to have the advantage, whoſe under ſurfaces were next the water.

The Leaves of Wake Robin and of the Cock's-comb, whoſe foot-ſtalks only were put into the water, continued freſh a longer time than thoſe which were placed with either ſurface next the water.

The Leaves of the Great Mallow, the Nettle, the Sun-flower, the Marvel of Peru, and Spinach, whoſe foot-ſtalks were plunged into the water, continued freſh a ſhorter time than thoſe which had either of their ſurfaces next the water.

The Leaves of the Mullein, of Plantain, and Amaranth, which received the water at their foot-ſtalk, continued freſh much longer than thoſe, whoſe under ſurface was next the water.

It is not difficult to explain the reaſon of this fact, for the orifices of the ſap-veſſels in the foot-ſtalk, are much larger than thoſe of either ſurface, ſo that the moiſture inſinuates in greater quantities, and with more eaſe, the firſt than by the ſecond way.

After this the ſame gentleman made experiments on the Leaves of ſixteen ſorts of trees and ſhrubs of the following ſorts, the Lilac, the Pear-tree, the Vine, the Aſpen, the Laurel, the Cherry-tree, the Plumb-tree, the Horſe Cheſnut, the White Mulberry, the Lime-tree, the Poplar, the Apricot, the Walnut, the Filbert, the Oak, and the Creeper.

Among theſe ſpecies, he found that the Lilac and the Aſpen imbibed the moiſture on their upper ſurface, equally with the under ſurface; but in all the other ſorts, the under ſurface imbibed it in much greater quantities than the oppoſite. The difference was very remarkable in the Leaves of the White Mulberry, for thoſe whoſe upper ſurface was laid upon the water, faded in five days, whereas the other whoſe under ſurface was next the water, preſerved their verdure near ſix months.

The Vine, the Poplar, and Walnut-tree are very remarkable inſtances, how little diſpoſed the upper ſurfaces of the Leaves of ligneous plants are to imbibe the moiſture; for thoſe of theſe three ſorts, whoſe upper ſurfaces were applied to the water, decayed almoſt as ſoon as thoſe which had no nouriſhment.

In all the experiments made by this curious gentleman upon the various Leaves of trees and herbs, it is remarkable, that all thoſe Leaves which imbibed the moiſture by their upper ſurface, were ſuch as had that ſurface covered with either hairs or down; and on the contrary, where the under ſurface was garniſhed with either hairs or down, the moiſture was imbibed by that ſurface. He likewiſe mentions many experiments made by himſelf, and alſo by Monſ. du Hamel de Monceau, of the Royal Academy of Sciences at Paris, in rubbing the Leaves over with varniſh, oil, wax, and honey, to ſee the effect of theſe upon various Leaves, ſome of which were rubbed over on both ſurfaces, others only upon one; ſome only a part of the ſurface, others the edges of the Leaves were rubbed over, and in ſome only the foot-ſtalks of the Leaves were rubbed with theſe. They likewiſe anointed the trunks of ſome trees and ſhrubs, and left the Leaves and branches in their natural ſtate.

The reſult of theſe experiments was, that where the Leaves were anointed on both ſurfaces with varniſh, they decayed preſently; and where they were anointed with the other things, in proportion as thoſe were moſt penetrating, ſo the Leaves continued a ſhorter time than the others; and where one ſurface only was anointed, they continued much longer than thoſe which were anointed on both; and where the pedicle only was anointed, they continued ſtill longer; but the anointing of the trunks, made no ſenſible alteration, excepting in very hot weather; when they both imagine, that the anointing them was of ſervice, by hindering the too great tranſpiration which might weaken the trees; for they obſerved, that thoſe trees which were varniſhed, ſuffered leſs from the violent heat, than the trees which were left in their natural ſtate.

Monſ. Bonnet alſo obſerved, that thoſe Leaves which were varniſhed, the tender parts of the Leaves were deſtroyed by it, and the tough fibres only were left remaining.

As it would ſwell this work much beyond its intended bulk, were I to mention more of theſe curious experiments, I ſhall refer the curious to his book, where they will find a great number of the moſt accurate and well conducted experiments related, to aſcertain the uſes of the Leaves of plants in vegetation.

The before-mentioned Rev. Dr. Hales, in his Treatiſe of Vegetation, ſays, it is plain from many experiments and obſervations he had before mentioned, that Leaves are very ſerviceable in this work of vegetation, by being inſtrumental in bringing nouriſhment from the lower parts, within the reach of the attraction of the growing fruit, which, like young animals, is furniſhed with proper inſtruments to ſuck it thence; but the Leaves ſeem alſo deſigned for many other noble and important ſervices; for nature admirably adapts her inſtruments, ſo as to be at the ſame time ſerviceable to many good purpoſes.

Thus the Leaves, in which are many excretory ducts in vegetables, ſeparate and carry off the redundant watery fluid, which, by being long detained, would turn rancid, and prejudicial to the plant, leaving the more nutritive parts to coaleſce; part of which nouriſhment, we have good reaſon to think, is conveyed into vegetables through the Leaves, which plentifully imbibe the dew which contain ſalt, ſulphur, &c.

For the air is full of acid and ſulphureous particles, which, when they abound much, do, by the action and reaction between them and the elaſtic air, cauſe that ſultry heat which uſually ends in lightning and thunder; and theſe new combinations of air, ſulphur, and acid ſpirit, which are conſtantly forming in the air, are doubtleſs very ſerviceable in promoting the work of vegetation; when, being imbibed by the Leaves, they may not improbably be the materials, out of which the more ſubtile and refined principles of vegetables are formed; for ſo fine a fluid as the air ſeems to be a more proper medium, wherein to prepare and combine the more exalted principles of vegetables, than the groſſer watery fluid of the ſap: and for the ſame reaſon it is likely that the moſt refined and active principles of animals are alſo prepared in the air, and thence conveyed through the lungs into the blood; and that there is plenty of theſe ſulphureo-aereal particles in the Leaves, is evident from the ſulphureous exſudations that are found in the edges of Leaves, of which bees are obſerved to make their waxen cells, as well as of the duſt of flowers. And that wax abounds with ſulphur, is plain from its burning freely, &c.

We may therefore reaſonably conclude, that one great uſe of Leaves is what has been long ſuſpected by many, viz. to perform, in ſome meaſure, the ſame office for the ſupport of the vegetable life, as the lungs of animals do for the ſupport of animal life; plants, very probably, drawing through their Leaves ſome part of their nouriſhment from the air.

LEDUM. Raii Syn. 1—142. Lin. Gen. Plant. 483. Marſh Ciſtus, or wild Roſemary.

The Characters are,

The flower has a ſmall empalement of one leaf, indented in five parts. It hath five oval, concave, ſpreading petals, and ten ſlender ſtamina the length of the petals, which ſpread open, terminated by oblong ſummits, and a roundiſh germen ſupporting a ſlender ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a roundiſh capſule with five cells, opening at the baſe in five parts, and filled with ſmall, narrow, acute-pointed ſeeds.

This genus of plants is by Dr. Linnæus ranged in the firſt ſection of his tenth claſs, intitled Decandria Monogynia, which includes thoſe plants whoſe flowers have ten ſtamina and one ſtyle.

We have but one Species of this genus, viz.

Ledum (*Paluſtre*) foliis linearibus ſubtus hirſutis, floribus corymboſis. Flor. Suec. 341. *Ledum with very narrow leaves, hairy on their under ſide, and flowers growing in a corymbus.* Roſmarinum ſylveſtre minus noſtras. Park. Hiſt. 76. *Our ſmall wild Roſemary.*

This plant grows naturally upon moſſes and bogs in many parts of Yorkſhire, Cheſhire, and Lancaſhire, where it riſes with a ſlender ſhrubby ſtalk about two feet high, dividing into many ſlender branches, which are garniſhed with narrow leaves not much unlike thoſe of Heath. The flowers are produced in ſmall cluſters at the end of the branches, which are ſhaped like thoſe of the Strawberry-tree, but ſpread open wider at the top. Theſe are of a reddiſh colour, and appear in May, and in the natural places of their growth, are ſucceeded by ſeed-veſſels filled with ſmall ſeeds, which ripen in the autumn.

It is with great difficulty this plant is kept in a garden, for as it naturally grows upon bogs, ſo unleſs the plants have ſome ſuch ſoil and a ſhady ſituation, they will not thrive. The plants muſt be procured from the places of their growth, and taken up with good roots, otherwiſe they will not live. They cannot be propagated in gardens, but in the moſſes their roots ſpread and propagate pretty freely.

LEEKS. See Porrum.

LEGUMES, or **LEGUMENS,** are a ſpecies of plants which are called pulſe, ſuch as Peas, Beans, &c. and are ſo called, becauſe they may be gathered by the hand without cutting. Mr. Ray reckons all thoſe plants which have a papilionaceous flower, among the Legumes; but the French comprehend moſt ſorts of eſculent plants, under this general title of Legumes.

LEGUMINOUS, of or belonging to pulſe.

LEMNA. Lin. Gen. 1038. Lens Paluſtris, Duck-Meat. This is a very common plant, growing upon ſtanding waters in moſt parts of England; where, if it is not diſturbed, it will ſoon cover the whole ſurface.

LEMON-TREE. See Limon.

LENS. See Ervum.

LENTISCUS. See Pistacia.

LEONTICE. Lin. Gen. Plant. 423. Leontopetalon. Tourn. Cor. 49. tab. 484. Lion's Leaf.

The Characters are,

The empalement of the flower is made up of ſix very narrow leaves, which are alternately ſmaller and drop off. The flower has ſix oval acute petals, which are twice the length of the empalement, and ſix nectariums which are fixed by ſmall foot-ſtalks to the baſe of the petals. It has ſix ſhort ſlender ſtamina, terminated by erect ſummits. In the center is placed an oblong oval germen, ſupporting a ſhort taper ſtyle, inſerted obliquely to the germen, crowned by a ſimple ſtigma. The germen afterward becomes a globular ſwollen berry a little ſucculent, with one cell, incloſing two or three globular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, which includes thoſe plants whoſe flowers have ſix ſtamina and one ſtyle.

The Species are,

1. Leontice (*Chryſogonum*) foliis pinnatis, petiolo communi ſimplici. Hort. Cliff. 122. *Lion's Leaf, with winged leaves having one common ſingle foot-ſtalk.* Leontopetalon foliis coſtæ ſimplici innaſcentibus. Tourn. Cor. 49. *Lion's Leaf with a ſingle foot-ſtalk to the leaves.*

2. Leontice (*Leontopetalum*) foliis decompoſitis, petiolo communi trifido. Hort. Cliff. 122. *Lion's Leaf with decompounded leaves, and a common trifid foot-ſtalk.* Leontopetalon foliis coſtæ ramoſæ innaſcentibus. Tourn. Cor. 49. *Lion's Leaf with a branching foot-ſtalk to the leaves.*

Theſe plants both grow naturally in the iſlands of the Archipelago, and alſo in the Corn fields about Aleppo, where they flower ſoon after Chriſtmas. They have large tuberous roots about the ſize of thoſe of Cyclamen, covered with a dark brown bark; the leaves ariſe upon ſlender foot-ſtalks immediately from their roots, which grow about ſix inches high; that of the firſt ſort is ſingle, having many ſmall folioli ranged along the midrib, but the footſtalks of the ſecond ſort are branched into three ſmaller; upon each of theſe are ranged ſeveral folioli or ſmall leaves, in the ſame form as the winged leaves. The flowers ſit upon naked foot-ſtalks, thoſe of the firſt ſort ſuſtain many yellow flowers, but the flowers of the ſecond are ſmaller and of a paler colour. Theſe in their native country appear ſoon after Chriſtmas, but in England they do not flower till the beginning of April, and are never ſucceeded by ſeeds here.

Both theſe plants are propagated by ſeeds, which require to be ſown ſoon after they are ripe, otherwiſe they ſeldom ſucceed; but as they are brought from diſtant countries, they ſhould be preſerved in ſand to be ſent to England. I received a few of the ſeeds from the Duke D'Ayen, which were ſent him from Aleppo, put up in ſand, and theſe came up better than any of thoſe which came over dry; for of ſeveral parcels of theſe ſeeds which I have ſown of both kinds for three years ſucceſſively, I had not more than two plants ariſe.

The plants are very difficult to preſerve in England, for the roots will not thrive in pots; and when they are planted in the full ground, the froſt frequently deſtroys them in winter, eſpecially where the roots are young. Of late years the winters have proved ſo very unfavourable, as to kill all the young roots which I had raiſed in the Chelſea garden: but before the ſevere winter in 1740, I had ſome of the roots which were planted in a ſouth-weſt border that flowered ſeveral years, and without any ſhelter ſurvived the winters; but although I covered many of thoſe roots which I had lately raiſed, yet I could not preſerve them.

The leaves of theſe plants decay about Midſummer, and the roots remain in an inactive ſtate till the following ſpring, at which time the flowers and leaves come up nearly at the ſame time.

When the ſeeds are procured from abroad, the beſt way is to ſow them as ſoon as they arrive, and cover them with glaſſes in the winter to protect them from froſt; and in the ſpring, when the plants begin to appear, they muſt have the free air admitted to them at all times when the weather is mild, otherwiſe they are very ſubject to draw up tall with weak ſtems, and their roots do not increaſe in their bulk. If the plants are not too cloſe, it will be beſt to let them remain in the place unremoved till the ſecond year; but where they are too cloſe, part of the roots may be taken up in October, and tranſplanted cloſe to a warm wall, being very careful not to diſturb the roots which are left ſtanding; and in November, before the hard froſt ſets in, it will be a good way to lay ſome old tanners bark over the ſurface of the ground, three or four inches thick, to prevent the froſt from penetrating to the roots; but this ſhould be moſt of it taken off in March, before the roots begin to puſh out their leaves; and if this is removed in part ſoon after the hard froſt is over in February, and another part three weeks or a month after, it will be better than taking it all off at the ſame time; and if a thin covering of the tan is left at the laſt over the ſurface of the ground, it will prevent the drying winds of the ſpring from drying the ground, which will be of great ſervice to the roots. Theſe roots ſhould have a dry looſe ſoil, and muſt be ſeldom removed; but when that is done, October is the beſt time, for then the roots are inactive.

LEONTODON. Lin. Gen. Plant. 817. Dens leonis. Tourn. Inſt. R. H. 468. Dandelion; in French, *Dent de Lion.*

There are four or five ſpecies of this genus, which grow naturally in the fields either in England or France, ſo are ſeldom cultivated in gardens; but as ſome people in the ſpring gather the roots out of the fields, and blanch them in their gardens for a ſallad herb, ſo I have mentioned the genus, but ſhall forbear ſaying any thing more of them, than that they are very bad weeds both in gardens and fields; ſo ſhould be rooted out before their ſeeds are ripe, otherwiſe they will ſpread to a great diſtance, as they have down adhering to them, by which they are wafted about by the wind.

LEONTOPODIUM. See Plantago.

LEONURUS. Tourn. Inſt. R. H. 187. tab. 87. Phlomis. Lin. Gen. Plant. 642. [Λεώνουρος, of Λέων, a lion, and οὐρὰ, a tail, becauſe the creſt of this flower ſeems to reſemble the tail of a lion.] Lion's Tail.

The Characters are,

The flower has a tubulous, five-cornered, permanent empalement of one leaf; the flowers have one petal, of the lip or ringent kind; the upper lip is long, cylindrical, hairy, and entire; the lower is ſhort, reflexed, and cut into three parts. It hath four ſtamina ſituated under the lower lip, two of which are ſhorter than the other; theſe are terminated by oblong compreſſed ſummits. In the bottom of the tube are ſituated four germen ſupporting a ſlender ſtyle, ſituated with the ſtamina, crowned by a bifid acute ſtigma. The germen afterward become four oblong angular ſeeds, ſitting in the empalement.

This genus of plants is ranged in the ſecond ſection of Tournefort's fourth claſs, which includes the herbs with a lip flower of one leaf, whoſe upper lip is hollowed like a ſpoon. Dr. Linnæus has joined the ſpecies of this genus to the Phlomis, and has applied this title to the Cardiaca, from which he ſeparates theſe plants, becauſe they have no punctures on their ſummits. Theſe he ranges in the firſt ſection of his fourteenth claſs, which includes the plants with a ringent (or grinning) flower, that have two long and two ſhorter ſtamina, and naked ſeeds ſucceeding, ſitting in the empalement.

The Characters are,

1. Leonurus (*Africana*) foliis lanceolatis, obtuſe ſerratis. Hort. Cliff. 312. *Lion's Tail with ſpear-ſhaped leaves which are bluntly ſawed.* Leonurus perennis Africanus, ſideritidis folio, flore Phœnicio majore. Breyn. Cent. 1. 171. *Perennial African Lion's Tail with an Ironwort leaf, and a larger ſcarlet flower.*

2. Leonurus (*Nepetæfolia*) foliis ovatis, calycibus decagonis, ſeptem dentatis, inæqualibus. Hort. Cliff. 312. *Lion's Tail with oval leaves, an empalement having ten corners, and ſeven unequal indentures.* Leonurus minor capitis Bonæ Spei, vulgò. Boerh. Ind. alt. 180. *Small Lion's Tail of the Cape of Good Hope.*

The firſt ſort is a native of Ethiopia, but has been long cultivated in the Engliſh gardens. This riſes with a ſhrubby ſtalk ſeven or eight feet high, ſending out ſeveral branches from the ſide, which are four-cornered; theſe are garniſhed with oblong narrow leaves, acutely indented on their edges; they are about three inches long, and half an inch broad, hairy on their upper ſide, and veined on their under, ſtanding oppoſite. The flowers are produced in whorls round the branches, each of the branches having two or three of theſe whorls toward their ends, ſitting very cloſe to the branches; they are of the lip kind, ſhaped ſomewhat like thoſe of the Dead Nettle, but their creſts are much longer and covered with ſhort hairs; they are of a golden colour, ſo make a fine appearance. The flowers commonly appear in October and November, and ſometimes continue till the middle of December, but are not ſucceeded by ſeeds here.

There is a variety of this ſort with variegated leaves, which is by ſome admired; but as this ſeldom produces ſo large whorls of flowers as the plain ſort, it is not ſo generally eſteemed.

The ſecond ſort is mentioned by ſeveral authors as an annual plant; they alſo ſuppoſe it to be a native of America, and believe it was brought from Surinam to Holland; but it is undoubtedly a native of the Cape of Good Hope, from whence I have two or three times received the ſeeds; and the late Dr. Boerhaave aſſured me, that he frequently received the ſeeds from that country, as alſo a painting of the plant, ſo that he made no doubt of the plant growing naturally there.

This riſes with a ſquare ſhrubby ſtalk about three feet high, ſending out ſeveral four-cornered branches, which are garniſhed with oval crenated leaves, rough on their upper ſide like the Dead Nettle, but veined on the under, which is of a pale green: theſe are placed oppoſite by pairs, as are alſo their branches. The flowers come out in whorls round the branches, in like manner as the former, but are not ſo long nor ſo deep coloured; they appear at the ſame ſeaſon with the firſt, and continue as long in beauty.

Both theſe ſorts are propagated by cuttings in Europe, for they do not produce any ſeeds here. If the cuttings are planted in July, after the plants have been ſo long expoſed to the open air as to harden the ſhoots, they will take root very freely. They ſhould be planted in a loamy border to an eaſt aſpect, and if they are covered cloſely with a bell or hand-glaſs to exclude the air, and ſhaded from the ſun, it will forward their putting out roots; but when they begin to ſhoot, the glaſſes ſhould be raiſed to admit the free air, to prevent their drawing up weak, and by degrees they muſt be expoſed to the open air. As ſoon as they have taken good root they muſt be taken up, and each planted in a ſeparate pot filled with ſoft loamy earth, and placed in the ſhade till they have taken new root; then they may be removed to a ſheltered ſituation, where they may remain till October, when they muſt be removed into the green-houſe, and afterward treated as the Myrtle, and other hardy green-houſe plants, obſerving to water the firſt ſort plentifully.

LEPIDIUM. Tourn. Inſt. R. H. 215. tab. 103. Lin. Gen. Plant. 718. Dittander, or Pepperwort.

The Characters are,

The empalement of the flower is compoſed of four oval concave leaves, which fall off. The flower has four oval petals placed in form of a croſs, which are much larger than the empalement, and ſix awl-ſhaped ſtamina the length of the empalement, two of which are ſhorter than the other, terminated by ſingle ſummits. In the center is ſituated a heart-ſhaped germen, ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward turns to a ſpear-ſhaped ſeed-veſſel with two cells, divided by an intermediate partition, containing oblong ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifteenth claſs, intitled Tetradynamia ſiliculoſa, the flower having four long and two ſhorter ſtamina, and the ſeeds being included in ſhort pods.

The Species are,

1. LEPIDIUM (*Latifolium*) foliis ovato-lanceolatis integris ſerratis. Hort. Cliff. 330. *Dittander with entire, oval, ſpear-ſhaped leaves, which are ſawed.* Lepidium latifolium. C. B. P. 97. *Broad-leaved Dittander.*
2. LEPIDIUM (*Arvenſe*) foliis lanceolatis amplexicaulibus dentatis. Hort. Cliff. 331. *Dittander with ſpear-ſhaped indented leaves which embrace the ſtalks.* Lepidium humile, incanum arvenſe. Tourn. Inſt. R. H. 216. *Low hoary Dittander of the fields.*
3. LEPIDIUM (*Chalepenſe*) foliis ſagittatis ſeſſilibus dentatis. Amœn. Acad. 4. p. 321. *Dittander with arrow-ſhaped indented leaves ſitting cloſe to the ſtalks.* Lepidium humile minus incanum, Alepicum. Tourn. Inſt. 216. *Low Dittander of Aleppo with leſs hoary leaves.*
4. LEPIDIUM (*Iberis*) floribus diandris tetrapetalis, foliis inferioribus lanceolatis ſerratis, ſuperioribus linearibus integerrimis. Flor. Leyd. Prod. 334. *Dittander with flowers having four petals and two ſtamina, whoſe under leaves are ſpear-ſhaped and ſawed, and the upper narrow and entire.* Lepidium gramineo folio ſive, Iberis. Tourn. Inſt. 216. *Dittander with a Graſs leaf, or Iberis.*
5. LEPIDIUM (*Perfoliatum*) foliis caulinis pinnato-multifidis, ramiferis cordatis, amplexicaulibus integris. Hort. Cliff. 331. *Dittander with lower leaves wing-pointed, and thoſe on the branches heart-ſhaped, entire, and embracing the ſtalks.* Thlaſpi verum Dioſcoridis. 1 Zan. Hiſt. 193. *The true Mithridate Muſtard of Dioſcorides.*
6. LEPIDIUM (*Virginicum*) floribus ſubtriandris tetrapetalis, foliis linearibus pinnatis. Lin. Gen. Plant. 645. *Dittander with flowers having four petals, chiefly with three ſtamina, and very narrow winged leaves.* Iberis humilior annua Virginiana ramoſior. Mor. Hiſt. 2. p. 311. *Lower, annual, branching Sciatica Creſs of Virginia.*
7. LEPIDIUM (*Lyratum*) foliis lyratis criſpis. Lin. Sp. Plant. 644. *Dittander with curled lyre-ſhaped leaves.* Lepidium Orientale naſturtii criſpi folio. Tourn. Cor. 15. *Eaſtern Dittander with a leaf like curled Creſs.*
8. LEPIDIUM (*Nudicaule*) ſcapo nudo ſimpliciſſimo, floribus tetrandris. Lœfl. It. 155. *Dittander with a ſingle naked ſtalk, and flowers with four ſtamina.* Naſturtium minimum vernum, foliis tantum circa radicem. Magn. Montp. 187.
9. LEPIDIUM (*Petræum*) foliis pinnatis integerrimis, petalis emarginatis calyce minoribus. Flor. Suec. *Dittander with entire winged leaves, and indented petals to the flowers which are ſmaller than the empalement.* Naſturtium pumilum vernum. C. B. P. 105.
10. LEPIDIUM (*Sativum*) floribus tetradynamis, foliis oblongis multifidis. Vir. Cliff. 63. *Dittander with ſix ſtamina in the flowers, and oblong leaves with many points.* Naſturtium hortenſe. *Garden Creſs.*
11. LEPIDIUM (*Subulatum*) foliis ſubulatis indiviſis ſparſis, caule ſuffruticoſo. Lin. Sp. 899. *Dittander with awl-ſhaped undivided leaves, and a ſhrubby ſtalk.* Lepidium capillaceo folio, fruticoſum Hiſpanicum. Tourn. Inſt. 216.
12. LEPIDIUM (*Ruderale*) floribus diandris apetalis, foliis radicalibus dentato-pinnatis, ramiferis linearibus integerrimis. Flor. Suec. 534. *Dittander with two ſtamina in the flowers, fugacious petals, the bottom leaves indented, and thoſe on the branches linear and entire.* Naſturtium ſylveſtre Oſyridis folio. C. B. P. 105.
13. LEPIDIUM (*Bonarienſe*) floribus diandris tetrapetalis, foliis omnibus pinnato-multifidis. Lin. Sp. 901. *Dittander with two ſtamina and four petals to the flowers, and all the leaves wing-pointed.* Thlaſpi Bonarienſe multiciſſum flore inviſibili. Hort. Elth. 286.

The firſt ſort grows naturally in moiſt places in many parts of England, ſo is now ſeldom cultivated in gardens. It hath ſmall, white, creeping roots, by which it multiplies very faſt, ſo as to render it difficult to eradicate the plant, after it has grown long in any place; the lower leaves are oval, ſpear-ſhaped, about three inches long, and one and a half broad toward the baſe, ſawed upon the edges, having long footſtalks. The ſtalks riſe two feet high, they are ſmooth, and ſend out many ſide branches; the leaves upon the ſtalks are longer, narrower, and more acute-pointed than the lower, and are not ſawed on their edges. The flowers grow in cloſe bunches toward the top of the branches, which come out from the ſide; they are ſmall, and are compoſed of four ſmall white petals, which appear in June and July, and the ſeeds ripen in the autumn. The whole plant has a hot biting taſte like Pepper, and the leaves have been often uſed by the country people to give a reliſh to their viands inſtead of Pepper, from whence it had the appellation of Poor Man's Pepper.

This plant is eaſily propagated, for every piece of the root will grow and multiply wherever it is planted, ſo will become troubleſome to root out after growing for ſome time in a garden. The leaves of this plant bruiſed and mixed with hog's lard, and applied as a cataplaſm to the hip, help the ſciatica; and chewed in the mouth, cauſe a great defluxion of rheum, ſo is ſaid to help ſcrophulous tumours in the throat.

The ſecond ſort grows naturally in Auſtria and Italy; this hath a fleſhy fibrous root, from whence ariſe ſeveral weak ſtalks about a foot and a half high, which are garniſhed with ſpear-ſhaped leaves, three inches long and one and a half broad, deeply cut in upon the edges; theſe are ſmooth, a little hoary, and embrace the ſtalks with their baſe; the flowers are ſmall, white, and grow in looſe bunches at the end of the branches. They flower from June till the beginning of September, and the ſeeds ripen in the autumn.

This is a perennial plant, which propagates very faſt by its roots, and is ſeldom admitted into gardens.

The third ſort grows naturally about Aleppo; this hath creeping roots, which extend to a great diſtance, ſo will ſoon ſpread over a large piece of ground. The leaves of this are longer and narrower than thoſe of the former, and are leſs hoary; the flowers grow in looſe bunches at the end of the branches; they are ſmall and white like thoſe of the firſt. This is a hardy perennial plant, which propagates by its creeping roots in as great plenty as either of the former.

The fourth ſort grows naturally in the ſouth of France, Italy, and Sicily, but is preſerved in ſome Engliſh gardens for variety. This hath a long fleſhy root, which runs deep into the ground, and ſends out many oblong leaves, which are ſawed on their edges, and ſpread flat on the ground; the ſtalks are ſlender, ſtiff, and branch out horizontally on every ſide; they riſe about two feet high, and are garniſhed with very narrow entire leaves. The flowers come out in cloſe ſmall cluſters at the ends of the branches; they are white, and appear in June and July, and the ſeeds ripen in the autumn. If the ſeeds are permitted to ſcatter, the plants will come up early in the ſpring, and require no other care but to keep them clean from weeds; the roots will abide ſeveral years if they are in a dry ſoil. This plant is alſo commended for its virtues in ſciaticas, if bruiſed and mixed with hog's lard as the firſt, and from its virtues it obtained the title of Sciatica Creſs.

The fifth ſort grows naturally in Perſia and Syria; this is ſuppoſed to be the true Mithridate Muſtard of Dioſcorides. It is an annual plant, whoſe lower leaves are winged, and finely cut into many ſegments; the ſtalks riſe a foot high, dividing into many ſlender branches, which are garniſhed with heart-ſhaped leaves that are entire, and embrace the ſtalks with their baſe. The flowers grow in long looſe ſpikes from the end of the branches; they are ſmall, yellow, and appear in June and July, and the ſeeds ripen in September, ſoon after which the plant decays.

The ſeeds of this plant ſhould be ſown in the autumn, for thoſe which are ſown in the ſpring ſeldom flower the ſame year, and are often killed by the froſt in winter; whereas thoſe which are ſown in the autumn, or the plants that riſe from ſcattered ſeeds, will always flower about Midſummer, and the ſeeds ripen in Auguſt and September following. The plants require no other care but to thin them, and keep them clean from weeds.

The ſixth ſort is an annual plant, which grows naturally in Virginia, and alſo in all the iſlands of the Weſt-Indies, where the inhabitants gather the leaves, and eat them in their ſallads, as we do the Garden Creſs.

The lower leaves of this ſort are three inches long and one broad, ſawed on their edges, and are of a light green, with a biting taſte like Creſs. The ſtalk riſes a foot and a half high, ſending out a great number of ſmall ſide branches, which are garniſhed with narrow leaves regularly ſawed on their edges, ſo as to reſemble winged leaves; theſe ſit cloſe to the branches. The flowers are produced at the end of the branches in looſe ſpikes; they are ſmall and white, and are ſucceeded by roundiſh or heart-ſhaped compreſſed ſeed-veſſels, which have a border round them. It flowers in June and July, and the ſeeds ripen in the autumn; this ſort is eaſily propagated by ſeeds, which may be ſown upon an open bed in April, where the plants are deſigned to remain; and when they come up, they will require no other care but to thin them where they are too cloſe, and keep them conſtantly clean from weeds; or if the ſeeds are permitted to ſcatter in the autumn, the plants will come up very well, and may be treated in the ſame way as the other.

The ſeventh ſort grows naturally in Aſia, and alſo in Spain, from whence I have received the ſeeds. This is a biennial plant; the lower leaves which ſpread on the ground, are near two inches long, and about half an inch broad, indented on both ſides in ſhape of a lyre, and curled on the edges; the ſtalks riſe a foot high, and divide into a great number of ſlender branches, garniſhed with ſmall oblong leaves, which are cut on their ſides, and a little curled on their edges; the ſtalks and leaves are of a gray colour, inclining toward hoarineſs. The flowers are produced in cluſters at the end of the branches; they are very ſmall and white, appearing in July, and are ſucceeded by roundiſh bordered ſeed-veſſels, which are compreſſed, and have two cells each, containing two ſmall oblong ſeeds, which are ripe in the autumn.

This ſort may be propagated by ſeeds in the ſame manner as the former; or if the ſeeds are permitted to ſcatter in the autumn, the plants will come up without care, and ſhould be treated in the ſame way as the former ſort; but this does not flower till the ſecond year, ſo the plants ſhould be left farther aſunder.

The eighth ſort grows naturally about Montpelier. It is a ſmall annual plant, having a few wing-pointed leaves which ſpread on the ſurface of the ground; between which ariſes a naked ſtalk two or three inches high, ſupporting five or ſix ſmall white flowers, each having four petals placed croſswiſe, and four ſtamina placed near the ſtyle; the germen afterward becomes a ſhort capſule, including four or five roundiſh ſeeds.

If the ſeeds of this ſort are ſown in the autumn, the plants will flower in April and their ſeeds ripen in May; which, if permitted to ſcatter, the plants will come up in autumn, and require no other care but to thin them where they are too cloſe, and weed them.

The ninth ſort is alſo a low annual plant, which grows naturally on Putney-heath; the leaves of this are winged and entire, theſe are placed near the ground; the flower-ſtalks riſe two inches high, ſupporting a few white flowers, whoſe petals are leſs than the empalement, and are indented at their points. This flowers in May and June, and if their ſeeds are permitted to ſcatter, the plants will come up as the former.

The tenth ſort is the Garden Creſs, ſo much uſed in winter and ſpring ſallads, and being ſo well known requires no deſcription. There are three varieties of this, one with broad leaves, another with curled leaves, and the common ſort which is uſed; the ſeeds of this ſhould be ſown in drills pretty cloſe, in winter, on moderate hot-beds, but in ſpring and autumn on borders, and will ſoon be fit for uſe; therefore ſhould be cut while young, otherwiſe it will be too rank.

The eleventh ſort is a low ſhrubby plant, garniſhed with entire awl-ſhaped leaves, which are very narrow; theſe are placed alternately on the ſtalks; the foot-ſtalks of the flowers proceed from the wings, and alſo terminate the ſtalks; the flowers are white, and ſhaped like thoſe of the other ſpecies.

This ſort may be propagated by ſeeds or cuttings; the ſeeds ſhould be ſown in the ſpring on a bed of light earth, in the open air; and when the plants are fit to tranſplant, a few of them ſhould be planted in pots, which may be ſheltered in winter under a common frame; for in ſharp winters, thoſe plants which are expoſed in the open air are frequently killed: the remaining plants ſhould be planted in a ſheltered ſituation in a dry rubbiſhing ground, where they will grow ſlowly, ſo will become more ſhrubby, and in leſs danger of ſuffering by cold.

The twelfth ſort is an annual plant, which grows naturally in ſeveral parts of England, ſo is rarely preſerved in gardens, being a plant of no great beauty or uſe; yet I have known it eaten in ſallads, though the taſte is very rank. The plants, when young, have ſome reſemblance to the Swine's Creſs. The ſtalks riſe eight or ten inches high, ſupporting a number of ſmall white flowers, ſhaped like thoſe of the other ſpecies, which are ſucceeded by ſeeds like thoſe of the Garden Creſs, which, if permitted to ſcatter, will abundantly ſupply the place with young plants.

The thirteenth ſort grows naturally in many warm countries, for it has come up in the earth which came from the Braſils, and from ſeveral parts of America, ſo that it may be found in many other parts. The leaves and ſtalks are much like thoſe of the Garden Creſs, but are more divided, and differ in ſmell and taſte from it: the petals of the flowers are ſo ſmall as to be almoſt imperceptible, and there appears but two ſtamina in each.

This ſort is only cultivated in botanic gardens for variety; the ſeeds ſhould be ſown on a moderate hot-bed in the ſpring, and when the plants have obtained ſtrength, they may be tranſplanted on a warm border, where they will flower and perfect their ſeeds.

LEPIDOCARPODENDRON. See PROTEA.

LETTUCE. See LACTUCA.

LEUCANTHEMUM. See ANTHEMIS.

LEUCOJUM. Lin. Gen. Plant. 363. Narciſſo-leucojum. Tourn. Inſt. R. H. 387. tab. 208. [Λευκόϊον, of λευκὸν, white, and Ἴον, a Violet; i. e. White Violet,] Snowdrop; in French, *Perce-neige.*

The CHARACTERS are,

It hath an oblong, obtuſe, compreſſed ſpatha or ſheath, which opens on the ſide. The flower is of the ſpreading bell ſhape, cut into ſix parts, which join at their baſe. It hath ſix ſhort briſtly ſtamina, terminated by oblong, obtuſe, four-cornered ſummits, which are erect. The roundiſh germen is ſituated under the flower, ſupporting a ſtyle which is thick and obtuſe at the top, crowned by an erect briſtly ſtigma. The germen afterward becomes a turbinated capſule with three cells, opening with three valves, and filled with roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, which includes the plants whoſe flowers have ſix ſtamina and one ſtyle.

The SPECIES are,

1. LEUCOJUM (*Vernum*) ſpathâ uniflorâ, ſtylo clavato. Lin. Sp. Plant. 289. *Snowdrop with a ſheath incloſing one flower, with a key-ſhaped ſtyle.* Narciſſo-leucojum vulgare. Tourn. Inſt. R. H. 387. *Common great Snowdrop.*
2. LEUCOJUM (*Æſtivum*) ſpathâ multiflorâ, ſtylo clavato. Lœfl. Lin. Sp. Plant. 289. *Snowdrop with many flowers in a ſheath, and a key-ſhaped ſtyle.* Narciſſo-leucojum pratenſe multiflorum. Tourn. Inſt. R. H. 387. *Meadow Snowdrop with many flowers, commonly called the tall late Snowdrop.*

The firſt ſort grows naturally in Switzerland and Germany, as alſo upon the mountains near Turin. This hath an oblong bulbous root, ſhaped like that of the Daffodil, but ſmaller; the leaves are flat, of a deep green, four or five in number, broader and longer than thoſe of the ſmall Snowdrop; between theſe ariſe an angular ſtalk near a foot high, which is naked, hollow, and channelled; toward the top comes out a ſheath, which is whitiſh, opening on the ſide, out of which come two or three white flowers, hanging upon ſlender foot-ſtalks; theſe have but one petal, which is cut into ſix parts almoſt to the bottom, which are much larger than thoſe of the ſmall Snowdrop, and the ends of the ſegments of the petal are tipped with green, where they are of a thicker ſubſtance than in any other part. Theſe flowers appear in March, ſoon after thoſe of the ſmall ſort; they have an agreeable ſcent, not much unlike that of the flowers of Hawthorn; after the flower is paſt, the germen which is ſituated below the flower, ſwells to a Pear-ſhaped capſule with three cells, incloſing ſeveral oblong ſeeds.

The leaves of this ſort decay toward the end of May, after which time the roots may be taken up and tranſplanted, for they ſhould not be long kept out of the ground. It is propagated here by offſets, which the roots put out pretty plentifully when they are in a ſituation agreeable for them, and when they are not too often removed. They ſhould have a ſoft, gentle, loamy ſoil, and an expoſure to the eaſt; the roots ſhould be planted ſix inches aſunder, and four or five inches deep, and muſt not be tranſplanted oftener than every third year.

The ſecond ſort is generally known by the title of late, or tall Snowdrop; this grows naturally in the meadows near Piſa in Italy, in Hungary, and alſo near Montpelier.

The root of this ſort is nearly as large as thoſe of the common Daffodil, and are very like them in ſhape; the leaves alſo are not unlike thoſe of the Daffodil, and are more in number than thoſe of the other ſort; they are of a pale green, and keel-ſhaped at the bottom, where they fold over each other, and embrace the ſtalk, which riſes a foot and a half high; at the top is ſituated a ſpatha (or ſheath) which opens on one ſide, and lets out three or four flowers, which hang downward, upon pretty long foot-ſtalks; theſe are cut into ſix oval concave ſegments almoſt to the bottom, and are of a clear white, with a large green tip to each ſegment, which is of a thicker conſiſtence than any other part of the petal; within are ſituated ſix awl-ſhaped ſtamina, with oblong yellow ſummits, ſtanding erect round a very ſlender ſtyle, crowned by an obtuſe ſtigma. Theſe flowers appear the latter end of April or the beginnning of May, and as all flowers in each ſheath do not come out together, but following each other, ſo there is a ſucceſſion of them for three weeks or longer, in cool weather. The flowers are ſucceeded by large triangular ſeed-veſſels, having three cells, each containing two rows of ſeeds. This ſort is generally propagated in England by offſets, for the plants raiſed by ſeeds will not come to flower in leſs than four years; and as the roots put out offſets in plenty, ſo that is the more expeditious method. Theſe roots may be treated in the ſame way as the firſt ſort, and ſhould have a ſoft loamy ſoil, and be expoſed only to the morning ſun, where they will flower ſtronger, and continue longer in beauty, than when they are in an open ſituation, though they will thrive in almoſt any ſoil or ſituation.

LEUCOJUM INCANUM. } See CHEIRANTHUS.
LEUCOJUM LUTEUM. }

LEUCOJUM BULBOSUM. See GALANTHUS.

LEVEL, a mathematical inſtrument ſerving to draw a line parallel to the horizon, not only for various uſes in maſonry, &c. but alſo to meaſure the difference of aſcent and deſcent between ſeveral places, for the conveying of water, draining of fens, &c.

A water Level ſhews the horizontal line, by means of a ſurface of water, or other liquid, founded on this principle, That water always naturally places itſelf level.

The moſt ſimple inſtrument for this uſe is made of a long wooden trough, or canal, whoſe ſides are parallel to its baſe, ſo that, being equally filled with water, the ſurface thereof ſhews the line of Level.

This Level is alſo made with two cups fixed to the two ends of a pipe three or four feet long, about an inch in diameter; by means whereof, the water communicates from the one to the other cup, and this pipe being moveable on its ſtand, by means of a ball and ſocket, when the two cups become equally full of water, the two ſurfaces mark the line of Level.

Inſtead of cups, this inſtrument may be made with two ſhort cylinders of glaſs three or four inches long, faſtened to each end of the pipe with wax or maſtich; then the pipe, being filled either with common or coloured water, will ſhew itſelf through the cylinder, by means of which the line of Level is determined, the height of the water, with reſpect to the center of the earth, being always the ſame in both cylinders. This Level is very commodious in levelling ſmall diſtances.

If you would level any piece of ground that you can ſee from ſide to ſide, or from the middle to any ſide, ſet up your inſtrument in the middle of it, whether it be a water Level, or a ground Level with ſights; place it ſo high, that you may ſee over the higheſt part of the ground half a foot or a foot; then ſet up a ſtake in the middle, ſo that the top may be exactly level with the ſights, and another ſtake on the higheſt ſide, the top of which muſt be level with the middle ſtake; then either turn the Level, or look-back ſight, and ſet up another ſtake on the lower ground level with the two firſt; then you will have three ſtakes ſtanding in a Level.

Then keeping your Level true to the middle ſtake, turn it till it makes right angles with the three ſtakes, and ſet up two ſtakes on each ſide one Level with thoſe three, then you will have five ſtakes in two lines ſet true level.

If the ground be large, you may ſet up two rows more by the Level, but five ſtakes are enough in a ſmall ground.

When this is done, you may lay your Level aſide, and look over the head of one to the head of another, and cauſe the perſon who aſſiſts you to put down ſtakes between two and two, till you have ſet as many ſtakes level in the ground as you think convenient; or you may uſe a rule, which being placed level with the head of the ſtake, you may look over that to the head of the other, and put ſtakes down between you and the other ſtake, to what number you pleaſe.

The ground being thus ſtaked out with all the ſtakes heads level, and half a foot higher than the higheſt ground, in ſome grounds the middle ſtake, and the ſtakes in the croſs line, will be the Level line the ground muſt be brought to; that is, abating the hill, and filling up the low ſide to the Level of the middle. But if the ground be very uneven, then you muſt meaſure over all the ſtakes, and take them middle high for their mean of Level, and, by the rule of three, proportion your ground to that.

As for inſtance: If a valley be ten poles in length, and two feet in depth from the ſtrait line, and there be a hill five poles long; how many feet deep muſt a perſon ſink thoſe five poles to fill up the valley? This queſtion may be reſolved by the inverſe or back rule of three, and will ſtand thus: As 5 to 2, ſo is 10 to 4.

5 —— 2 —— 10
2
5)20(4

So that a perſon muſt go four feet deep in ſuch a hill to make good ſuch a valley.

If you are to abut the top of the hill four feet deep, and two poles from the top of that hill, theſe four feet are to come out.

To perform this, ſet up a ſtake on the top of a hill two or three feet above ground, and another of the ſame height where the depth comes out, ſet down a ſtake three rods from that, till the head comes to be in a line with theſe two, and at that ſtake you muſt be one foot deep.

At ſix poles ſtake down another as before, and there you muſt be two feet deep: then ſtake down another at nine poles, and there you muſt be three feet deep, and you may ſet more ſtakes at equal diſtances, which will direct you ſo as that you cannot go amiſs.

LEVITY is the privation or want of weight in any body, when compared with another which is heavier, in which ſenſe it is oppoſed to gravity.

The ſchoolmen maintain, that there is ſuch a thing as poſitive and abſolute Levity, and impute this to the riſe and emergency of bodies lighter in ſpecie than the fluids wherein they riſe.

But, beſides that the common ſenſe of mankind diſcovers, that Levity is only a relative term, we find that all bodies tend towards the earth, ſome ſlower, and ſome faſter, in all fluids or mediums, whether water, air, &c.

Thus cork is ſaid to be lighter than gold, becauſe under equal dimenſions of bulk the gold will ſink in, and the cork ſwim upon the water.

Archimedes has demonſtrated, That a ſolid body will float any where in a fluid of the ſame ſpecific gravity, and that a lighter body will keep above a heavier.

The reaſon of this is, becauſe bodies falling towards the earth, thoſe which have a like number of equal parts, have equal gravity, ſince the gravity of the whole is the ſum of the gravity of all its parts.

Now, two bodies having an equal number of equal parts, if under the ſame dimenſions there are no intervals deſtitute of matter; whence it follows, that as no portion of matter is ſo ſmall, but that body wherein it is contained may be wholly divided into parts equally ſmall, there can be no reaſon for the deſcent of theſe, which will not hold equally for the deſcent of that.

Hence it may be concluded, that thoſe bodies which do not equally gravitate under the ſame dimenſions, do not contain the ſame equal portions of matter, and therefore when we ſee, that a cube of gold ſubſides in water, at the ſame time that an equal bulk of cork ſwims upon it, it is evident, that the gold muſt have a greater number of equal parts of matter under the ſame bulk than the cork, or the cork muſt have a greater number of vacuities than the gold, and that there are alſo in the water a greater number of vacuities than in the gold.

Hence we have a clear idea both of denſity or gravity, and of Levity, and know, that in a ſtrict ſenſe the latter cannot be accounted any thing poſitive, but a mere negation, or abſence of body, which determines that body to be lighter than another which contains more matter.

LICHEN. Liverwort.

There being two ſorts of this plant which are uſed in medicine, and one of thoſe being accounted a ſovereign remedy for the bite of mad dogs, I thought it would not be improper to mention them here, though they are plants which cannot be propagated by any method, except by paring up the turf of Graſs whereon they grow, and laying it down on ſome moiſt ſhady place, where, if the turf takes root, and thrives, the plants will ſpread and do well.

The two SORTS are,

1. LICHEN (*Petræus*) petræus latifolius, ſive Hepatica fontana. C. B. P. *Common broad-leaved Liverwort.*
2. LICHEN (*Officinarum*) terreſtris cinereus. Raii Syn. *Aſh-coloured Ground Liverwort.*

The firſt ſort grows on the ſides of wells, and in moiſt ſhady places, not only on the ground, but on ſtones, bricks, or wood. Of this there are ſeveral varieties, which are diſtinguiſhed by the curious in botany; but as they are plants of no uſe, I ſhall not enumerate them.

The ſecond ſort (which is uſed to cure the bite of mad dogs) grows on commons and open heaths, where the Graſs is ſhort, and the ground almoſt bare, in moſt parts of England, eſpecially on declivities, and on the ſides of pits. This ſpreads on the ſurface of the ground, and, when in perfection, is of an Aſh-colour, but as it grows old, it alters, and becomes of a dark colour. This is often carried into gardens with the turf which is laid for walks and ſlopes, and where the ſoil is moiſt and cool, it will ſpread, and be difficult to deſtroy, ſo that it renders the Graſs unſightly; but this is the only method yet known to have it grow in gardens, where it is deſired.

This is eſteemed a ſovereign remedy for the bite of mad dogs, and hath been for many years uſed with great ſucceſs. It was communicated to the Royal Society by Mr. George Dampier, whoſe uncle had long uſed this plant, to cure the bite of mad dogs on men and animals, with infallible ſucceſs. The method of taking it he has delivered as followeth: "Take of the herb, and dry it either in an oven, by the fire, or in the ſun; then powder it, and paſs it through a fine ſieve; mix this with an equal quantity of fine powdered pepper. The common doſe of this mixture is four ſcruples, which may be taken in warm milk, beer, ale, or broth." He alſo adviſes, that the part bitten be well waſhed, as alſo the clothes of the perſon who was bit, leſt any of the ſnivel, or drivel of the mad dog ſhould remain. If the perſon bitten be full grown, he adviſes, that he be blooded before the medicine is taken, and to uſe the remedy as ſoon after the bite as poſſible, as alſo to repeat the doſe two or three ſeveral mornings faſting.

LIGHT is uſed in various ſenſes: 1. Sometimes it ſignifies that ſenſation which is occaſioned in the mind by the view of luminous bodies.

2. For thoſe properties in thoſe bodies, whereby they are fitted to excite thoſe ſenſations in us.

3. A certain action of the luminous body on the medium between that and the eye, by the means of which the one is ſuppoſed to act on the other, and this is called ſecondary Light, or derived Light, in diſtinction to that of luminous bodies, which is called primary or innate Light.

As to the phænomenon of light, philoſophers have explained it ſeveral ways; Ariſtotle by ſuppoſing ſome bodies to be tranſparent, as air, water, ice, &c. The Carteſians have conſiderably refined upon this notion of Light, and own, that Light, as it exiſts in the luminous body, is nothing elſe but a power or faculty of exciting in us a very clear and vivid ſenſation; and Father Malebranche explains the nature of Light by a ſuppoſed analogy between it and ſound, the latter of which is allowed to be produced by the ſhaking or vibration of the inſenſible parts of the ſonorous body.

But the greateſt diſcoveries into this wonderful phænomenon have been made by Sir Iſaac Newton, that the primary light conſiſts wholly in a certain motion of the particles of the lucid body, whereby they do not propel any fictitious matter ſuppoſed to be lodged in the hidden pores of tranſparent bodies, but throw off from the luminous body certain very ſmall particles, which are emitted every way with great force.

And the ſecondary or derived Light, not in a conatus, but in a real motion of theſe particles receding every way from the luminous body in right lines, and with an incredible velocity.

For it has been demonſtrated by Mr. Reaumur, from the obſervation on the ſatellites of Jupiter, that the progreſs of Light from the ſun to our earth is not above ten minutes, and therefore, ſince the earth is at leaſt 10,000 of its own diameters diſtant from the ſun, Light muſt run 10,000 of thoſe diameters in a minute, which is above 100,000 miles in a ſecond.

And if a bullet, moving with the ſame celerity with which it leaves the muzzle of a cannon, requires twenty-five years to paſs from the earth to the ſun, as Mr. Huygens has computed; then the velocity of Light will be to that of a cannon ball, as twenty-five years is to ten minutes, which is above 10,000 to 1: ſo that the particles of Light move above a million of times ſwifter than a cannon ball, from which rapidity of motion very ſtrange effects may be produced; but Sir Iſaac Newton has ſhewn, paſt contradiction, that the Light of the ſun is near ſeven minutes in its paſſage to the earth, which is the ſpace of 50,000,000, a velocity 10,000,000 times greater than that wherewith a ball flies out of the mouth of a cannon.

Sir Iſaac Newton alſo obſerves, that bodies and Light act mutually on one another: bodies on Light, in emitting, reflexing, refracting, and inflecting it, and Light on bodies, by heating them, and putting their parts into a vibrating motion, wherein heat principally conſiſts; for he obſerves, that all fixed bodies, when heated beyond a certain degree, emit Light and ſhine, which ſhining, &c. appears to be owing to the vibrating motion of the parts, and all bodies abounding in earthy and ſulphureous particles, if they be ſufficiently agitated emit Light, which way ſoever the agitation be effected.

The ſame great author obſerves, that there are but three affections of Light wherein the rays differ, viz. refrangibility, reflexibility, and colour; and thoſe rays which agree in refrangibility, agree alſo in the other two, whence they may be well defined homogeneal. Again, the colours exhibited by homogeneal Light, he calls homogeneal colours, and thoſe produced by heterogeneal Light, heterogeneal colours; from which definitions he advances ſeveral propoſitions:

1. That the ſun's Light conſiſts of rays differing by indefinite degrees of refrangibility.

2. That rays, which differ in refrangibility, when parted from one another, do proportionably differ in the colours which they exhibit.

3. That there are as many ſimple and homogeneal colours, as there are degrees of refrangibility, for to every degree of refrangibility belongs a different colour.

4. Whiteneſs, in all reſpects, like that of the ſun's immediate Light, and of all the uſual objects of our ſenſes, cannot be compounded of ſimple colours, without an indefinite variety of them, for to ſuch a compoſition there are required rays endued with all the indefinite degrees of refrangibility, which infer as many ſimple colours.

5. The rays of Light do not act one on another in paſſing through the ſame medium.

6. The rays of Light do not ſuffer any alteration of their qualities from refraction, nor from the adjacent quieſcent medium.

7. There can be no homogeneal colours produced out of Light by refraction, which are not commixed in it before, ſince refraction changes not the qualities of the rays, but only ſeparates thoſe that have divers qualities by means of their different refrangibility.

8. The ſun's Light is an aggregate of homogeneal colours, whence homogeneal colours may be called primitive or original.

Hence proceeds the whole theory of colours in plants and flowers.

Thoſe parts, v. g. which are the moſt refrangible, conſtitute Violet colour, the dimmeſt and moſt languid of all colours.

And, on the contrary, thoſe particles that are the leaſt refrangible, conſtitute a ray or a red colour, which is the brighteſt and moſt vivid of all colours; the other particles being diſtinguiſhed into little rays, according to their reſpective magnitudes and degrees of refrangibility, excite intermediate vibrations, and ſo occaſion the ſenſations of the intermediate colours. See Sir Iſaac Newton's Doctrine of Colours.

Perhaps theſe obſervations of Light may to ſome perſons ſeem foreign to the ſubject matter of this book, yet, if thoroughly underſtood might probably be found very uſeful. The learned and curious enquirer into the buſineſs of vegetation, the Rev. Dr.

Hales, in his treatiſe on that head, does, upon the query put by Sir Iſaac Newton [" Are not groſs bodies and Light convertible into one another? And " may not bodies receive much of their activity " from the particles of Light which enter their compoſition? The change of bodies into Light, and " of Light into bodies, is very conformable to the " courſe of nature, which ſeems delighted with tranſmutations,"] add this query, " And may not " Light alſo, by freely entering the expanded ſurfaces of leaves and flowers, contribute much to the " ennobling the principles of vegetables?"

That Light has been found to be of infinite ſervice to the growth of vegetables, has been fully proved by many experiments: 1. By painting the walls of the inſide of a green-houſe black, whereby there will be no reflected rays of Light, when the weather becomes ſo cold, as that the ſhutters to the windows have been obliged to be kept ſhut a few days, the leaves of thoſe plants which have been placed therein have dropped off.

And plants which have been placed in dark rooms, have been found to do the ſame. The earthing up plants to blanch them, whereby they become tender, and better for uſe; yet if theſe are not uſed, when properly blanched, will ſoon decay: the like will happen if plants are covered cloſe, ſo as no Light can come to them, they will ſoon grow pale and ſicken, and afterward decay.

How much the fine racy flavour of fruits is owing to Light is hard to ſay, but from a few experiments it appears, moſt of their rich juices are beholden to Light for their excellence; therefore we may truly aver, that Light is as neceſſary to promote vegetation as for animal œconomy.

LIGUSTICUM. Tourn. Inſt. R. H. 323. tab. 171. Lin. Gen. Plant. 308. [takes its name of Liguria, becauſe this plant, in old time, grew in greateſt plenty near a river of Genoa, called Liguria.] Lovage; in French, *Livêche.*

The CHARACTERS are,

It hath an umbellated flower. The general umbel is compoſed of ſeveral ſmaller, which are alſo compoſed of other yet ſmaller. The general umbel has an involucrum compoſed of ſeven unequal leaves. The perianthium of the flower is indented in five parts, ſitting upon the germen. The flower hath five equal petals, which are inflexed at their points, and keel-ſhaped within. It hath five hairy ſtamina, which are ſhorter than the petals, terminated by ſimple ſummits. The germen, which is ſituated under the flower, ſupports two ſimple ſtyles, crowned by ſimple ſtigmas. The germen afterward turns to an oblong fruit, divided into two parts, which is angular and channelled, containing two oblong ſmooth ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fifth claſs, which contains thoſe plants whoſe flowers have five ſtamina and two ſtyles.

The SPECIES are,

1. LIGUSTICUM (*Leviſticum*) foliis multiplicibus, foliolis ſupernè inciſis. Hort. Cliff. 97. *Lovage with many leaves, whoſe lobes are cut outward toward the top.* Leviſticum vulgare. Mor. Hiſt. 3. p. 275. *Common Lovage.*
2. LIGUSTICUM (*Scoticum*) foliis biternatis. Lin. Sp. Plant. 250. *Lovage with double trifoliate leaves* Liguſticum Scoticum Apii folio. Tourn. Inſt. R. H. 324. *Scotch Lovage with a Smallage leaf.*
3. LIGUSTICUM (*Auſtriacum*) foliis bipinnatis, foliolis confluentibus inciſis integerrimis. Lin. Sp. 360. *Lovage with double winged leaves, whoſe lobes run together, and have entire ſegments.* Liguſticum cicutæ folio glabrum. Tourn. Inſt. R. H. 323. *Lovage with a ſmooth Hemlock leaf.*
4. LIGUSTICUM (*Lucidum*) foliis pinnatifidis, foliolis linearibus planis. *Lovage with wing-pointed leaves, whoſe lobes are very narrow and plain.* Liguſticum Pyrenaicum, fœniculi folio lucidum. Tourn. Inſt. 324. *Lovage of the Pyrenees, with a ſhining Fennel leaf.*
5. LIGUSTICUM (*Peloponnaſiacum*) foliis multiplicato-pinnatis, foliolis pinnatim inciſis. Lin. Sp. 36. *Lovage with leaves many times winged, and lobes cut like wings.* Cicutaria latifolia fœtida. C. B. P. 161. *Broad-leaved, ſtinking, Baſtard Hemlock.*

The firſt ſort is the common Lovage of the ſhops; this was formerly cultivated in the kitchen-gardens as an eſculent herb, but has been long diſuſed as ſuch in England. It grows naturally upon the Appenines, and alſo near the river Liguria not far from Genoa; this hath a ſtrong, fleſhy, perennial root, which ſtrikes deep into the ground, and is compoſed of many ſtrong fleſhy fibres covered with a brown ſkin, and has a ſtrong, hot, aromatic ſmell and taſte. The leaves are large, winged, and compoſed of many large lobes ſhaped like thoſe of Smallage, but are larger, and of a deeper green. The lobes toward the top are cut into acute ſegments. The ſtalks riſe to the height of ſix or ſeven feet; they are large and channelled, dividing into ſeveral branches, each being terminated by a large umbel of yellow flowers, which are ſucceeded by oblong ſtriated ſeeds. It flowers in June and July, and the ſeeds ripen in autumn.

This is eaſily propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe; for when they are kept out of the ground till ſpring, they ſeldom grow the firſt year; when the plants come up and are fit to remove, they may be tranſplanted into a moiſt rich border, at about three feet diſtance from each other; and after they have taken new root, they will require no other care but to keep them clean from weeds. The roots will abide many years, and where the ſeeds are permitted to ſcatter, the plants will come up without care.

The roots, leaves, and ſeeds of Lovage, are heating and drying; they warm and comfort the ſtomach, expel wind, and provoke urine.

The ſecond ſort grows naturally near the ſea in many parts of Scotland; this hath a biennial root, but of much leſs ſize than the former; the leaves are compoſed of broader and ſhorter lobes, each leaf having two or three trifoliate leaves, whoſe lobes are indented on their edges. The ſtalk riſes about a foot high, ſuſtaining a ſmall umbel of yellow flowers on the top, ſhaped like thoſe of the former; theſe appear in June, and are ſucceeded by oblong channelled ſeeds, which ripen in autumn. This plant may be cultivated in the ſame manner as the former.

The third ſort grows naturally on the Alps; this is a perennial plant. The ſtalks riſe about two feet high, and at every joint are bent alternately, firſt to one ſide, then to the oppoſite; at every joint they are garniſhed with doubly winged leaves, compoſed of ſmall lobes which run into each other, and juſt above each leaf comes out a ſide branch; theſe, as alſo the principal ſtalks, are terminated by umbels of white flowers, which appear in June, and are ſucceeded by oblong channelled ſeeds, which ripen in autumn.

The fourth ſort grows naturally on the Pyrenean Mountains; this hath a biennial root. The leaves are doubly winged. The lobes are very narrow, and finely divided. The ſtalks are ſtrong, and riſe a foot and a half high, garniſhed with ſhining winged leaves, and are terminated by pretty large umbels of whitiſh flowers, which appear in June, and the ſeeds ripen in September.

The fifth ſort grows naturally on the Peloponeſian Mountains; this hath a very thick fleſhy root like that of Parſnep, which ſtrikes deep in the ground. The leaves are very large, being compoſed of many winged leaves, whoſe lobes are cut into acute points; theſe are of a deep green, and, when bruiſed, emit a fœtid odour. The ſtalks riſe three or four feet high; they are very large and hollow, like thoſe of Hemlock, and ſuſtain at their top large umbels of yellowiſh flowers, in ſhape of a corymbus; theſe appear in June, and are ſucceeded by oblong channelled ſeeds which ripen in autumn.

This has by ſome perſons been thought to be the Hemlock of the antients, their conjectures being founded upon the plant anſwering in many particulars to the deſcription, and alſo from the poiſonous quality of this together with its fœtid ſcent; and as this grows naturally in many parts of Aſia, ſo they have been induced to believe it might be the ſame plant.

All theſe plants are preſerved in botanic gardens for the ſake of variety, but are ſeldom cultivated any where elſe; they riſe eaſily from ſeeds, which ſhould be ſown in autumn, and the plants afterward treated in the ſame way as the firſt; they love a moiſt ſoil and a ſhady ſituation.

LIGUSTRUM. Tourn. Inſt. R. H. 596. tab. 367. Lin. Gen. Plant. 18. Privet; in French, *Troene*.

The Characters are,

The flower has a ſmall tubular empalement, cut at the top into four obtuſe ſegments. It hath one funnel-ſhaped petal, with a cylindrical tube cut into four oval ſegments at the top, which ſpread open. It hath two ſtamina which ſtand oppoſite, terminated by erect ſummits which are the length of the tube of the petal, and one roundiſh germen ſupporting a ſhort ſtyle, crowned by an obtuſe bifid ſtigma. The germen afterward turns to a ſmooth round berry with one cell, incloſing two oblong ſeeds, flat on one ſide, but convex on the other.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, which includes thoſe plants whoſe flowers have two ſtamina and one ſtyle.

The Species are,

1. Liguſtrum (*Vulgare*) foliis lanceolato-ovatis obtuſis. *Privet with ſpear-ſhaped, oval, obtuſe leaves.* Liguſtrum Germanicum. C. B. P. 475. *The common Privet.*
2. Liguſtrum (*Italicum*) foliis lanceolatis acutis. *Privet with ſpear-ſhaped leaves.* Liguſtrum foliis majoribus & magis acuminatis toto anno folia retinens. Pluk. Alm. 217. *Privet with larger and more acute-pointed leaves, which continue all the year, commonly called the Italian ever-green Privet.*

The firſt ſort grows common in the hedges in moſt parts of England, where it riſes fifteen or ſixteen feet high, with a woody ſtem, covered with a ſmooth gray bark, ſending out many lateral branches which are garniſhed with ſpear-ſhaped, oval, ſmooth leaves, ending with obtuſe points; they are placed by pairs oppoſite, ſitting cloſe to the branches, and are of a dark green. The flowers are produced in thick ſpikes at the end of the branches; they are white, with one tubular petal cut at the top into four parts, which ſpread open. Theſe come out in June, and are ſucceeded by ſmall round black berries, which ripen in the autumn; each of theſe contain two ſeeds. The leaves of this ſort frequently remain green till after Chriſtmas, when they alter their colour and fall off.

There are two varieties of this ſort, one whoſe leaves are variegated with white, and the other hath leaves variegated with yellow; but in order to preſerve theſe varieties, they ſhould be planted in poor land; for if they are in a rich ſoil, they will grow vigorous and ſoon become plain.

The other ſort grows naturally in Italy; this riſes with a ſtronger ſtalk than the former, the branches are leſs pliable and grow more erect; their bark is of a lighter colour; the leaves are much larger, and end in acute points; they are alſo of a brighter green, and continue upon the ſhrubs in verdure, till they are thruſt off by the young leaves in the ſpring, as the Phillyrea and moſt other Evergreens do; ſo that it is undoubtedly a diſtinct ſort, though many have ſuppoſed they were the ſame. The flowers of this are rather larger than thoſe of the common ſort, and are not often ſucceeded by berries in this country.

The leaves and flowers of the firſt ſort are uſed in medicine; they are reckoned to be cooling, drying, and reſtringent, good for ulcers and inflammations of the mouth and throat, bleeding of the gums, and relaxation of the uvula.

This ſhrub is frequently cultivated in the nurſeries near London, to furniſh the ſmall gardens and balconies in the city, it being one of the few plants which will thrive in the ſmoke of London; but although it will live ſome years in the cloſe part of the town, yet it ſeldom produces flowers there after the firſt year, unleſs it is in ſome open places, where there is a free air. In the country, the leaves of this plant will continue green great part of the winter. It flowers in June, and the berries ripen in autumn, which generally hang upon the branches till Chriſtmas.

The Italian ſort is now generally preferred to the common ſort for planting in gardens, the leaves being larger and continuing green all the year, renders it more valuable; and being ſo hardy as to reſiſt the greateſt cold in this country, it may be planted in any ſituation where the common ſort will thrive. I have frequently planted it under the dropping of large trees, where I find it will thrive better than moſt other ſhrubs.

I cannot but think this ſort which is the moſt common in Italy, is the Liguſtrum mentioned by Virgil in the ſecond Eclogue: and my reaſon for it is, that as the flowers of this ſhrub are of a pure white, but fall off very ſoon, they are by no means proper to gather for garlands, &c. and the berries being of a fine black colour, and continuing long upon the plants, make a fine appearance. To confirm that theſe berries were gathered for uſe, we find in ſeveral authors of undoubted credit, that they were uſed in dyeing, as alſo that the beſt ink was made of theſe berries.

Beſides, is it not much more reaſonable to ſuppoſe, that Virgil would rather draw his compariſon from the flowers and fruit of the ſame plant, when he is warning the youth not to truſt to his beauty, than to mention two different plants, as has been generally ſuppoſed? for here are the white flowers of the Privet appearing early in the ſpring, which is an alluſion to youth; but theſe are of ſhort duration, ſoon falling away; whereas the berries, which may be applied to mature age, are of long continuance, and are gathered for uſe.

Theſe plants are eaſily propagated by laying down their tender ſhoots in autumn, which in one year's time will be rooted enough to tranſplant; when they may be removed to the places where they are deſigned to remain, or planted in a nurſery for two or three years, where they may be trained for the purpoſes deſigned.

They are alſo propagated by ſuckers, which theſe plants ſend forth in great plenty; but theſe are too apt to put out a great number of ſuckers from their roots, ſo are not eaſily kept within bounds; nor do the plants riſe ſo high as thoſe which are propagated by layers, therefore this method ſhould be preferred.

They may alſo be propagated by cuttings, which, if planted in the autumn on a ſhady border and in a loamy ſoil, will take root very freely, and may be afterward treated in the ſame way as the layers.

But the ſtrongeſt and beſt plants, are thoſe which are raiſed from ſeeds; indeed, this is a much more tedious method than the other, ſo is ſeldom practiſed, for the ſeeds generally lie a year in the ground before they vegetate; therefore, whoever would propagate the plants in this method, ſhould gather the berries when ripe, and put them into a pot with ſand between them, and bury the pot in the ground, as is practiſed for Holly berries and Haws; and after they have laid a year in the ground, take them up in the autumn, and ſow them on a border expoſed to the eaſt, where the plants will come up the following ſpring, and theſe will make great progreſs after they have gotten ſome ſtrength, ſo will grow upright, and not ſend out ſuckers like the other.

Formerly theſe plants were greatly in uſe for hedges, but ſince ſo many others of great beauty have been introduced, which are much preferable to theſe for ſuch purpoſes, they have been entirely rejected, the trouble of keeping them in order being very great; nor are the hedges made with them ever ſo thick and handſome, as thoſe made with divers other plants.

The two variegated kinds are pretty varieties amongſt other ſtriped ſhrubs. Theſe may be propagated by budding, or inarching them upon the plain ſort, as alſo by laying down their branches; but as they ſeldom ſhoot ſo faſt, as to produce any branches proper for layers, the other method is chiefly uſed. The ſilver ſtriped ſort is ſomewhat tenderer than the plain, but will endure the open air, if planted in a dry ſoil and in a warm ſituation.

LILAC. See Syringa.

LILIASTRUM. See Hemerocallis.

LILIO-ASPHODELUS. See Hemerocallis and Crinum.

LILIO-FRITILLARIA. See Fritillaria.

LILIO-HYACINTHUS. See Scilla.

LILIO-NARCISSUS. See Amaryllis.

LILIUM. Tourn. Inſt. R. H. 369. tab. 191. Lin. Gen. Plant. 371. [takes its name of λεῖος, ſmooth, poliſhed, becauſe its leaves are, as it were, poliſhed; or of λειρὸν, which ſignifies the ſame thing,] the Lily; in French, *Lis.*

The Characters are,

The flower has no empalement; it hath ſix petals, which are narrow at their baſe, but are broad, obtuſe, and reflexed at their points. The flower is of the open bell-ſhape, the petals are thick, obtuſe, and keel-ſhaped; on their back each petal has a narrow longitudinal nectarium at their baſe. It hath ſix ſtamina which are erect and ſhorter than the petals, terminated by oblong proſtrate ſummits, with a cylindrical oblong germen having ſix furrows, ſupporting a cylindrical ſtyle the length of the petals, crowned by a thick triangular ſtigma. The germen afterward becomes an oblong capſule with ſix rough furrows hollowed at the top, having three cells which are filled with flat half round ſeeds, lying above each other in a double order.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, which includes thoſe plants whoſe flowers have ſix ſtamina and one ſtyle.

The Species are,

1. Lilium (*Candidum*) foliis ſparſis, corollis campanulatis erectis, intus glabris. Hort. Cliff. 120. *Lily with ſparſed leaves, and a bell-ſhaped erect flower which is ſmooth within.* Lilium album, flore erecto & vulgare. C. B. P. 76. *Common white Lily with an erect flower.*
2. Lilium (*Peregrinum*) foliis ſparſis, corollis campanulatis cernuis, petalis baſi anguſtioribus. *Lily with ſparſed leaves, and a bell-ſhaped nodding flower, whoſe petals are narrower at their baſe.* Lilium album, floribus dependentibus, ſive peregrinum. C. B. P. 76. *White foreign Lily with pendent flowers.*
3. Lilium (*Bulbiferum*) foliis ſparſis, corollis campanulatis erectis, intus ſcabris. Hort. Cliff. 120. *Lily with ſparſed leaves, and an erect bell-ſhaped flower, rough within.* Lilium purpureo-croceum majus. C. B. P. 76. *Greater Lily with a purple Saffron-coloured flower, commonly called Orange Lily.*
4. Lilium (*Humile*) humile, foliis linearibus ſparſis, corollis campanulatis erectis, caule bulbifero. *Dwarf Lily with narrow ſparſed leaves, erect bell-ſhaped flowers, and a ſtalk bearing bulbs.* Lilium bulbiferum minus. C. B. P. 77. *Smaller bulb-bearing Lily, by ſome called the fiery Lily.*
5. Lilium (*Pomponium*) foliis ſparſis ſubulatis, floribus reflexis, corollis revolutis. Hort. Cliff. 120. *Lily with awl-ſhaped ſparſed leaves and reflexed flowers, whoſe petals are turned backward.* Lilium rubrum anguſtifolium. C. B. P. 78. *Narrow-leaved red Lily or Martagon.*
6. Lilium (*Anguſtifolium*) foliis linearibus ſparſis, pedunculis longiſſimis. *Lily with narrow ſparſed leaves, and very long foot-ſtalks to the flowers.* Lilium brevi & gramineo folio. C. B. P. 79. *Lily with a ſhort Graſs leaf, commonly called Martagon of Pompony.*
7. Lilium (*Chalcedonicum*) foliis ſparſis lanceolatis, floribus reflexis, corollis revolutis. Hort. Cliff. 120. *Lily with ſparſed ſpear-ſhaped leaves, and reflexed flowers whoſe petals turn backward.* Lilium Byzantinum miniatum. C. B. P. 78. *Lily of Byzantium with a carmine flower, commonly called the ſcarlet Martagon.*
8. Lilium (*Superbum*) foliis ſparſis lanceolatis, floribus pyramidatis reflexis, corollis revolutis. *Lily with ſparſed ſpear-ſhaped leaves, and pyramidal reflexed flowers, whoſe petals turn backward.* Martagon multis & magnis floribus luteis alios ſuperans. Suvert. Icon. Pl. 57. *The great yellow Martagon.*
9. Lilium (*Martagon*) foliis verticillatis, floribus reflexis, corollis revolutis. Hort. Cliff. 120. *Lily with leaves growing in whorls, and reflexed flowers whoſe petals turn backward.* Lilium floribus reflexis montanum. C. B. P. 77. *Mountain Lily with reflexed flowers, commonly called purple Martagon.*
10. Lilium (*Hirſutum*) foliis verticillatis hirſutis, floribus reflexis, corollis revolutis. *Lily with hairy leaves growing in whorls, and reflexed flowers whoſe petals turn backward.* Lilium floribus reflexis alterum lanugine hirſutum. C. B. P. 718. *Another Lily with reflexed flowers which is hairy and downy, commonly called the red Martagon.*
11. Lilium (*Canadenſe*) foliis verticillatis, floribus reflexis corollis campanulatis. Lin. Sp. Plant. 303. *Lily with leaves growing in whorls, and reflexed bell-ſhaped flowers.* Lilium, ſc. martagon Canadenſe maculatum. Mor. Hiſt. 2. p. 408. *Lily, or Martagon of Canada with ſpotted flowers.*
12. Lilium (*Campſchatenſe*) foliis verticillatis, floribus erectis, corollis campanulatis. Amœn. Acad. 2. p. 348. *Lily with leaves growing in whorls, and an erect bell-ſhaped flower.*
13. Lilium (*Philadelphicum*) foliis verticillatis brevibus, corollis campanulatis, unguibus petalorum anguſtioribus, floribus erectis. Icon. tab. 165. *Lily with very ſhort leaves growing in whorls, and bell-ſhaped flowers whoſe petals are very narrow at their baſe.*

There is a greater variety of Martagons than are here mentioned, but as they are ſuppoſed to be only accidental ariſing from culture, ſo I thought it would be to little purpoſe to inſert them here; therefore I ſhall only give their common titles hereafter.

The common white Lily is ſo well known as to need no deſcription; this grows naturally in Paleſtine and Syria, but has been long cultivated in all the gardens of Europe. It is ſo hardy that no froſt ever injures the roots in England, and it propagates ſo faſt by offſets from the roots, that it is become ſo common as to be little regarded, though there is great beauty in the flowers, and they emit an agreeable odour. Of this ſort there are the following varieties:

11. The white Lily ſtriped with purple.
The white Lily with variegated leaves.
The white Lily with double flowers.

Theſe are varieties which have accidentally riſen from culture; the ſort with variegated flowers has not been in England much more than thirty-five years, but is now very common in moſt of the gardens, and is by ſome perſons eſteemed for the variety of its purple ſtripes; but as the pure white of the flower is ſtained by the purple, ſo as to appear of a dull colour, therefore many prefer the common white Lily.

The ſort with variegated leaves is chiefly valued for its appearance in winter and ſpring, for as the leaves come up early in the autumn, which ſpread themſelves flat on the ground, and being finely edged with broad yellow ſtripes, they make a pretty appearance during the winter and ſpring months. The flowers are the ſame as thoſe of the common ſort, but appear earlier in ſummer, which may be occaſioned by the roots being weaker than thoſe of the plain ſort, for all variegated plants are weaker than thoſe which are plain.

The white Lily with double flowers is leſs valuable than either of the other, becauſe their flowers never open well, unleſs they are covered with glaſſes to ſhelter them from the rain and dew, ſo often rot without expanding. Theſe flowers have none of the agreeable odour which the ſingle ſort is valued for, even when they open the faireſt; for as by the multiplicity of petals in the flowers, the parts of generation are deſtroyed, ſo there is a want of the fecundating powder from whence the odour is ſent out.

The roots, leaves, and flowers of the common white Lily are uſed in medicine; the roots are frequently uſed to ſoften, ripen, and digeſt tumours and hard ſwellings. Matthiolus ſays, that the diſtilled water of the flowers, is properly and ſucceſsfully given to women in hard labour; and the diſtilled water of the leaves is of great uſe in diſtempers of the lungs.

The white Lily with dependent flowers, was originally brought from Conſtantinople. This is by ſome ſuppoſed to be only a variety of the common ſort, but is undoubtedly a diſtinct ſpecies; the ſtalk is much ſlenderer than the common, the leaves are narrower and fewer in number; the flowers are not quite ſo large, and the petals are more contracted at their baſe; theſe always hang downward, whereas thoſe of the common ſort grow erect. The ſtalks of this kind ſometimes are very broad and flat, and appear as if two or three were joined together; when this happens, they ſuſtain from ſixty to a hundred flowers, and ſometimes more; this has occaſioned many to think it a different ſort, who have mentioned this with broad ſtalks and many flowers as a diſtinct ſpecies, though it is accidental, for the ſame root ſcarce ever produces the ſame two years.

Theſe ſorts are eaſily propagated by offsets, which the roots ſend out in ſo great plenty, as to make it neceſſary to take them off every other, or at moſt every third year, to prevent their weakening the principal roots. The time for removing the roots is at the end of Auguſt, ſoon after the ſtalks decay; for if they are left longer in the ground, they will ſoon put out new fibres and leaves, when it will be improper to remove them, becauſe that will prevent their flowering the following ſummer. They will thrive in almoſt any ſoil or ſituation, and as they grow tall and ſpread, ſo they muſt be allowed room; therefore in ſmall gardens they take up too much ſpace, but in large borders they are very ornamental.

The common Orange or red Lily, is as well known in the Engliſh gardens as the white Lily, and has been as long cultivated here. This grows naturally in Auſtria and ſome parts of Italy. This ſort multiplies very faſt by offsets from the roots, and is now ſo common, as to be almoſt rejected; however, in large gardens theſe ſhould not be wanting, for they make a good appearance when in flower, if they are properly diſpoſed. Of this ſort there are the following varieties;

The Orange Lily with double flowers.
The Orange Lily with variegated leaves.
The ſmaller Orange Lily.

Theſe varieties have been obtained by culture, and are preſerved in the gardens of floriſts. They all flower in June and July, and their ſtalks decay in September, when the roots may be tranſplanted, and their offsets taken off, which ſhould be done once in two or three years, otherwiſe their bunches will be too large, and the flower-ſtalks weak. This doth not put out new leaves till toward ſpring, ſo that the roots may be tranſplanted at any time after the ſtalks decay till near Chriſtmas. It will thrive in any ſoil or ſituation, but will be ſtrongeſt in a ſoft gentle loam not too moiſt.

The bulb-bearing fiery Lily ſeldom riſes much more than half the height of the former; the leaves are narrower, the flowers are ſmaller, and of a brighter flame colour; they are few in number, and ſtand more erect. Theſe come out a month before the common ſort, and the ſtalks put out bulbs at moſt of the joints, which, if taken off, when the ſtalks decay, and planted, will produce plants, ſo that it may be propagated in plenty. There are ſeveral varieties of this, which are mentioned as diſtinct ſpecies, but are ſuppoſed to have been produced by culture. Theſe are,

The greater broad-leaved bulb-bearing Lily.
The many-flowered bulb-bearing Lily.
The ſmall bulb-bearing Lily.
The hairy bulb-bearing Lily.

All theſe ſorts of Lilies will thrive under the ſhade of trees, ſo may be introduced in plantations, and on the borders of woods, where they will have a good effect during the time they are in flower.

There is a great variety of the Martagon Lily; theſe differ from the common Lilies, in having their petals reflexed backward in form of a Turk's turbant, from whence many give them the title of Turk's Cap. In the gardens of the floriſts, particularly thoſe in Holland, they make a great variety of theſe flowers, amounting to the number of thirty or upward; but in the Engliſh gardens, I have not obſerved more than half that number, and moſt of theſe are accidental, for thoſe before enumerated, are all that I think may be ſuppoſed ſpecifically different. However, for the ſake of ſuch as are curious in collecting theſe ſorts of flowers, I ſhall here mention all thoſe varieties which are to be found in the Engliſh gardens.

The common Martagon with double flowers.
The white Martagon.
The double white Martagon.
The white ſpotted Martagon.
The Imperial Martagon.
The early ſcarlet Martagon.
The Conſtantinople Vermillion Martagon.

The common Martagon with red flowers, which is the fifth ſort before enumerated, has very narrow leaves, growing without order. The ſtalk riſes near three feet high, ſuſtaining at the top eight or ten bright red flowers, which ſtand at a diſtance from each other. Theſe appear in June, and the ſtalks decay in Auguſt, ſoon after which time the roots may be tranſplanted.

The ſixth ſort is called Martagon of Pompony; the ſtalks of this riſe higher than thoſe of the former, the leaves are ſhorter, and ſet cloſer upon the ſtalks; each of theſe ſtalks ſuſtain from fifteen to thirty flowers, of a very bright red, approaching to ſcarlet. The foot-ſtalks of the flowers are very long, ſo that the head of flowers ſpreads out very wide; theſe hang downward, but their petals are reflexed quite back. This flowers ſoon after the fifth ſort.

The ſeventh ſort is commonly known by the title of Scarlet Martagon; this riſes with a ſtalk from three to four feet high; the leaves are much broader than thoſe of the former ſorts, and appear as if they were edged with white; they are placed very cloſely upon the ſtalks, but without any order. The flowers are produced at the top of the ſtalk; they are of a bright ſcarlet, and are ſeldom more than five or ſix in number. This flowers late in July, and in cool ſeaſons will continue in beauty great part of Auguſt.

The eighth ſort riſes with a ſtrong ſtalk from four to five feet high, garniſhed with leaves as broad as thoſe of the laſt mentioned, which ſtand without order; the flowers are produced in form of a pyramid, on the upper part of the ſtalk. When the roots of this kind are ſtrong, they produce forty or fifty flowers upon each ſtalk; they are large, of a yellow colour, ſpotted with dark ſpots, ſo make a fine appearance; but the flowers have ſo diſagreeable ſtrong ſcent, that few perſons can endure to be near them, which has occaſioned their being thrown out of moſt Engliſh gardens. This flowers the latter end of June.

The ninth ſort is frequently called the Purple Martagon, though in moſt of the old gardens it is known ſimply by the title of Turk's Cap. This riſes with a ſtrong ſtalk from three to four feet high, garniſhed by pretty broad leaves, which ſtand in whorls round the ſtalk, at certain diſtances. The flowers are of a dark purpliſh colour, with ſome ſpots of black; they are produced in looſe ſpikes on the top of the ſtalks. This flowers in June; the flowers of this ſort have a very diſagreeable odour when near, but it is not ſo offenſive as the former ſort.

The tenth ſort is very like the former, but the leaves are narrower; the whorls ſtand farther aſunder, the leaves and ſtalks are ſomewhat hairy, and the buds of the flowers are covered with a ſoft down: the flowers are of a brighter colour with few ſpots, and come out earlier in the ſummer, though the ſtalks appear much later above ground. This flowers early in June, and the ſtalks decay in Auguſt.

The eleventh ſort is commonly called the Canada Martagon, as it was firſt brought to Europe from thence, but it grows naturally in moſt parts of North America. The roots of this are oblong and large, made up of ſcales like the other ſorts; the ſtalks riſe from four to five feet high, garniſhed with oblong pointed leaves placed in whorls round the ſtalk. The flowers are produced toward the top of the ſtalk; they are large, of a yellow colour, ſpotted with black, which are ſhaped like the flowers of the Orange Lily; the petals of them are not turned backward ſo much as thoſe of the other ſorts of Martagon. This flowers the beginning of Auguſt, and when the roots are large, the ſtalks have a good number of flowers, ſo make a fine appearance. There are two varieties of this, one with larger and deeper coloured flowers than the other, but they are ſuppoſed to have accidentally come from ſeeds.

The twelfth ſort grows naturally in North America, and is alſo mentioned to grow at Campſchatſki. This hath erect flowers ſhaped like thoſe of the Canada Martagon, but the petals of this are oval, not narrowed at their baſe as are thoſe, and ſit cloſe to the foot-ſtalk; the flowers are of a deeper colour, and not ſo much ſpotted as the other ſort. It flowers in July, and the ſtalks decay in the autumn.

This ſort is at preſent rare in England, being in very few gardens. It was ſent me a few years ago from Maryland, but after it had flowered the root periſhed.

The thirteenth ſort was ſent me from Penſylvania by Mr. John Bartram, who found it growing naturally in that country. The root of this is ſmaller than thoſe of the other ſorts; it is ſcaly and white; in the ſpring it ſends out one upright ſtalk near a foot and a half high; the leaves come out in whorls round the ſtalks, at diſtances; they are ſhort, pretty broad, and have obtuſe points. The ſtalk is terminated by two flowers which ſtand erect, upon ſhort ſeparate foot-ſtalks; they are ſhaped like the flowers of the bulb-bearing fiery Lily, but the petals are narrower at their baſe, ſo that there are ſpaces between each, but upward they enlarge and join, forming a ſort of open bell-ſhaped flower; their petals are ſpear-ſhaped, ſo are contracted at the top, where they terminate in acute points. The flowers are of a bright purple colour, marked with ſeveral dark purple ſpots toward their baſe. In the center of the flower is ſituated a ſix-cornered germen, ſupporting a ſtrong ſtyle, crowned by a three-cornered ſtigma; round this are ſituated ſix awl-ſhaped ſtamina, terminated by oblong proſtrate ſummits; theſe are a little ſhorter than the ſtyle. The germen afterward turns to an oblong capſule with three angles, blunt at the top, divided into three cells, filled with flat ſeeds lying over each other. It flowers in July, and the ſeeds ripen the latter end of September.

This ſort is at preſent very rare in the Engliſh gardens, but as it has ripened ſeeds the laſt ſeaſon here, ſo it may in a few years become very common. As this ſort grows in a ſmall compaſs, and the flowers have no ill ſcent, it is proper furniture for the borders of ſmall gardens. The ſtalks of this decay ſoon after the ſeeds are ripe, when it will be a proper time to remove the roots, for theſe do not put out new fibres till after Chriſtmas. The roots of this kind do not put out many offſets, ſo that unleſs it is propagated by ſeeds, it cannot be increaſed in any plenty.

All the ſorts of Martagon may be propagated by offſets from the roots, in the ſame way as the common Lily, which ſome of the ſorts produce in as great plenty; but there are others which ſend out very few offſets, which occaſion their preſent ſcarcity. The roots of all the ſorts of Martagon may be ſafely taken up when their ſtalks decay; and if there is a neceſſity for keeping the roots out of the ground, if they are wrapped in dry Moſs, they will keep perfectly well for two months; ſo that if the roots are to be tranſported to a diſtant place, this precaution of wrapping them up is neceſſary; but where they are to be planted in the ſame garden, there will be no occaſion for this, eſpecially if they are not kept too long out of the ground; for if the place is ready to receive the roots, they ſhould be planted the beginning of October; ſo if the roots are put in a dry cool place, they will keep very good without any further care; but if the ground is not ready to receive them till later in the year, then it will be proper to cover the roots with dry ſand, or wrap them in Moſs to exclude the air, which, if they are much expoſed to, will cauſe their ſcales to ſhrink, which weakens the roots, often cauſing a mouldineſs, and is ſometimes the occaſion of their rotting.

Theſe roots ſhould be planted five or ſix inches deep in the ground, eſpecially if the ſoil is light and dry; but where the ground is moiſt, it will be proper to raiſe the borders in which theſe are to be planted, five or ſix inches above the level of the ſurface of the ground; for if the water riſes ſo high in winter as to come near the roots, it will cauſe them to rot; and where the ſoil is naturally ſtiff and ſubject to bind, there ſhould be a good quantity of ſea-coal aſhes or rough ſand, well mixed in the border, to ſeparate the parts, and prevent the ground from binding in the ſpring, otherwiſe the roots will not ſend up very ſtrong ſtalks, nor will they make ſo good increaſe.

As the Canada Martagon, the Martagon of Pompony, and the laſt ſort, are ſomewhat tenderer than the others, ſo if in very ſevere winters the ſurface of the ground over them is covered with old tanners bark or ſea-coal aſhes, it will be a good way to ſecure them from being injured by the froſt; and in the ſpring the covering may be removed, before the roots ſhoot up their ſtalks.

The tall growing ſorts of theſe are only proper for large gardens, ſo they may be intermixed with the white and Orange Lilies, the tall growing Iriſes, and other flowers of the ſame growth; where, if they are not too much crowded, and are properly diſpoſed, they will make a good appearance; and as they flower one after another, ſo they may be diſpoſed according to their ſeaſons of flowering. There are ſome of the common Martagons hardy enough to thrive under the ſhade of trees, ſo they may be diſpoſed in wilderneſs quarters, with the common ſort of Lilies, where they will have a good effect.

The roots of all theſe kinds muſt never be tranſplanted after they have made any ſhoots, for that will ſo much weaken them (if it does not entirely kill them) as not to be recovered in leſs than two or three years, as I have experienced to my coſt; for being obliged to remove a fine collection of theſe roots early in the ſpring, I loſt a great part of them, and the others were long recovering their ſtrength.

All the ſorts of Lilies and Martagons may be propagated by ſowing their ſeeds, by which method ſome new varieties may be obtained, provided the ſeeds are ſaved from the beſt ſorts; eſpecially the Martagons, which are more inclinable to vary than the other Lilies. The manner of ſowing them is as follows:

You muſt be provided with ſome ſquare boxes about ſix inches deep, which ſhould have holes bored in their bottoms to let the wet paſs off: theſe boxes ſhould be filled with freſh light ſandy earth, and in the beginning of October, ſoon after the ſeeds are ripe, you muſt ſow them thereon pretty thick, covering them over with light ſifted earth about half an inch; then place the boxes where they may have the morning ſun only, obſerving if the ſeaſon ſhould prove dry, to refreſh them often with water, as alſo to pull out all weeds which may be produced. In this ſituation the boxes ſhould remain until the beginning of November, when you muſt remove them where they may have as much ſun as poſſible, as alſo be ſcreened from the cold north and eaſt winds during the winter ſeaſon; but in the ſpring of the year, about the beginning of April, you muſt remove the boxes into their former poſition; for now the young plants will appear above ground, which are impatient of too much heat; beſides, the earth in the boxes will dry too faſt at this ſeaſon, if expoſed to the full ſun at noon. You muſt alſo obſerve at this ſeaſon to keep them entirely clear from weeds, as alſo to refreſh them gently with water, if the ſeaſon ſhould prove dry, but this muſt be done ſparingly and with caution. In this place you ſhould let the boxes remain until the beginning of Auguſt; at which time you ſhould prepare ſome beds of the above mentioned freſh light earth, which muſt be levelled very even; then take the earth out of the boxes, together with the ſmall bulbs, and ſtrew it equally over the beds, covering it over about half an inch thick with fine ſifted earth; and if the ſeaſon ſhould prove very hot and dry, you would do well to ſhade the beds in the middle of the day from the great heat of the ſun, and refreſh them now and then with water.

You muſt alſo obſerve to keep them entirely clear from weeds, and if the following winter ſhould prove very cold, you muſt cover the beds with Peas-haulm, or ſome other light covering, to keep out the froſt, which would prejudice the roots, if ſuffered to enter deep into the ground (eſpecially while they are ſo young:) but you muſt never let the covering remain on in mild weather, which would alſo be very injurious to them.

The end of February, or the beginning of March, when the hard froſts are over, you ſhould gently clear off the earth upon the ſurface of the beds (which, during the winter ſeaſon, will often have contracted a moſſineſs;) and ſift a little freſh earth equally over the beds, which will greatly encourage the roots; but in doing this, you muſt be very careful not to ſtir the ground ſo deep as to diſturb or injure the roots; nor ſhould you defer doing it too late, leſt the ſhoots ſhould be coming up, which, by this operation might be broken and greatly hurt; and as the ſeaſon advances, you muſt be careful to clear them from weeds, and in dry weather to water them gently, but they ſhould not have it in great plenty; and in very hot days, if you ſhade them from the ſun, it will be of great ſervice to them; but this need not be done till the latter end of April or the beginning of May, when the ſeaſon is ſometimes very hot and dry.

When their leaves are quite decayed, you ſhould ſtir the ſurface of the beds again (but do not go too deep) which will prevent the weeds from growing very faſt, and be of ſervice to the roots; and in September you muſt ſift ſome more freſh earth over the beds about half an inch thick, and in winter and ſpring you muſt manage them as was directed for the preceding year.

In September following theſe roots will require to be tranſplanted to a greater diſtance, when you muſt prepare ſome beds of the ſame freſh light earth as was before directed, making them level; then take up the roots and tranſplant them into the beds, placing them about eight inches aſunder, obſerving to put the roots with their buds uppermoſt, and about four inches below the ſurface.

This work ſhould be done when the weather is moiſt, for if the roots are tranſplanted in a very dry ſeaſon, and there doth not happen rain ſoon after, they will take a mouldineſs which many times rots them.

You muſt alſo obſerve, as was before directed, to keep the beds entirely clear from weeds; and in winter, if the froſt ſhould be very ſevere, you muſt cover them with Peas-haulm or decayed tan, to prevent the roots from being injured thereby; and in the ſpring you ſhould take off the covering, alſo the earth from the ſurface of the beds, as before, laying ſome freſh thereon, and ſo continue the ſummer and winter's work, as before.

The ſecond year after being planted in theſe beds, the ſtrongeſt roots will begin to flower; at which time, if you obſerve any peculiar varieties, you ſhould put down a ſtick by each of theſe roots to mark them; which may be taken up when their leaves are decayed, and removed into the borders of the flower-garden, or tranſplanted into other beds at a greater diſtance, to encourage them to flower ſtrong. But you cannot be ſo good a judge which of thoſe will be good by their firſt flowers, therefore you ſhould never reject any of them until they have flowered two years; for many times, ſome of theſe flowers will make but a mean appearance the firſt year, and afterwards become fair handſome flowers when they have obtained ſtrength; ſo that you ſhould ſuffer all ſuch, of whoſe worth you are not aſſured, to remain undiſturbed two years, that you may be aſcertained which of them are worth preſerving; theſe ſhould be removed into the flower-garden at a proper ſeaſon, but the ordinary ones may be rejected, or planted in ſhady outer walks, where, though they are mean flowers, they will appear well enough.

LILIUM CONVALLIUM. See CONVALLARIA.

LILIUM PERSICUM. See FRITILLARIA.

LILIUM SUPERBUM. See GLORIOSA.

LIME-TREE. See TILIA.

LIMODORUM. Flor. Virg. 110. Lin. Gen. Plant. 904. Helleborine. Tourn. Inſt. R. H. 436. tab. 249. Baſtard Hellebore.

The CHARACTERS are,

It hath a ſingle naked flower-ſtalk, ariſing immediately from the root. The flowers have no empalement, but a ſpatha (or ſheath) ſituated below them. The flower is compoſed of five oval petals, which are diſſimilar. The ſide petals ſpread open, but the two upper are connected together; the lower one is keel-ſhaped, ſo that it has much the appearance of a butterfly flower. Within the petals is ſituated a concave nectarium of one leaf, which is as long as the petals. It has two ſtamina, which are as long as the petals, terminated by two oval ſummits. It hath a column-ſhaped germen ſituated under the flower, which is as long as the petals, ſupporting a ſlender ſtyle, faſtened to the ſtamina, crowned by a funnel-ſhaped ſtigma. The column-ſhaped germen afterward turns to a capſule of the ſame form, opening with three valves, having one cell, in which are lodged four or five roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's twentieth claſs, which includes thoſe plants whoſe flowers have but two ſtamina, which are connected with the ſtyle.

We have but one SPECIES of this genus at preſent in England, viz.

LIMODORUM (*Tuberoſum*) foliis longis anguſtis ſulcatis & acuminatis, pedunculis longiſſimis. *Limodorum with long narrow leaves ending in acute points, and a very long foot-ſtalk to the flower.* Helleborine Americana, radice tuberoſâ, foliis longis anguſtis, caule nudo, floribus ex rubro pallidè-purpuraſcentibus. Martyn. Cent. 1. Pl. 50. Icon. tab. 165. *American Baſtard Hellebore with a tuberoſe root, long narrow leaves, a naked ſtalk, and flowers of a red and pale purpliſh colour.*

This plant grows naturally in Jamaica, eſpecially on the north ſide of that iſland, from whence many of the roots were ſent me by the late Dr. Houſtoun, with the following title, Helleborine purpurea, tuberoſâ radice. Plum. Cat. 9. ſo that it is the ſame plant with Plumier's. It alſo grows naturally in the French Iſlands of America. The roots of this were afterward brought me from the Bahama Iſlands, where it was found growing naturally; and it was ſince ſent me from Penſylvania, by Mr. John Bartram, who found it growing naturally in that country.

The root of this plant is ſhaped like that of the true Saffron Crocus, but the outer cover is of a darker brown colour; from this comes out two or three leaves, according to the ſize and ſtrength of the root; theſe are nine or ten inches long, and near three quarters of an inch broad in the middle, being contracted toward both ends, terminating with long acute points, folding over each other at their baſe; they have five longitudinal furrows, like the firſt leaves of young Palms; theſe leaves come out in the ſpring, and frequently decay the following winter; but when the plants are kept in a warm ſtove, they are not very long deſtitute of leaves. The flower-ſtalk ariſes immediately from the root, on one ſide of the leaves; this is naked, ſmooth, and of a purpliſh colour toward the top. It is near a foot and a half high, and terminated by a looſe ſpike of purpliſh red flowers, ſtanding upon ſhort foot-ſtalks; they are compoſed of five or ſix petals, the two upper are connected together, forming a ſort of helmet, the two ſide petals expand like the wings of a butterfly flower, and the lower forms a ſort of keel. In the center of the petals is ſituated a column-ſhaped germen, which riſes from the baſe of the petals, ſupporting a ſlender ſtyle, to which adhere two ſtamina, terminated by oval ſummits, as the ſtyle is by a funnel-ſhaped ſtigma; after the flowers are faded, the germen becomes a three-cornered column-ſhaped capſule, with one cell, opening with three valves, containing ſeveral roundiſh ſeeds, but theſe ſeeds are rarely produced in England.

This plant is not conſtant to any particular ſeaſon of flowering; for ſometimes it has flowered in April and May, and in other years it has not flowered till September or October; but the moſt uſual time of its flowering is in June and July, when the flowers appear early in the ſpring; they are ſucceeded by ſeed-veſſels, which ſometimes ripen in this country.

There are ſeveral other ſpecies of this genus mentioned by Father Plumier, but I have only ſeen one more than this here mentioned, which had oval obtuſe leaves, furrowed in the ſame manner as the leaves of this ſort, but were of a thicker conſiſtence; the flowers of this I have not yet ſeen. The root was ſent me from Maryland, where it grew naturally in a thicket.

The ſort here deſcribed is too tender to thrive in the open air in England, and although with care it may be preſerved in a warm green-houſe, yet it ſeldom flowers in ſuch a ſituation; ſo that to have it in perfection, it is neceſſary to keep it in the tan-bed in the ſtove in winter; and if in ſummer the pots are plunged in a tan-bed under a deep frame, the plants will thrive, and flower as ſtrong as in their native ſoil.

It is propagated by offſets from the root, which are ſent out pretty freely when the plants are in vigour; theſe ſhould be taken off, and the roots tranſplanted when they are the moſt deſtitute of leaves. The roots ſhould have a ſoft loamy ſoil, and muſt have but little water, eſpecially in winter.

LIMODORUM. See Orchis.

LIMON. Tourn. Inſt. R. H. 621. Citrus. Lin. Gen. Plant. 807. [ſo called of Λειμῶν, a meadow, becauſe the leaves of this tree are of a green colour, as is likewiſe the fruit before it comes to maturity.] The Lemon-tree; in French, *Limonier*.

The Characters are,

The flower is compoſed of five oblong thick petals, which are a little concave, ſpreading open; theſe ſit in a ſmall empalement of one leaf, indented at five parts at the top. It hath about ten or twelve ſtamina, which are joined in three or four bodies, which are terminated by oblong ſummits. It hath an oval germen, ſupporting a cylindrical ſtyle the length of the ſtamina, crowned by a globular ſummit. The germen afterward becomes an oval fruit with a fleſhy rind, incloſing a thin pulpy fruit with ſeveral cells, each having two hard ſeeds.

This genus of plants is ranged in the ſixth ſection of Tournefort's twenty-firſt claſs, which includes the trees and ſhrubs with a Roſe-ſhaped flower, whoſe pointal becomes a fleſhy fruit with hard dry ſeeds. Dr. Linnæus has joined the Citron, Orange, and Lemon together, making them only different ſpecies of the ſame genus; but if we admit of the fruit being a characteriſtic note to diſtinguiſh the genus, the Limon cannot be joined with the Orange, for the Orange has a globular fruit, compreſſed at both ends, but the Limon has an oval fruit, prominent at the top, and the latter hath not ſo many cells as the former. It is placed in the ſecond ſection of Linnæus's eighteenth claſs, which includes the plants whoſe flowers have about twenty ſtamina joined in ſeveral bodies.

The Species are,

1. Limon (*Vulgaris*) foliis ovato-lanceolatis acuminatis, ſubſerratis. *Limon-tree with oval, ſpear-ſhaped, acute-pointed leaves, which are little ſawed.* Limon vulgaris. Ferr. Heſp. 193. *The common Limon.*
2. Limon (*Spinoſum*) foliis ovatis integris, ramis ſubſpinoſis. *Limon with oval entire leaves, and branches which are ſomewhat ſpiny.* Limon acris. Ferr. Heſp. 331. *The ſour Limon, commonly called Lime.*
3. Limon (*Racemoſum*) foliis ovato-lanceolatis ſubſerratis, fructu conglomerato. *Limon with oval ſpear-ſhaped leaves, which are ſomewhat ſawed, and fruit growing in cluſters.* Limon fructu racemoſo. Tourn. Inſt. R. H. 621. *Limon with fruit growing in bunches.*

There are great varieties of this fruit, which are preſerved in ſome of the Italian gardens, and in both the Indies there are ſeveral which have not yet been introduced to the European gardens; but theſe, like Apples and Pears, may be multiplied without end from ſeeds, therefore I ſhall only mention the moſt remarkable varieties which are to be found in the Engliſh gardens at preſent, as it would be to little purpoſe to enumerate all thoſe which are mentioned in the foreign catalogues.

The Limon-tree with variegated leaves.
The ſweet Limon.
The Pear-ſhaped Limon.
The imperial Limon.
The Limon called Adam's Apple.
The furrowed Limon.
The childing Limon.
The Limon with double flowers.

The common Limon and the ſweet Limon are brought to England from Spain and Portugal in great plenty, but the fruit of the latter are not much eſteemed. The Lime is not often brought to England, nor is that fruit much cultivated in Europe, but in the Weſt-Indies it is preferred to the Limon, the juice being reckoned wholeſomer, and the acid is more agreeable to the palate; there are ſeveral varieties of this fruit in the Weſt-Indies, ſome of which have a ſweet juice, but thoſe are not greatly eſteemed; and as the inhabitants of thoſe iſlands do not propagate theſe fruits by grafting or budding, being contented with ſowing their ſeeds, ſo there is no doubt but a great variety of them may be found by any perſon who is curious in diſtinguiſhing them.

As I have never known the common Limon ever vary to the Lime, when raiſed from ſeeds, nor the Lime vary to the Limon, I ſuppoſe they are ſpecifically different, for I have frequently raiſed both from ſeeds, and have always found them continue their difference in leaf and branch, for I never waited to ſee their fruit, as they were only deſigned for ſtocks, to bud other ſorts into them.

The Pear-ſhaped Limon is a ſmall fruit with very little juice, ſo is not much propagated any where; the curious, who have room and convenience for keeping many of theſe trees, may preſerve a plant or two of this ſort for the ſake of variety.

The fruit of the Imperial Limon is ſometimes brought to England from Italy, but I do not remember to have ſeen any of this ſort imported from Spain or Portugal, ſo that I ſuppoſe they are not much propagated in either of theſe countries; for the inhabitants of both thoſe fine countries are ſo very incurious, eſpecially in horticulture, as to truſt almoſt entirely to nature, that the products of their gardens are inferior both in numbers and quality, to many other parts of Europe, where the climate is much leſs favourable for theſe productions. And in the article we are now upon, there are many ſtrong inſtances of the ſlothfulneſs, or incurioſity of the Portugueze particularly, for they had many of the moſt curious ſorts of Orange, Limon, and Citron-trees, brought from the Indies to Portugal formerly, which ſeemed to thrive almoſt as well there, as in their native ſoil, and yet they have not been propagated; there are a few trees of theſe ſorts ſtill remaining in ſome neglected gardens near Liſbon, almoſt unnoticed by the inhabitants. As there are alſo ſeveral curious trees and plants, which were formerly introduced from both Indies, ſome of which thrive and produce fruit amidſt the wild buſhes and weeds, with which thoſe gardens are ſpread over.

All theſe ſorts are propagated by budding or inarching them either on ſtocks of Lemons or Citrons, produced from ſeeds, but they will not ſo readily unite on Orange ſtocks, for which reaſon the Citrons are preferable to either Oranges or Lemons for ſtocks, as they readily join with either ſort, and being of larger growth, cauſe the buds of the other ſorts to ſhoot much ſtronger than if they were on ſtocks of their own kind. The method of raiſing theſe ſtocks, and the manner of budding them, being already exhibited under the article of AURANTIUM, it would be ſuperfluous to repeat it here.

The culture of the Lemon being the ſame with that of the Orange-tree, it would be needleſs to repeat it here; therefore I ſhall only obſerve, that the common Lemons are ſomewhat hardier than the Oranges, and will bring their fruit to maturity with us better than they will do, and require to have a greater ſhare of freſh air in winter; for which reaſon, they ſhould always be placed nearer to the doors or windows of the green-houſe; and in ſome curious gardens, theſe trees have been planted againſt walls, where, by covering them with glaſſes in winter, and protecting them from ſevere froſt, they have produced plenty of large fruit: as theſe trees do generally produce ſtronger ſhoots, they require more water to be given them than the Orange; but as to the tender ſorts, they muſt be treated with a little more care, otherwiſe their fruit will fall in winter, and come to nothing; theſe things being fully exhibited before, I refer the reader (as I hinted) to the article AURANTIUM, where their culture is fully ſet forth.

LIMONIUM. Tourn. Inſt. R. H. 341. tab. 177. Statice. Lin. Gen. Plant. 348. [takes its name of Λειμὼν, a marſh, as growing in marſhes.] Sea Lavender.

The CHARACTERS are,

The flowers have an imbricated perianthium, riſing one above another. The flower is funnel-ſhaped, compoſed of five petals, which are narrow at their baſe, but are broad and ſpreading at the top. It hath five awl-ſhaped ſtamina which are ſhorter than the petals, crowned by proſtrate ſummits. It hath a ſmall germen, ſupporting five ſlender ſtyles, crowned by pointed ſtigmas. The empalement of the flower afterward becomes a capſule, ſhut cloſe at the neck, but expanded above where the ſeeds are lodged.

This genus of plants is ranged in the ſecond ſection of Tournefort's eighth claſs, which includes the herbs with a Clove Gilliflower flower, whoſe pointal becomes the ſeed incloſed in the empalement. Dr. Linnæus has joined this genus to the Statice of Tournefort, and places it in the fifth ſection of his fifth claſs, which contains the plants whoſe flowers have five ſtamina and five ſtyles. As the flowers of this genus are ranged one above another in form of ſpikes, and thoſe of the Statice are collected in globuar heads, they may, without impropriety, be kept ſeparate; and as there are ſeveral ſpecies of each genus, therefore I have the rather been inclined ſo to do, than by joining them, to ſwell the genus.

The SPECIES are,

1. LIMONIUM (*Vulgare*) foliis ovato-lanceolatis, caule tereti nudo paniculato. *Sea Lavender with oval ſpear-ſhaped leaves, and a taper paniculated ſtalk.* Limonium maritimum majus. C. B. P. 192. *Common great Sea Lavender.*
2. LIMONINM (*Narbonenſe*) foliis oblongo-ovatis, caule paniculato patulo, ſpicis florum brevioribus. *Sea Lavender with oblong oval leaves, a ſpreading paniculated ſtalk, and ſhorter ſpikes of flowers.* Limonium maritimum majus alterum ſerotinum Narbonenſe. H. R. Par. *Another large late flowering Sea Lavender of Narbonne.*
3. LIMONIUM (*oleæfolium*) foliis ovatis obtuſis, petiolis decurrentibus, caule paniculato, ſpicis florum erectioribus. *Sea Lavender with oval obtuſe leaves, running foot-ſtalks, a paniculated ſtalk, and more upright ſpikes of flowers.* Limonium maritimum minus, oleæ folio. C. B. P. 192. *Small Sea Lavender, with an Olive leaf.*
4. LIMONIUM (*Humile*) foliis lanceolatis, caule humile patulo, ſpicis florum tenuioribus. *Sea Lavender with ſpear-ſhaped leaves, a low ſpreading ſtalk, and ſlender ſpikes of flowers.* Limonium Anglicum minus, caulibus ramoſioribus, floribus in ſpicis rariùs ſitis. Raii Hiſt. 217. *Leſſer Engliſh Sea Lavender, with more branched ſtalks, and flowers ſeldom growing in a ſpike.*
5. LIMONIUM (*Tartaricum*) foliis lineari-lanceolatis, caule ramoſo patulo, floribus diſtantibus uno verſu diſpoſitis. *Sea Lavender with narrow ſpear-ſhaped leaves, a branching ſpreading ſtalk, and flowers placed aſunder on one ſide the ſtalk.* Limonium Orientale, plantaginis folio, floribus umbellatis. T. Cor. *Oriental Sea Lavender with Plantain leaves, and flowers growing in an umbel.*
6. LIMONIUM (*Sinuatum*) foliis radicalibus alternatim pinnato-ſinuatis, caulinis ternis triquetris ſubulatis decurrentibus. *Sea Lavender with the lower leaves alternately ſinuated like wings, and thoſe upon the ſtalks three-cornered, awl-ſhaped, and running along the foot-ſtalk.* Limonium peregrinum, foliis aſplenii. C. B. P. *Foreign Sea Lavender with Spleenwort leaves.*
7. LIMONIUM (*Siculum*) caule fruticoſo patulo, foliis lineari lanceolatis craſſis, floribus ſolitariis diſtantibus. *Sea Lavender with a ſpreading ſhrubby ſtalk, narrow, thick, ſpear-ſhaped leaves, and flowers growing ſingly at a diſtance from each other.* Limonium Siculum lignoſum, gallas ferens, & non ferens. Bocc. Rar. *Woody Sicilian Sea Lavender, ſometimes producing galls, at other times not.*
8. LIMONIUM (*Africanum*) foliis inferioribus lanceolatis hirſutis ſerratis caulinis ternis linearibus acutis decurrentibus. *Sea Lavender with ſpear-ſhaped lower leaves which are hairy and ſawed, but growing by threes on the ſtalks, narrow, acute-pointed, and running along the ſtalk.* Limonium Africanum caule alato, foliis integris hirſutis, petalo pallidè flavo calyce amœnè purpureo. Martyn. Cent. 48. tab. 48. *African Sea Lavender with a winged ſtalk, entire hairy leaves, pale yellow petals to the flower, and a beautiful purple empalement.*
9. LIMONIUM (*Reticulatum*) foliis cuneiformibus, caule erecto paniculato, ramis inferioribus ſterilibus nudis. *Sea Lavender with wedge-ſhaped leaves, an upright paniculated ſtalk, and the under branches ſterile and naked.* Limonium minus flagellis tortuoſis. Bocc. Muſ. *Small Sea Lavender with twiſted ſhoots.*
10. LIMONIUM (*Cordatum*) caule nudo paniculato, foliis ſpathulatis retuſis. *Sea Lavender with a paniculated naked ſtalk, and ſpatule-ſhaped blunt leaves.* Limonium maritimum minus, foliolis cordatis. C. B. P. *Small Sea Lavender with little leaves, which are heart-ſhaped.*
11. LIMONIUM (*Echoideum*) caule nudo paniculato, tereti, foliis tuberculatis. *Sea Lavender with a naked, taper, paniculated ſtalk, and leaves ſet with tubercles.* Limonium minus annuum, bullatis foliis vel echioides. Bot. Monſp. *Small annual Sea Lavender with ſtudded leaves.*
12. LIMONIUM (*Fruticoſum*) caule erecto fruticoſo, foliis lineari-lanceolatis obtuſis, floribus alternis. *Sea Lavender with an upright ſhrubby ſtalk, narrow ſpear-ſhaped leaves, ending in obtuſe points, and flowers ranged alternately.* Limonium Egyptiacum fruticoſum, foliis lanceolatis obtuſis. *Shrubby Egyptian Sea Lavender with blunt ſpear-ſhaped leaves.*

The firſt ſort grows naturally in the marſhes which are flowed by the ſea, in ſeveral parts of England. The roots of this plant are thick, of a reddiſh colour, and an aſtringent taſte, ſending out many ſtrong fibres, which ſtrike deep in the ground; and from the upper part of the root comes out ſeveral oval ſpear-ſhaped leaves, from four to five inches long, and more than two inches broad in the middle; they are ſmooth, of a pretty thick conſiſtence, and of a dark green. The ſtalks riſe upward of a foot high, is naked of leaves, divided into many branches, which are again divided into ſmaller toward the top; theſe are terminated by ſlender ſpikes of pale blue flowers, ranged on one ſide the ſtalk above each other, coming out of narrow covers like ſheaths; theſe appear in July, and are ſucceeded by oblong ſeeds, which are incloſed in the empalement, ripening in autumn.

The ſecond ſort grows naturally in the ſouth of France on the ſea-coaſt. The leaves of this ſort are of an oblong oval form; they are ſix inches long, and three broad, ſmooth, entire, and of a deep green. The ſtalk riſes fifteen or ſixteen inches high, dividing into ſeveral ſpreading branches, which are divided again into ſmaller, and are terminated by ſeveral ſhort ſpikes of pale blue flowers, ranged on one ſide the foot-ſtalk. This ſort ſeldom flowers till the end of Auguſt, ſo never produces any good ſeeds in England.

The third ſort grows naturally in Narbonne and Provence; this hath ſmall, oval, obtuſe leaves, about two inches long, and one broad, with pretty long foot-ſtalks, which are bordered, or winged with part of the leaves, which runs cloſe to, and partly embrace the upper part of the root; theſe are of a lighter green than either of the former. The ſtalk riſes a foot and a half high, ſending out branches alternately on each ſide; the lower ones being long, the others gradually diminiſhing to the top, ſo as to form a looſe kind of pyramid: theſe all point upward, and toward their ends ſend out ſpikes of pale blue flowers, which are erect. This ſort flowers late in Auguſt, ſo never perfects ſeeds in England.

The fourth ſort grows naturally in England. It was firſt diſcovered on the ſea banks near Walton, in Eſſex, afterward near Malden, in the ſame county, and ſince at the mouth of the river that runs from Chicheſter, in Suſſex. The leaves of this ſort are ſpear-ſhaped, about three inches long, and one broad in the middle, leſſening gradually to both ends. The ſtalk riſes four or five inches high, dividing into many ſpreading branches, which are very thick ſet with ſhort ſpikes of whitiſh blue flowers. Theſe appear in Auguſt, and the ſeeds ripen in October.

The fifth ſort was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the Royal Garden at Paris, where they grew, and have produced ſeeds many years, which have been communicated to many of the curious gardens in Europe. The ſeeds of this ſort were ſent me from the Dardanelles, where the plants grow in plenty. The leaves of this ſort are about four inches long, and three quarters of an inch broad in the middle, diminiſhing gradually to both ends. The ſtalks riſe about five or ſix inches high, dividing into ſeveral ſpreading branches, which are again divided into ſmaller; theſe are terminated by ſpikes of pale blue flowers, ranged on one ſide the foot-ſtalk; the whole, when growing, being ſpread wide, has ſomewhat the appearance of an umbel of flowers. This ſort flowers in Auguſt, ſo never ripens ſeeds here.

The ſixth ſort grows naturally in Sicily and Paleſtine; this is a biennial plant. The lower leaves which ſpread on the ground, are indented almoſt to the middle rib; theſe indentures are alternate and blunt. The ſtalks riſe a foot and a half high, dividing upward into ſeveral branches, garniſhed at each joint with three narrow leaves ſitting cloſe to the ſtalks, from whoſe baſe proceeds a leafy membrane, or wing, which runs along on both ſides the ſtalk; theſe are rough, and a little hairy. The ſtalks are terminated by panicles of flowers, which ſit upon winged foot-ſtalks, each ſuſtaining three or four flowers of a light blue colour, which continue long without fading. This ſort flowers in July and Auguſt, but unleſs the ſummer is very warm and dry, the ſeeds do not ripen in England.

The ſeventh ſort grows naturally in Sicily; this hath a ſhrubby ſtalk, which riſes about two feet high, dividing into ſeveral ligneous branches, which ſpread out on every ſide; the lower part of theſe are cloſely garniſhed with gray leaves, like thoſe of the Sea Purſlain, and are of a thick conſiſtence. The branches are terminated by panicles of blue flowers, having one funnel-ſhaped petal, which come out ſingly at a diſtance from each other, having long tubes, but divide into five ſegments upward, which ſpread open. This flowers from June till autumn, but never produces ſeeds in England: there is a variety of this, which bears galls like thoſe upon the Oak, which grows naturally in Sicily, but I do not know if it is a different ſpecies, for thoſe plants which are in the Engliſh gardens have no appearance of any.

The eighth ſort was raiſed in the Chelſea garden, from ſeeds which were brought me from Africa; this is a biennial plant, which dies ſoon after it has produced flowers and ſeeds. The lower leaves are but few in number; they are ſpear-ſhaped, hairy, and ſlightly ſawed on their edges, about two inches long, and half an inch broad. The ſtalk riſes about fifteen inches high, which at each joint is garniſhed with three narrow leaves, ending in acute points; from the baſe of theſe leaves is continued a leafy membrane, or wing, running along the ſtalk on each ſide; theſe ſtalks branch out but little, and are terminated by ſhort panicles of flowers, whoſe foot-ſtalks are not winged as in the former; each foot-ſtalk ſuſtains two or three flowers of a bright blue colour, out of the middle of which ariſes another ſmall flower of a pale yellow colour. This ſort flowered in July and Auguſt, 1757, but did not ripen ſeeds.

The ninth ſort grows naturally in Sicily, and was found growing on the border of the ſea in Norfolk, by Mr. Henry Scott, a gardener, and has ſince been found in plenty in Lincolnſhire, by —— Banks, Eſq; The lower leaves of this ſort are narrow at their baſe, but enlarge upward, where they are broad, and rounded at the top, in ſhape of a wedge. The ſtalks are ſlender and ſtiff, riſing from ſeven to fourteen inches high, ſending out many ſlender ſide branches; all thoſe which proceed from the lower part of the ſtalk are barren, having no flowers; but toward the top they have ſhort panicles of whitiſh flowers, which are ſmall, and ſit three or four together upon one foot-ſtalk. This ſort flowers in July and Auguſt.

The tenth ſort grows naturally near the ſea, about Marſeilles and Leghorn; this hath many thick fleſhy leaves, which are ſhaped like a ſpatula, growing near the root, and ſpread on the ground; they are ſmooth, and of a grayiſh colour. The ſtalks are naked, and riſe about ſix inches high, dividing toward the top into many ſmaller branches, which are terminated by ſhort crooked panicles of ſmall flowers, of a pale red colour. This ſort flowers in Auguſt, but never produces ſeeds in this country.

The eleventh ſort grows naturally about Montpelier and in Italy; this is an annual plant, with long narrow leaves, which are ſet with rough tubercles like the leaves of Viper's Bugloſs. The ſtalks riſe about eight inches high, dividing into two or three ſmall branches, which are terminated by reflexed ſhort ſpikes of pale blue flowers; theſe come out late in Auguſt, and the ſeeds are ſeldom perfected in England.

The twelfth ſort grows naturally in Egypt, from whence the ſeeds were ſent to the Royal Garden at Paris, part of which were ſent me by Dr. Bernard de Juſſieu, which grew in the Chelſea garden, where there are ſeveral plants, which have produced flowers many years. This riſes with an upright ſhrubby ſtalk to the height of eight or ten feet, divided upward into many branches, garniſhed with narrow ſpear-ſhaped leaves, placed without order; they are of a thick conſiſtence, and of a gray colour, ſitting cloſe to the branches. The flowers are produced at the end of the branches in looſe panicles, ſtanding alternate on each ſide the ſtalk, one above another, with intervals between them; they have pretty long tubes, which enlarge upward, where they are cut into five obtuſe ſegments, which ſpread open; theſe are of a bright ſky blue, but fade to a purple before they fall off. The flowers begin to appear in July, and there is a ſucceſſion of them till winter.

The firſt, ſecond, third, fourth, fifth, and eighth ſorts, are abiding plants, which will thrive in the open air in England; ſuch of theſe as grow naturally in England, may be eaſily procured from the places where they grow; theſe plants may be tranſplanted at almoſt any time of the year, provided they are carefully taken up, preſerving ſome earth to their roots, and in hot weather to ſhade them till they have taken new root; after which time they will require no other culture but to keep the ground clean from weeds, and in the ſpring to ſtir up the ground between them to looſen it. As theſe plants do not require much culture, nor do they take up much room, ſo a few of each ſort may be allowed to have a place in gardens, where there is room, for the ſake of variety. Theſe plants do not propagate very faſt in gardens, ſo the roots need not be removed oftener than every third or fourth year, at which time they may be ſlipped to increaſe them; the beſt time for this is in the autumn, that the plants may be well rooted before the ſpring, otherwiſe they will not flower very ſtrong the following ſummer. They ſhould be planted in a loamy ſoil, on an eaſt aſpected border, where they may enjoy the morning ſun, but ſcreened from the great heat in the middle of the day; in ſuch a ſituation the roots will continue ſeveral years, and flower as well as in their native ſoil.

Theſe plants may alſo be propagated by ſeeds, ſo that ſuch of them as do not grow naturally in England, may be obtained by procuring their ſeeds from abroad. Theſe ſhould be ſown upon a border expoſed to the morning ſun, and on a ſoft loamy ſoil, early in the ſpring, for the ſeeds lie a conſiderable time in the ground before the plant comes up; therefore the ground muſt be kept entirely clean from weeds, and if the ſeaſon ſhould prove very dry, the border ſhould be watered two or three times a week, otherwiſe the ſeeds will lie a whole year before they vegetate; when the plants come up, they muſt be kept clean from weeds, and in very dry weather watered, and in the autumn they may be tranſplanted where they are deſigned to remain.

The ſixth and eighth ſorts are biennial plants, which rarely perfect their ſeeds in England, ſo that unleſs freſh ſeeds can be procured from warm countries, where they ripen well, it will be very difficult to continue the ſorts. If the ſeeds of theſe can be obtained time enough to ſow them in the autumn, the plants will come up the following ſpring; but when they are ſown in the ſpring, they ſeldom grow the ſame year. Theſe ſeeds ſhould be ſown on a border of loamy earth, not ſtiff or moiſt, and expoſed to the ſouth; but when the ſun is warm, the border ſhould be ſhaded with mats, to prevent the earth from drying too faſt. When the plants come up, they muſt be kept clean from weeds; and if they are too cloſe, ſome of them ſhould be carefully taken out as ſoon as they are fit to remove, and planted in ſmall pots, placing them in the ſhade till they have taken new root; then they may be placed where they may enjoy the morning ſun till autumn, when they ſhould be put into a hot-bed frame, where they may be ſcreened from hard froſt, but enjoy the free air in mild weather; and thoſe plants which are left in the border where they were ſown, muſt be covered with mats in hard froſt; for though they will often live through the winter in mild ſeaſons, yet hard froſt will always deſtroy them. The following ſummer the plants will flower, and if the ſeaſon proves warm and dry, they will ripen ſeeds, and the roots ſoon after decay.

The ſeventh and twelfth ſorts are ſhrubby plants, which are too tender to live through the winter in the open air in England, ſo the plants muſt be removed into ſhelter in the autumn, but they only require protection from hard froſt: theſe plants may be placed with Myrtles, Oleanders, and other hardy green-houſe plants, where they often continue to flower great part of winter, and make a pretty variety. Theſe ſorts are eaſily propagated by cuttings, which, if planted in July on a ſhady border, and duly watered, will take root in ſix or ſeven weeks, when they ſhould be taken up and planted into pots filled with light loamy earth, placing them in the ſhade till they have taken root; then they may be expoſed till October, at which time they muſt be removed into ſhelter.

The eleventh ſort is annual, and rarely ripens ſeeds here, ſo theſe muſt be procured from abroad, and ſowed in the ſame way as the ſixth and eighth ſorts.

LINARIA. Tourn. Inſt. R. H. 168. tab. 76. Antirrhinum. Lin. Gen. Plant. 668. [ſo called of Linum, *Lat.* flax, becauſe its leaves reſemble flax.] Toad-flax; in French, *Linaire*.

The CHARACTERS are,

The flower hath a permanent empalement of one leaf, divided into five parts almoſt to the bottom. The flower hath one petal, and is of the ringent (or grinning) kind, with an oblong ſwelling tube, having two lips above, with the chaps ſhut. The upper lip is bifid and reflexed on the ſides, the lower lip is trifid and obtuſe. It hath an oblong nectarium, which is awl-ſhaped and prominent behind, and four ſtamina, which are included in the upper lip, two of which are ſhorter than the other, and a roundiſh germen ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward turns to a roundiſh obtuſe capſule with two cells, filled with ſmall ſeeds.

This genus of plants is ranged in the fourth ſection of Tournefort's third claſs, which includes the herbs with a tubulous, anomalous, perſonated flower, of one petal. Dr. Linnæus joins this genus, and alſo the Aſarina of Tournefort to the Antirrhinum, and places that genus in the ſecond ſection of his fourteenth claſs, in which are contained the plants whoſe flowers have two long and two ſhort ſtamina, and the ſeeds are included in a capſule. The plants of this genus agree in their general characters with thoſe of the Antirrhinum, or Calve's Snout, except in one particular, which is in the nectarium of the Linaria, which, from the baſe of the petal, ſtretches out like a heel; whereas the flowers of the Antirrhinum, have their nectarium lodged withinſide the baſe of the petal: this being ſo very obvious, and both genera having many ſpecies, I thought it might be eaſier for ſtudents in botany to range them under different genera, than to join them under one.

The SPECIES are,

1. LINARIA (*Vulgaris*) foliis lanceolato-linearibus confertis caule erecto, ſpicis terminalibus ſeſſilibus. *Toad-flax with ſpear-ſhaped linear leaves growing in cluſters, and an upright ſtalk terminated by ſpikes of flowers, ſitting cloſe to the ſtalk.* Linaria vulgaris lutea, flore majore. C. B. P. 212. *Common yellow Toad-flax with a larger flower.*
2. LINARIA (*Triphylla*) foliis ternis ovatis. *Toad-flax with oval leaves placed by threes.* Linaria triphylla minor lutea. C. B. P. 212. *Smaller three-leaved yellow Toad-flax.*
3. LINARIA (*Luſitanica*) foliis quaternis lanceolatis, caule erecto ramoſo, floribus pedunculatis. *Toad-flax with ſpear-ſhaped leaves placed by fours, an upright branching ſtalk, and flowers upon foot-ſtalks.* Linaria latiſſimo folio Luſitanica. H. R. Par. *Broadeſt-leaved Portugal Toad-flax.*
4. LINARIA (*Alpina*) foliis ſubquaternis linearibus caule diffuſo, floribus racemoſis. *Toad-flax with linear leaves placed by fours on the lower part of the ſtalk, a diffuſed ſtalk and branching flowers.* Linaria quadrifolia ſupina. C. B. P. 213. *Low four-leaved Toad-flax.*
5. LINARIA (*Purpurea*) foliis lanceolato-linearibus ſparſis, caule florifero erecto ſpicato. *Toad-flax with ſpear-ſhaped linear leaves, and the flower-ſtalks erect and ſpiked.* Linaria purpurea major odorata. C. B. P. 213. *Greater ſweet-ſcented purple Toad-flax.*
6. LINARIA (*Repens*) foliis linearibus confertis, caule erecto ramoſo, floribus ſpicatis terminalibus. *Toad-flax with linear leaves in cluſters, an erect branching ſtalk, and flowers in ſpikes terminating the ſtalks.* Linaria cærulea, foliis brevioribus & anguſtioribus. Raii Syn. 3. 282. *Blue Toad-flax with ſhorter and narrower leaves.*
7. LINARIA (*Multicaulis*) foliis inferioribus quinis linearibus. *Toad-flax with linear leaves, placed by fives at the lower part of the ſtalks.* Linaria Sicula multicaulis, folio molluginis. Bocc. Rar. 38. *Sicilian Toad-flax with many ſtalks and a Bedſtraw leaf.*

8. Linaria (*Triſtis*) foliis lanceolatis ſparſis, inferioribus oppoſitis, nectariis ſubulatis, floribus ſubſeſſilibus. *Toad-flax with ſpear-ſhaped ſparſed leaves, which on the lower part of the ſtalk are oppoſite, awl-ſhaped nectariums, and flowers ſitting almoſt cloſe.* Linaria Hiſpanica procumbens, foliis uncialibus glaucis, flore flaveſcente pulchrè ſtriato, labiis nigro-purpureis. Act. Phil. N° 412. *Trailing Spaniſh Toad-flax with gray leaves an inch long, yellow flowers beautifully ſtriped, and dark purple lips.*

9. Linaria (*Monſpeſulana*) foliis linearibus confertis, caule nitido paniculato, pedunculis ſpicatis nudis. *Toad-flax with linear leaves in cluſters, a paniculated ſtalk, and flowers in ſpikes on naked foot-ſtalks.* Linaria capillaceo folio, odora. C. B. P. 213. *Sweet Toad-flax with hair-like leaves.*

10. Linaria (*Villoſa*) foliis lanceolatis hirtis alternis, floribus ſpicatis, foliolo calycino ſupremo maximo. *Toad-flax with alternate, hairy, ſpear-ſhaped leaves, flowers in ſpikes, and the upper leaf of the empalement very large.* Linaria latifolia villoſa, laciniis calycinis inæqualibus, flore majore pallido ſtriato rictu aureo. Horteg. Icon. *Broad-leaved hairy Toad-flax, whoſe empalement is unequally cut, and a large pale ſtriped flower with a golden ſnout.*

11. Linaria (*Peliſſeriana*) foliis caulinis linearibus ſparſis, radicalibus rotundis. *Toad-flax with linear leaves placed ſparſedly on the ſtalks, and on the lower leaves round.* Linaria annua purpureo violacea, calcaribus longis, foliis imis rotundioribus. Vaill. Bot. Par. 118. *Annual purple Violet Toad-flax, with long ſpurs and rounder leaves at bottom.*

12. Linaria (*Chalepenſis*) foliis lineari-lanceolatis alternis, floribus racemoſis, calycibus corollâ longioribus. *Toad-flax with linear ſpear-ſhaped leaves placed alternate, branching flowers, and empalements longer than the petals.* Linaria annua anguſtifolia, floſculis albis, longiùs caudatis. Triump. 87. *Narrow-leaved annual Toad-flax, with white flowers having long tails.*

13. Linaria (*Dalmatica*) foliis lanceolatis alternis, caule ſuffruticoſo. *Toad-flax with ſpear-ſhaped alternate leaves, and an under ſhrub ſtalk.* Linaria latifolia Dalmatica, magno flore. C. B. P. 212. *Broad-leaved Toad-flax of Dalmatia with a large flower.*

14. Linaria (*Geniſtifolia*) foliis lanceolatis acuminatis, paniculâ virgatâ. *Toad-flax with ſpear-ſhaped acute-pointed leaves, and a rod-like panicle.* Linaria geniſtæ folio glauco, flore luteo. Par. Bat. App. 9. *Toad-flax with a gray Dyer's Weed leaf and a yellow flower.*

15. Linaria (*Spuria*) foliis ovatis alternis, caule flaccido procumbente. *Toad-flax with oval leaves placed alternate, and a weak trailing ſtalk.* Elatine folio ſubrotundo. C. B. P. 253. *Fluellin with a roundiſh leaf.*

16. Linaria (*Elatina*) foliis haſtatis alternis, caule flaccido procumbente. *Toad-flax with arrow-pointed leaves placed alternate, and a weak trailing ſtalk.* Elatine folio acuminato. C. B. P. 253. *Fluellin with an acute-pointed leaf.*

17. Linaria (*Cymbalaria*) foliis cordatis quinquelobatis alternis glabris. *Toad-flax with heart-ſhaped leaves having five lobes, which are alternate and ſmooth.* Linaria hederaceo folio glabro, ſeu Cymbalaria vulgaris. Tourn. Inſt. R. H. 169. *Toad-flax with a ſmooth Ivy leaf, or common Cymbalaria.*

There are ſeveral other ſpecies of this genus which are well known and deſcribed, which are of leſs note, ſo are very rarely admitted into gardens, for which reaſon I have not enumerated them here.

The firſt of theſe plants grows in great plenty upon the ſides of dry banks in moſt parts of England, and is ſeldom cultivated in gardens; for it is a very troubleſome plant to keep within bounds, the roots being very apt to ſpread under ground, and riſe at a great diſtance from the mother plant, whereby it greatly injures whatever plants ſtand near it. This is one of the plants mentioned in the catalogue of ſimples at the end of the College Diſpenſatory, to be uſed in medicine.

This hath a great number of ſlender white roots, which creep far on every ſide, from which ariſe ſeveral erect branching ſtalks a foot and a half high, garniſhed with narrow gray leaves in cluſters, and terminated by ſpikes of yellow flowers, ſitting cloſe to the ſtalk. The flowers are of one petal, with a long tube, to which is fixed a ſpur or heel, called a nectarium; the fore parts of the flower has the appearance of the mouth of an animal, the under lip is hairy within; the chaps are of a golden colour, but the other parts of the flower are of a pale yellow; theſe are ſucceeded by roundiſh capſules with two cells, filled with flat black ſeeds. It flowers in July and Auguſt, when it makes a pretty appearance, ſo that a few plants might be allowed a place in gardens, were it not for their creeping roots, which ſpread too much, and become troubleſome weeds; therefore the roots ſhould be confined in pots to keep them within bounds.

There is an ointment made of this herb and hog's-lard, which is accounted excellent for the piles, being mixed with the yolk of an egg at the time of uſing it. The plant is reckoned to be aperitive and diuretic, opening obſtructions of the liver and ſpleen, helping the dropſy and jaundice.

The ſecond ſort grows naturally about Valencia and in Sicily; this is an annual plant, which riſes with an upright branching ſtalk near a foot and a half high, garniſhed with oval, ſmooth, gray leaves, placed often by threes, and ſometimes by pairs oppoſite at the joints; the flowers grow in ſhort ſpikes at the top of the ſtalks; they are ſhaped like thoſe of the common ſort, but have not ſo long tubes; they are yellow, with Saffron-coloured chaps. This ſort flowers in July and Auguſt, and the ſeeds ripen in the autumn, and the plants ſoon after decay.

There is a variety of this whoſe flowers have a purple ſtandard and ſpur, which makes a pretty appearance in a garden; but it is generally ſuppoſed to be only an accidental variety which has riſen from ſeeds of the former, for which reaſon I have not enumerated it here; though from many years culture of both ſorts, I have never yet perceived either of them alter. The leaves of this are longer than thoſe of the yellow, but in other reſpects they do not differ.

This ſort may be propagated by ſeeds, or by the roots; the ſeeds ſhould be ſown in the ſpring, on the borders of the flower-garden where they are deſigned to remain; and when the plants come up, they ſhould be thinned where they are too cloſe, and kept clean from weeds, which is all the culture they require. If ſome of the ſeeds are ſown in autumn upon a warm dry border, the plants will live through the winter, unleſs the froſt proves very ſevere; and theſe autumnal plants will grow larger, flower earlier, and from theſe good ſeeds may always be obtained: the firſt ſort is ſeldom admitted into gardens.

The third ſort riſes with upright ſtalks near two feet high, which are garniſhed with ſpear-ſhaped ſmooth leaves, placed ſometimes by fours round the ſtalk, and at others by pairs oppoſite; the ſtalks are terminated by large purple flowers with long ſpurs, ſtanding upon foot-ſtalks. This flowers in July, but ſeldom ripens ſeeds in England; it grows naturally in Portugal and Spain.

This ſort is tenderer than the laſt, ſo ſhould be planted in a dry ſoil and a warm ſituation, otherwiſe the plants are often deſtroyed in winter. This plant is propagated by ſeeds in the ſame manner as the former, as alſo by parting the roots; but it is adviſeable always to keep ſome of theſe plants in pots, that they may be removed into ſhelter in winter, otherwiſe in hard froſts they will be killed.

The fourth ſort grows naturally about Verona, from whence I received the ſeeds. This is a perennial plant, from whoſe roots ariſe ſeveral diffuſed ſtalks about eight inches long, garniſhed with narrow, ſhort, gray leaves, placed by fours round the ſtalks at bottom, but upward they are oppoſite; the ſtalks are terminated by ſhort branching tufts of pale yellow flowers with golden chaps. This ſort flowers in June, and in warm ſeaſons ſometimes the ſeeds will ripen here in the autumn.

The fifth ſort grows naturally in the ſouth of France and Italy; this hath a perennial root, ſending out many ſtalks; thoſe of them which ſupport the flowers are erect, and near three feet high, but the other ſtalks are weaker, and hang looſely on every ſide the plants; theſe are garniſhed with long, narrow, ſpear-ſhaped leaves placed ſparſedly; they are ſmooth, and of a gray colour. The ſtalks are terminated by long looſe ſpikes of blue flowers, which appear in June, July, and Auguſt, and the ſeeds ripen in the autumn, which, if permitted to ſcatter, will produce plenty of young plants without any further care.

The ſixth ſort grows naturally about Henley in Oxfordſhire, and alſo in ſome parts of Hertfordſhire. This hath a perennial root, from which ariſe ſeveral ſtalks near two feet high, which branch out on every ſide, and are garniſhed with narrow leaves growing in cluſters toward the bottom, but upward they are ſometimes by pairs, and at others ſingle. The flowers are produced in looſe ſpikes at the end of the ſtalks; they are of a pale blue colour, which appear in June and July, and the ſeeds ripen in the autumn; which, if permitted to ſcatter, will produce plenty of plants. When the ſeeds happen to fall upon old walls, the plants will grow there and continue longer than thoſe planted in the ground.

I received a ſpecimen of this ſort from abroad, by the title of Linaria arvenſis cærulea. C. B. P.

The ſeventh ſort grows naturally in Sicily; this is an annual plant, from whoſe root ariſes many ſtalks which are very ſlender and about a foot high, which on their lower part are garniſhed with five very narrow leaves at each joint, but upward they are ſometimes by pairs, and at others they are ſingle: the ſtalks are divided into many ſmall branches, which are garniſhed with ſmall yellow flowers, coming out ſingle at diſtances from each other; theſe are ſhaped like thoſe of the other ſpecies. The flowers appear in July, and the ſeeds ripen in the autumn. There are two varieties of this, one with a deep yellow, and the other a ſulphur-coloured flower.

This is propagated by ſeeds in the ſame manner as the ſecond ſort; if the ſeeds are permitted to ſcatter, the plants will come up without care, and if they are kept clean from weeds, will produce their flowers early in the ſummer.

The eighth ſort grows naturally on the rocks about Gibraltar, from whence the late Sir Charles Wager brought the ſeeds, which were ſown in his curious garden at Parſon's Green near Fulham, where they ſucceeded, and from thence many curious gardens were furniſhed with the plants. This has a perennial root, from which come out many ſlender ſucculent ſtalks about eight or nine inches long, which are weak and hang down on every ſide the root; they are garniſhed with ſhort, narrow, ſpear-ſhaped leaves, of a gray colour, and ſucculent, ſtanding without order; they are about one inch long, and a fifth part of an inch broad. The flowers are produced at the end of the ſtalks in ſmall bunches; they are yellow, marked with purple ſtripes, and the chaps of the flower, as alſo the ſpur, are of a dark purple colour; the flowers ſit cloſe upon the top of the ſtalk. They appear in June and July, but do not produce ſeeds in England.

This plant is eaſily propagated by planting cuttings in any of the ſummer months, which, if watered and ſhaded, will ſoon take root, and may be afterwards planted in pots, filled with freſh, light, undunged earth, in which they will ſucceed much better than in a richer ſoil; for if they are planted in a fine rich earth, it cauſes them to grow very faſt for a ſhort time, but they ſeldom fail to rot ſoon after. Theſe muſt be removed into ſhelter in winter, where they muſt have as much free air as poſſible in mild weather, and be only protected from ſevere cold; ſo that if the pots are placed under a hot-bed frame, the plants will ſucceed better than in a green-houſe, where they are apt to draw too much, which will cauſe them to decay.

The ninth ſort grows naturally in Wales, particularly near Penryn. This hath a perennial root, from which ariſe many branching ſtalks near two feet high, garniſhed with very narrow leaves growing in cluſters, which are of a grayiſh colour. The flowers are produced in looſe ſpikes at the end of the branches; they are of a pale blue colour, and ſmell ſweet. Theſe appear in June, and there is often a ſucceſſion of flowers on the plants till winter. The ſeeds ripen in the autumn, which, if permitted to ſcatter, will furniſh a ſupply of young plants without any further care. If the ſeeds of this ſort get on a wall, the plants will come up, and continue there a much longer time than when they are planted in the ground.

The tenth ſort grows naturally in Spain; the ſeeds of it were ſent me by Dr. Hortega from Madrid. This is an annual plant, which riſes with a ſingle ſtalk about a foot and a half high, garniſhed with hairy ſpear-ſhaped leaves, ſitting cloſe to the ſtalk, which are placed alternate. The flowers grow on the top of the ſtalks in looſe ſpikes; they are of a pale yellow colour, with a few dark ſtripes, and the chaps are of a gold colour; the upper ſegment of the empalement is much larger than the lower. The flowers of this ſort are as large as thoſe of the common ſort; they appear in July, and the ſeeds will in warm ſeaſons ripen in autumn in England.

The ſeeds of this ſort ſhould be ſown in the ſpring, upon a border of light earth where the plants are deſigned to remain; and when the plants come up, they muſt be treated in the ſame way as thoſe of the ſecond ſort.

The eleventh ſort grows naturally in France; this is an annual plant, having round leaves at the root; the ſtalks are ſlender, branching, and riſe a foot high, garniſhed with very narrow leaves at each joint. The flowers are produced in looſe ſpikes at the end of the branches; they are of a bright blue colour, and appear in July; the ſeeds ripen in the autumn, at which time they ſhould be ſown; for thoſe which are ſown in the ſpring frequently lie in the ground till the ſpring following, before the plants appear. When the plants come up, they muſt be thinned where they are too cloſe, and kept clean from weeds, which is all the culture they require.

The twelfth ſort grows naturally in Sicily; this is an annual plant, which riſes with a branching ſtalk two feet high, garniſhed with very narrow ſpear-ſhaped leaves placed alternately. The flowers are produced ſingly all along the branches the greateſt part of their length; they are ſmall, white, and have very long tails or ſpurs. This flowers in July, and the ſeeds ripen in the autumn. If the ſeeds of this ſort are permitted to ſcatter, the plants will come up and ſucceed better than if ſown with care, and require no other culture but to keep them clean from weeds.

The thirteenth ſort grows naturally in Crete, and alſo in Dalmatia. This riſes with a ſtrong ligneous ſtalk three feet high, garniſhed with ſmooth ſpear-ſhaped leaves placed alternate, ſitting cloſe to the ſtalk. The flowers are produced at the end of the branches in ſhort looſe ſpikes; they are of a deep yellow colour, and much larger than thoſe of the common ſort, ſtanding upon ſhort foot-ſtalks. This ſort flowers in July, but the ſeeds very rarely ripen in England, ſo that the plants are ſeldom ſeen in any gardens here. It is propagated by ſeeds, which ſhould be ſown early in the ſpring upon a border of light earth; and when the plants come up and are fit to remove, ſome of them ſhould be planted in pots filled with light ſandy earth, and placed in the ſhade till they have taken new root; then they may be expoſed with other hardy exotic plants till the end of October, when they ſhould be put into a common hot-bed frame, where they may be protected from hard froſt; but in mild weather they ſhould enjoy the free air, for theſe plants only require to be protected from hard froſt, for in mild winters they will live abroad without ſhelter, if they are upon a dry ſoil; therefore a part of the plants may be planted on a warm border of poor ſandy ſoil, where they will live through our common winters very well; and thoſe plants which grow in rubbiſh and are ſtinted, will endure much more cold than the others.

The fourteenth ſort grows naturally in Siberia; this is a biennial plant, which riſes with an upright branching ſtalk from three to four feet high, garniſhed with ſpear-ſhaped leaves, ending in acute points, of a grayiſh colour; theſe are placed alternate. The flowers are produced at the end of the branches, in looſe panicles; they are of a bright yellow colour, and ſhaped like thoſe of the other ſorts. This flowers in June and July, and the ſeeds ripen in the autumn, which, if permitted to ſcatter, the plants will come up the following ſpring, and require no other care but to thin them where they are too cloſe, and keep them clear from weeds. The plants always decay after they have ripened their ſeeds, therefore there ſhould be a ſupply of young ones annually raiſed.

The fifteenth ſort grows naturally amongſt Wheat and Rye, in ſeveral parts of England. It is an annual plant with weak trailing ſtalks, which ſpread on the ground, and are a foot and a half long; they are hairy, and garniſhed with oval leaves, placed alternately; from the ſetting on of the foot-ſtalks of the leaves; at each joint comes out one flower, ſhaped like thoſe of the other ſpecies. The upper lip is yellow, and the under is purple; theſe appear in June and July, and the ſeeds ripen in autumn, which ſhould be then ſown, or permitted to ſcatter; for if it is ſown in the ſpring, it ſeldom grows the ſame year, for it is rarely ſeen among ſpring-ſown Corn, in thoſe lands where it commonly grows.

This plant is uſed in medicine, and is eſteemed vulnerary, and good for old cancerous ſores and ulcers; it is accounted good for hæmorrhages of all ſorts.

The ſixteenth ſort differs from the fifteenth, in nothing but the ſhape of the leaves, which in this are ſhaped like the point of an arrow, and thoſe of the other are oval; this is more commonly found in England than the other.

The ſeventeenth ſort was brought from Italy to England, where it now grows in as great plenty in the neighbourhood of London, as if it was in its native country, growing from the joints of walls, whereever the ſeeds happen to ſcatter. It is a perenial plant, which will thrive in any ſoil or ſituation, ſo that where it is once eſtabliſhed, it will be difficult to root out, for the ſeeds will get into any joints of walls, or the decayed parts of pales, as alſo in the hollow of trees, where they grow and propagate plentifully; for the ſtalks put out roots at their joints, ſo ſpread themſelves to a great diſtance. It flowers all the ſummer, and the ſeeds ripen in ſucceſſion. It is never cultivated in gardens, but is ſuppoſed to be an excellent wound herb.

LINGUA CERVINA. Hart's Tongue.

Theſe plants commonly grow out from the joints of old walls and buildings, where they are moiſt and ſhady, and alſo upon ſhady moiſt banks, but are ſeldom cultivated in gardens. There is a very great variety of theſe plants, both in the Eaſt and Weſt-Indies, but there are very few ſpecies of them in Europe; all the hardy ſorts may be propagated by parting their roots, and ſhould have a moiſt ſoil and ſhady ſituation.

LINUM. Tourn. Inſt. R. H. 339. tab. 170. Lin. Gen. Plant. 349. Flax; in French, *Lin*.

The CHARACTERS are,

The flower hath a permanent empalement, compoſed of five ſmall, ſpear-ſhaped, acute leaves. It is compoſed of five large oblong petals, which are narrow at their baſe, but broader upward, and ſpread open. It hath five awl-ſhaped erect ſtamina, terminated by arrow-ſhaped ſummits. In the center is ſituated an oval germen, ſupporting five ſlender ſtyles, crowned by reflexed ſtigmas. The germen afterward turns to a globular capſule with ten cells, opening with five valves; in each cell is lodged one oval, plain, ſmooth ſeed, with an acute point.

This genus of plants is ranged in the fifth ſection of Linnæus's fifth claſs, intitled Pentandria Pentagynia, which contains thoſe plants whoſe flowers have five ſtamina and five ſtyles.

The SPECIES are,

1. LINUM (*Uſitatiſſimum*) calycibus capſuliſque mucronatis petalis crenatis, foliis lanceolatis alternis caule ſubſolitario. Lin. Sp. Plant. 277. *Flax with empalements, and capſules ending in acute points, crenated petals to the flower, ſpear-ſhaped alternate leaves, and the ſtalks commonly ſingle.* Linum ſativum. C. B. P. 214. *Manured Flax.*

2. LINUM (*Humile*) calycibus capſuliſque mucronatis, petalis emarginatis, foliis lanceolatis alternis, caule ramoſo. *Flax with ſharp-pointed empalements and capſules, the petals of the flower indented, ſpear-ſhaped alternate leaves, and a branching ſtalk.* Linum ſativum humilius flore majore. Bobart. Boerh. Ind. alt. 1. p. 284. *Low manured Flax with a larger flower.*

3. LINUM (*Narbonenſe*) calycibus acuminatis, foliis lanceolatis ſparſis ſtrictis ſcabris acuminatis, caule tereti baſi ramoſo. Lin. Sp. Plant. 278. *Flax with acute-pointed empalements, rough ſpear-ſhaped leaves placed without order, ending in acute points, and a taper ſtalk branching at the baſe.* Linum ſylveſtre, cæruleum, folio acuto. C. B. P. 107. *Wild blue Flax with an acute leaf.*

4. LINUM (*Tenuifolium*) calycibus acuminatis, foliis ſparſis linearibus ſetaceis retrorſum ſcabris. Lin. Sp. Plant. 278. *Flax with acute-pointed empalements, and narrow briſtly leaves placed without order, which are rough on their outſide.* Linum ſylveſtre anguſtifolium, floribus dilutè purpuraſcentibus vel carneis. C. B. P. 214. *Narrow-leaved wild Flax, with a pale purpliſh or fleſh-coloured flower.*

5. LINUM (*Anglicum*) calycibus capſuliſque acuminatis, caule ſubnudo ſcabro, foliis acuminatis. *Flax with acute-pointed empalements, an almoſt naked rough ſtalk, and acute-pointed leaves.* Linum perenne, majus, cæruleum, capitulo majore. Mor. Hiſt. 2. 573. *Greater blue perennial Flax with larger heads.*

6. LINUM (*Perenne*) calycibus capſuliſque obtuſis, foliis alternis lanceolatis acutis, caulibus ramoſiſſimis. Plat. 166. *Flax with obtuſe empalements and capſules, alternate, ſpear-ſhaped, acute leaves, and very branching ſtalks, commonly called Siberian perennial Flax.*

7. LINUM (*Hiſpanicum*) calycibus acutis, foliis lineari-lanceolatis ſparſis, caule paniculato procumbente. *Flax with acute empalements, linear ſpear-ſhaped leaves placed without order, and a paniculated ſtalk.*

8. LINUM (*Bienne*) calycibus patulis acuminatis, foliis linearibus alternis, caule ramoſo. *Flax with ſpreading acute-pointed empalements, linear alternate leaves, and a branching ſtalk.*

9. LINUM (*Hirſutum*) calycibus hirſutis acuminatis ſeſſilibus alternis, caule corymboſo. Lin. Sp. Plant. 277. *Flax with hairy acute-pointed empalements, placed alternate cloſe to the ſtalks, whoſe flowers are formed in a corymbus.* Linum ſylveſtre, latifolium, hirſutum cæruleum. C. B. P. 339. *Broad-leaved, hairy, wild Flax, with a blue flower.*

10. LINUM (*Strictum*) calycibus foliiſque lanceolatis ſtrictis mucronatis, margine ſcabris. Lin. Sp. Plant. 279. *Flax with ſpear-ſhaped leaves, and empalements which end in acute points, and have rough edges.* Paſſerina Lobelii. J. B. 3. p. 454.

11. LINUM (*Fruticoſum*) calycibus acutis, petalis integris, foliis inferioribus linearibus faſciculatis, ſuperioribus alternis, caule ſuffruticoſo. *Flax with acute empalements, entire petals to the flower, linear under leaves growing in cluſters, the upper ones alternate, and a ſhrubby ſtalk.* Linum ſylveſtre acutis foliis fruticans. Barrel. Icon. 1008. *Wild Flax with a ſhrubby ſtalk and acute leaves.*

12. LINUM (*Nodiflorum*) foliis lanceolatis alternis, floribus alternis ſeſſilibus caule ſimplici. *Flax with ſpear-ſhaped leaves placed alternate, flowers growing alternate, and cloſe to the ſtalks, which are ſingle.* Linum luteum ad ſingula genicula floridum. C. B. P. 214. *Yellow Flax with ſingle flowers growing from the joints.*

13. Linum (*Catharticum*) foliis oppoſitis ovato-lanceolatis, caule dichotomo, corollis acutis. Hort. Cliff. 372. *Flax with ſpear-ſhaped leaves placed oppoſite, a ſtalk divided by pairs, and acute petals to the flower.* Linum pratenſe, floſculis exiguis. C. B. P. 214. *Meadow Flax with ſmall flowers, commonly called Mountain Flax.*

14. Linum (*Maritimum*) calycibus ovatis acutis muticis, foliis lanceolatis inferioribus oppoſitis. Lin. Sp. Plant. 280. *Flax with oval, acute, chaffy empalements, and ſpear-ſhaped leaves, the lower of which grow oppoſite.* Linum maritimum luteum. C. B. P. 214. *Yellow maritime Flax.*

The firſt ſort is the Flax which is cultivated in moſt parts of Europe, but particularly in the northern parts; this is an annual plant, which uſually riſes with a ſlender unbranched ſtalk a foot and a half high, garniſhed with narrow ſpear-ſhaped leaves placed alternate, ending in acute points, and are of a gray colour. The flowers are produced on the top of the ſtalks, each ſtalk ſuſtaining four or five blue flowers, compoſed of five petals, which are narrow at their baſe, but broad at the top, where they are ſlightly crenated. The empalement of the flower is cut into five parts, which end in acute points. The flowers appear in June, and are ſucceeded by roundiſh capſules which have ten cells, opening with five valves, which are terminated by acute points; each cell contains one ſmooth flattiſh ſeed, ending in a point, of a browniſh colour. The ſeeds ripen in September, and the plants ſoon after periſh.

When this plant is cultivated in the fields after the uſual method, it ſeldom riſes higher than is before mentioned; nor do the ſtalks branch out, but when they are allowed more room, they will riſe more than two feet high, and put out two or three ſide branches toward the top, eſpecially if the ſoil is pretty good where it is ſown.

The ſecond ſort differs from the firſt, in having ſtronger and ſhorter ſtalks branching out much more. The leaves are broader, the flowers are larger, and the petals are indented at their extremities. The ſeed-veſſels are alſo much larger, and the foot-ſtalks are longer; theſe differences are laſting, for I have cultivated this and the common Flax on the ſame ground upward of thirty years, and have never found either of them alter.

The third ſort grows naturally in the ſouth of France, in Italy, and Spain; this riſes from a foot to eighteen inches high, branching out almoſt to the bottom into many long ſlender branches, which are garniſhed with narrow, ſpear-ſhaped, acute-pointed leaves, placed without order; theſe are rough to the touch. The flowers are produced at the end of the branches, almoſt in form of an umbel; they are ſmaller than thoſe of the manured ſort, and are of a pale blue colour. The ſeed-veſſels are much ſmaller, and not ſo round. It flowers and ſeeds about the ſame time as the former.

The fourth ſort grows naturally about Vienna and in Hungary; this ſort ſeldom riſes more than a foot high, with a ſlender ſtalk, which divides into three or four ſlender naked foot-ſtalks at the top, each ſuſtaining two or three flowers, which are of a pale blue colour. The ſtalks are garniſhed with ſhort, narrow, briſtly leaves, ſtanding erect, which are rough on their outſide. This flowers and ſeeds about the ſame time as the former, and the plant ſoon after decays.

There are two or three varieties of this, which differ in the colour of their flowers, but in other reſpects are the ſame.

The fifth ſort grows naturally in ſome parts of England, particularly in Cambridgeſhire; this hath a perennial root, from which ariſe three or four inclining ſtalks, garniſhed with ſhort narrow leaves toward their baſe, but upward have ſcarce any. The flowers are produced at the end of the ſtalks, ſitting very cloſe; they are of a blue colour, and about the ſize of thoſe of the manured kind, and are ſucceeded by pretty large round ſeed-veſſels, ending in acute points. This flowers about the ſame time as the common Flax, but the roots will continue four or five years.

The ſixth ſort grows naturally in Siberia; it hath a perennial root, from which ariſe ſeveral ſtrong ſtalks, in number proportional to the ſize of the root, and in height according to the goodneſs of the ſoil where it grows; for in rich moiſt ground they will riſe near five feet high, but in middling ground about three feet; theſe divide into ſeveral branches upward, and are garniſhed with narrow ſpear-ſhaped leaves, placed alternate; they are not much more than an inch long, and an eighth of an inch broad, of a deep green, ending in acute points. The flowers are produced at the end of the branches, forming a kind of umbel, the ſtalks riſing nearly of the ſame height. The flowers are large, and of a fine blue colour; theſe appear in June, and are ſucceeded by obtuſe ſeed-veſſels, which ripen in September.

The ſeventh ſort grows naturally in Spain, from whence I received the ſeeds; this hath a perennial root, from whence come out ſeveral trailing ſtalks, which are cloſely garniſhed with leaves; theſe never riſe much from the ground, but between theſe come out upright ſtalks, which riſe upward of two feet high, garniſhed with pretty long, narrow, ſpear-ſhaped leaves, placed without order. The flowers grow in a ſort of panicle toward the upper part of the branches; they are about the ſize of thoſe of the common ſort, and are of the ſame colour. It flowers and ripens its ſeeds about the ſame time, and the roots continue ſeveral years.

The eighth ſort I received from Iſtria; this hath a biennial root, from which ariſe two or three ſtalks, which divide into ſeveral branches, at about ſix inches from the root, which divide again into ſmaller toward the top; they are garniſhed with ſhort, narrow, acute-pointed leaves, placed alternately. The flowers come out from the ſide of the branches, ſtanding upon long foot-ſtalks. The empalement of the flower is compoſed of five broadiſh leaves ending in acute points, which ſpread open; the flowers are of the ſame ſize and colour as the common Flax, and appear at the ſame ſeaſon. The ſeeds ripen in the autumn, and the roots abide ſeveral years.

The ninth ſort grows naturally in Hungary and Auſtria; this hath a perennial root, from which ariſe ſeveral ſtalks near two feet high, which are thick, firm, and hairy, dividing at the top into ſeveral branches, and are garniſhed with broader leaves than the other ſpecies, which are hairy. The flowers grow along the ſtalks alternately; they are large, and of a deep blue colour, appearing at the ſame time with the common ſort, and the ſeeds ripen in the autumn.

The tenth ſort grows naturally in Germany and the ſouth of France, amongſt the Corn. This is an annual plant, riſing with an upright ſtalk near a foot and a half high, garniſhed with ſpear-ſhaped acute-pointed leaves, which are rough on their edges; they are about the ſame length of thoſe of the common Flax, but a little broader, placed alternately. The ſtalks divide toward the top into ſeveral branches, each ſuſtaining two or three yellow flowers, ſitting in ſpear-ſhaped acute-pointed empalements. Theſe appear in July, but unleſs the autumn proves favourable, the ſeeds never ripen in England.

The eleventh ſort grows naturally in Spain; the ſeeds of it were ſent me from Madrid by Dr. Hortega. This hath a ſhrubby ſtalk which riſes a foot high, ſending out ſeveral branches which are garniſhed with very narrow leaves coming out in cluſters; but the flowering branches are garniſhed with broader and longer leaves, placed alternately at every joint. The flowers are produced at the end of the branches, ſtanding erect upon long ſlender foot-ſtalks; they have acute-pointed empalements. The petals of the flower are large, entire, and white, but before the flowers open, they are of a pale yellow colour. Theſe flowers appear in July, but unleſs the autumn proves favourable, the ſeeds do not ripen in England. The flower-ſtalks of this ſort decay in the autumn, but the lower ſhrubby ſtalk continues with the other branches all the year.

The twelfth ſort grows naturally upon the Alps; this hath a perennial root, from whence ariſe two or three ſlender ſtiff ſtalks, which divide at the top into two or three ſlender branches, garniſhed with ſpear-ſhaped leaves placed alternately. The flowers come out ſingly at the joints, and ſit cloſe to the ſtalks; their empalements are cut into five ſlender ſegments, which are longer than the petals of the flower. The flowers are yellow, and appear about the ſame time with the common ſort, and the ſeeds ripen in the autumn.

The thirteenth ſort grows common in many parts of England, upon dry barren hills. It is commonly called Linum catharticum, purging Flax, and alſo Mountain Flax. This riſes with ſeveral branching ſlender ſtalks about ſeven or eight inches high, garniſhed with ſmall, oval, ſpear-ſhaped leaves placed oppoſite. The flowers are ſmall and white, ſtanding upon pretty long foot-ſtalks, which come out from the ſide of the branches, and alſo where they are divided. They appear in July, and are ſucceeded by ſmall round capſules, containing ſmall flat ſeeds which ripen in the autumn. This is one of thoſe plants which refuſes culture. I have frequently ſown the ſeeds both in autumn and ſpring, but could ſeldom get up any of the plants, and others who have made the trial have found the ſame.

The fourteenth ſort grows naturally about Montpelier, and in ſome parts of Italy near the ſea. This riſes with upright ſtalks near two feet high, the lower part of which are garniſhed with ſpear-ſhaped leaves placed oppoſite, but on the upper part they are alternate. The ſtalks divide upward into ſeveral branches, the tops of which are garniſhed with yellow flowers about the ſize of thoſe of common Flax, which hang downward; theſe are ſucceeded by ſmall oval capſules, containing ſmaller ſeeds than thoſe of the common Flax. The flowers appear in July, and the ſeeds ripen in the autumn.

There are ſeveral other ſpecies of Flax which grow wild in the different parts of Europe, but thoſe here enumerated are all I have ſeen growing in the Engliſh gardens.

The firſt ſort is that which is cultivated for uſe in divers parts of Europe, and is reckoned an excellent commodity; the right tilling and ordering of which, is eſteemed a good piece of huſbandry.

This ſhould be cultivated upon a rich ſoil, that has not been ploughed for ſeveral years, upon which Flax always makes the beſt improvement; but as it draws greatly from the ſoil, it ſhould not be ſown two years together upon the ſame ground, nor in leſs than after five or ſix years interval.

This ground ſhould be as clean from weeds as poſſible; in order to have it ſo, it ſhould be fallowed two winters and one ſummer, obſerving to harrow the ground well between each ploughing, particularly in ſummer, to deſtroy the young weeds ſoon after they appear, that the ſmalleſt of them may not ſtand to ripen their ſeed; this will alſo break the clods, and ſeparate their parts ſo, that they will fall to pieces on being ſtirred. If the land ſhould require dung, that ſhould not be laid on till the laſt ploughing, when it muſt be buried in the ground; but this dung ſhould be ſuch as is clear from the ſeeds of weeds, which it always will be where there is care taken to keep the dunghills clean from weeds, and the places near it; for ſuppoſing there ſhould be any ſeeds at firſt among the dung, yet when it is laid in a heap and well fermented, that will deſtroy the ſeeds; but there are few perſons who are careful to keep their dunghills, and the places near them, clean from weeds; and the ſeeds of theſe falling on the dung, are carried upon the land; from whence ſprung that vulgar error, that dung produces weeds, which it can never do, if there is not the ſeeds mixed with it. Juſt before the ſeaſon for ſowing of the Flax ſeed, the land muſt be well ploughed, laid flat and even, upon which the ſeeds ſhould be ſown about the latter end of March, or the beginning of April, when the weather is mild and warm.

The common way is to ſow the ſeed in broad-caſt, and to allow from two to three buſhels of ſeeds to one acre of land; but from many repeated trials, I have found it is a much better method to ſow the ſeeds in drills, at about ten inches diſtance from each other, by which half the quantity of ſeed which is uſually ſown, will produce a greater crop; and when the Flax is thus ſown, the ground may be eaſily hoed to deſtroy the weeds; which, if twice repeated in dry weather, will keep the ground clean till the Flax is ripe: this may be performed at half the expence which the hand weeding will coſt, and will not tread down the plants nor harden the ground, which by the other method is always done; and it is abſolutely neceſſary to keep the Flax clean from weeds, otherwiſe they will overbear and ſpoil the crop.

There are ſome people who recommend the feeding of ſheep with Flax, when it is a good height; and ſay, they will eat away the weeds and Graſs, and do the Flax good; and if they ſhould lie in it, and beat it down or flatten it, it will riſe again the next rain: but this is a very wrong practice, for if the ſheep gnaw or eat the Flax, the plants will ſhoot up very weak, and never come to half the ſize they would have done, if not cropped: and as to the ſheep deſtroying the weeds, they never are ſo nice diſtinguiſhers, for if they like the crop better than the weeds, they will devour that and leave the weeds untouched.

Toward the latter end of Auguſt or the beginning of September, the Flax will begin to ripen, when you muſt be careful that it does not ſtand to be over ripe; therefore you muſt pull it up as ſoon as the heads begin to change brown and hang downwards, otherwiſe the ſeeds will ſoon ſcatter and be loſt; ſo that the pluckers muſt be nimble, and tie it up in handfuls, ſetting them upright till they be perfectly dry, and then houſe them. If the Flax be pulled when it firſt begins to flower, it will be whiter than if it ſtand till the ſeed is ripe, but then the ſeed will be loſt; but the thread will be ſtronger when Flax is left till the ſeed is ripe, provided it does not ſtand too long, but the colour of it will not beſo good.

The Siberian perennial Flax has been made trial of, and anſwers very well for making of common ſtrong linen, but the thread ſpun from this is not ſo fine or white as that which is produced from the common ſort; but as the roots of this ſort will continue many years, ſo there will be a great ſaving in the culture, as it will require no other care but to keep it conſtantly clean from weeds; which cannot be well done, unleſs the ſeeds are ſown in rows, that the ground may be conſtantly kept hoed to deſtroy the weeds when young; for if they are ſuffered to grow large, it will be difficult to get the ground clean, and they will weaken the roots. This ſort muſt have the ſtalks cut off cloſe to the ground when ripe, and tied up in ſmall bundles, managing them afterward in the ſame way as the common ſort; but this ſeldom produces more than three crops, which will pay for ſtanding.

The eighth ſort I received from Iſtria, which produced the fineſt thread of all the ſorts which I have tried; and this grows taller than the common Flax, and having a biennial root, may be worthy of trial to ſee how it will thrive in the open fields; for in gardens it lives through the winter without receiving the leaſt injury from the froſt, the roots having ſurvived through the winter in the Chelſea garden ſeveral years; and in order to make trial of its goodneſs, I gave a parcel of the ſtalks of this, as alſo of the Spaniſh and Siberian perennial ſorts, to a perſon who is well ſkilled in watering, breaking, and dreſſing of Flax, who prepared them, and aſſured me, that the Iſtrian Flax was by much the fineſt of the three, and was in goodneſs preferable to any he had ſeen.

There is annually great quantities of the ſeed of Flax imported into Scotland and Ireland, from the Eaſt Country, particularly from Riga, to the amount of many thouſand pounds ſterling, per ann. which might be ſaved to the public, by encouraging the growth of Flax in the northern colonies of America, where the ſummers are warmer than in England, ſo that the ſeeds would ripen perfectly there, and the change of ſeeds from thence would be greater than that from Riga, but it ſhould be confined to the moſt northern parts of America; for ſuch ſeeds as are ſaved in the warmer parts will not ſucceed well here, as I have experienced in many other kinds of plants, whoſe ſeeds I have ſent to Carolina, where they have grown two or three years, after which ſome of the ſeeds have been ſent me back, which I have always found to be much longer in growing to perfection than before.

The other ſorts which are here mentioned, are preſerved in gardens for the ſake of variety, but none of them are uſed, except the Mountain Flax, which is eſteemed a good purger in dropſical diſorders, and has of late years been often preſcribed.

They are all of them propagated by ſeeds, which may be ſown in the ſpring, in the places where they are to remain, and will require no other culture but to keep the plants clean from weeds. The annual ſorts will flower and perfect their ſeeds the ſame year, but the roots of the perennial ſorts will continue ſeveral years, putting out freſh ſtalks every ſpring. The ſhrubby ſorts will live through the winter in the open air, provided it is in a dry ſoil and a warm ſituation; but theſe rarely produce ſeeds in England.

The method of watering, piling, braking, &c. being a particular buſineſs, and foreign to my deſign, I ſhall not pretend to give any directions about it in this place.

The common ſort is a plant of the greateſt uſe, in ſeveral of the moſt eſſential parts of life; from the ſeeds an expreſſed oil is drawn, which is of great uſe in medicine, painting, &c. from the bark of the ſtalks is made linen, and from the rags of linen is made paper; ſo that this plant may be eſteemed as one of the moſt valuable, and abſolutely neceſſary in many of the principal conveniencies of life.

LINUM UMBILICATUM. See Cynoglossum.

LIPPIA. Houſt. Gen. Nov. Lin. Gen. Plant. 699.

This plant was ſo named by the late Dr. William Houſtoun, who diſcovered it at La Vera Cruz, where it grows naturally, in honour of Dr. Auguſtus Lippi, a famous botaniſt, who travelled to Egypt, and diſcovered many new plants.

The Characters are,

The empalement of the flower is permanent, roundiſh, and compreſſed. The flower hath one petal, which is of the ringent kind; the upper lip is divided into two parts, which are reflexed; the under lip is ſmaller, and cut into two roundiſh ſegments. It hath four ſhort ſtamina, two of which are a little longer than the other, terminated by ſingle ſummits, and an oval germen ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an indented ſtigma. The germen afterward turns to a compreſſed capſule with one cell, opening with two valves, which appear like the ſcales of the empalement, incloſing two ſeeds which are joined.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, intitled Didynamia Angioſpermia, which includes thoſe plants whoſe flowers have two long and two ſhorter ſtamina, and the ſeeds are included in capſules.

The Species are,

1. Lippia (*Americana*) arboreſcens foliis conjugatis oblongis, capitulis ſquamoſis & rotundis. Houſt. *Tree Lippia with oblong leaves growing by pairs, having round ſcaly heads.* Lippia capitulis pyramidatis. Lin. Sp. 883. *Lippia with pyramidal heads.*
2. Lippia (*Hemiſphærica*) capitulis hemiſphæricis. Jacq. Amer. 25. *Lippia with hemiſpherical heads.*

The firſt ſort in the country of its native growth, commonly riſes to the height of ſixteen or eighteen feet, with a rough bark: the branches come out by pairs oppoſite, as do alſo the leaves, which are oblong, pointed, and a little ſawed on their edges. From the wings of the leaves come out the foot-ſtalks, which ſuſtain many pyramidal ſcaly heads, about the ſize of a large gray Pea, in which are many ſmall yellow flowers appearing between the ſcales, which are ſucceeded by the ſeed-veſſels.

The ſecond ſort grows naturally in Carthagena in New Spain, where it riſes with ſhrubby ſtalks ten or twelve feet high, ſending out ſlender branches toward their top, garniſhed with oval ſpear-ſhaped leaves three inches long, ending in acute points, ſmooth on their upper ſurface, which are placed oppoſite; the foot-ſtalks of the flowers come out oppoſite juſt above the leaves, each ſupporting a pyramidal head of white flowers, which peep out from the ſcales of the head; theſe are ſucceeded by capſules having two cells, including ſmall ſeeds.

The ſeeds of the firſt ſort were ſent by Dr. Houſtoun to ſeveral curious gardens in Europe, where ſome of the plants have been raiſed; but as the country from whence they came is very warm, ſo the plants will not thrive in this climate, unleſs they are preſerved in a warm ſtove. The ſeeds ſhould be ſown on a hot-bed, and the plants may be treated in the ſame manner as other ſhrubby plants which are natives of warm countries: which is, to keep them always in the ſtove, plunged in the bark-bed, obſerving to give them a large ſhare of air in warm weather, and frequently refreſh them with water; but in winter they muſt be watered more ſparingly, and be kept in a moderate degree of warmth, otherwiſe they will not live through the winter, eſpecially while they are young; but when they have acquired ſtrength, they may be preſerved with a leſs ſhare of warmth.

As the plants advance in their growth, they ſhould be ſhifted into larger pots, but this ſhould not be too often repeated; for if they are removed into new pots every ſpring, it will be as often as they will require; ſo that when theſe, and many other exotic plants, are too often removed, they do not thrive ſo well as when they are permitted to fill the pots with their roots. The beſt time to ſhift theſe plants is in April, at which time the tan of the hot-bed ſhould be ſtirred, and freſh tan mixed with it, to increaſe the heat. The earth in which theſe plants are placed, ſhould be freſh and light, but not too rich.

LIQUIDAMBER. Mitch. Gen. 12. Lin. Gen. Plant. 955. Liquidamber, Sweet Gum, or Storax-tree.

The Characters are,

It hath male and female flowers ſometimes on the ſame plant, at other times upon different plants; the male flowers are numerous, diſpoſed in long, looſe, conical katkins; theſe have four-leaved empalements, but no petals. They have a great number of ſhort ſtamina joined in one body, which are convex on one ſide, but plain on the other, terminated by erect twin ſummits, with four furrows. The female flowers are often ſituated at the baſe of the male ſpike, collected in a globe; theſe have a double empalement like that of the male, and each of them has a bell-ſhaped, angular, diſtinct empalement, with many protuberances. They have no petals, but an oblong germen faſtened to the empalement, ſupporting two awl-ſhaped ſtyles, to which is alſo fixed the recurved ſtigmas, which are hairy and as long as the ſtyles. The empalement afterward turns to a roundiſh capſule of one cell, with two valves at the top, which are acute, and collected in a ligneous globe, containing oblong acute-pointed ſeeds.

This genus of plants is ranged in the eighth ſection of Linnæus's twenty-firſt claſs, which includes thoſe plants with male and female flowers, whoſe male flowers have many ſtamina.

The Species are,

1. Liquidamber (*Styraciflua*) foliis quinquelobatis ſerratis. *Liquidamber with ſawed leaves having five lobes.* Styrax aceris folio. Raii Hiſt. 1681. *Maple-leaved Storax-tree.*

2. **Liquidamber** (*Orientalis*) foliis quinquelobatis, ſinuatis obtuſis. *Liquidamber with leaves having five lobes, which are ſinuated and obtuſe.*

The firſt ſort has by ſome writers been ranged with the Maple, but on no other account, except from the ſimilitude of the leaves; for in flower and fruit it is very different from the Maple, and moſt other genera: nor has it any affinity to the Storax-tree, but the gum which iſſues from this tree being tranſparent, and having a great fragrancy, has by ſome ignorant perſons been taken for that.

It grows plentifully in Virginia and ſeveral other parts of North America, where it riſes with a ſtrait naked ſtem to the height of fifteen or ſixteen feet, and afterward branches out regularly to the height of forty feet or upward, forming a pyramidal head. The leaves are angular, and ſhaped ſomewhat like thoſe of the leſſer Maple, having five lobes, but are of a dark green colour, and their upper ſurfaces ſhining; a ſtrong, ſweet, glutinous ſubſtance exſudes through the pores of the leaves in warm weather, which renders them clammy to the touch.

The flowers are generally produced early in the ſpring of the year, before the leaves are expanded, which are of a Saffron colour, and grow in ſpikes from the extremity of the branches; after theſe are paſt, the fruit ſwells to the ſize of a Walnut, being perfectly round, having many protuberances, each having a ſmall hole and a ſhort tail, which extends half an inch.

The planks of this tree being beautifully veined, are often uſed in America for wainſcotting rooms; but it requires a long time to ſeaſon the boards, otherwiſe they are apt to ſhrink.

In Europe this tree is cultivated in the gardens of the curious, for the ſake of variety; it is hardy enough to endure the ſevereſt cold of this country in the open air, and there are ſome of them upward of twenty feet high, though I have not heard of any of them which has produced fruit.

This is commonly propagated by layers in England, but thoſe plants which are raiſed from ſeeds grow to be much fairer trees.

The ſeeds of this tree, if ſown in the ſpring, commonly remain in the ground a whole year before the plants come up; ſo that the ſureſt way to raiſe them is, to ſow the ſeeds in boxes or pots of light earth; which may be placed in a ſhady ſituation during the firſt ſummer, and in autumn they may be removed where they may have more ſun; but if the winter ſhould prove ſevere, it will be proper to cover them with Peas-haulm, or other light covering, which ſhould be taken off conſtantly in mild weather. In the following ſpring, if theſe boxes or pots are placed upon a moderate hot-bed, it will cauſe the ſeeds to come up early, ſo that the plants will have time to get ſtrength before the winter; but during the firſt and ſecond winters, it will be proper to ſcreen the plants from ſevere froſt, but afterward they will bear the cold very well.

The ſeeds of the ſecond ſort were ſent by Mr. Peyſſonel from the Levant, to the French king's garden at Marli, a few of which were ſent me by Mr. Richard, the king's gardener, which ſucceeded in the Chelſea garden. The leaves of this ſort differ from thoſe of the firſt, in having their lobes ſhorter, and much more ſinuated on their borders; they end in blunt points, and are not ſerrated; but as I have not ſeen the fruit of this, ſo I do not know how it differs from the other.

LIRIODENDRUM. See Tulipifera.

LITHOSPERMUM. Tourn. Inſt. R. H. 137. tab. 55. Lin. Gen. Plant. 166. [of Λίθος, a ſtone, and Σπέρμα, ſeed; q. d. Stone-ſeed; becauſe the ſeed of this plant is hard, and good againſt the ſtone.] Gromwell, Gromill, or Graymill; in French, *Gremil.*

The Characters are,

The flower hath an oblong, erect, acute-pointed, permanent, empalement, which is cut into five parts. It hath one petal with a cylindrical tube the length of the empalement, divided into five obtuſe points at the brim, which are erect; the chaps are perforated. It hath five ſhort ſtamina terminated by oblong ſummits, which are ſhut up in the chaps of the petal. It hath four germen, with a ſlender ſtyle the length of the tube, crowned by a bifid obtuſe ſtigma. The germen afterward turn to ſo many oval, hard, ſmooth, acute-pointed ſeeds, ſitting in the ſpreading empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, which includes the plants whoſe flowers have five ſtamina and one ſtyle.

The Species are,

1. **Lithospermum** (*Officinale*) ſeminibus lævibus, corollis calycem vix ſuperantibus, foliis lanceolatis. Hort. Cliff. 46. *Gromwell with ſmooth ſeeds, the petal of the flower ſcarce longer than the empalement, and ſpear-ſhaped leaves.* Lithoſpermum majus erectum. C. B. P. 258. *Greater upright Gromwell.*
2. **Lithospermum** (*Arvenſe*) ſeminibus rugoſis, corollis vix calycem ſuperantibus. Hort. Cliff. 46. *Gromwell with rough ſeeds, whoſe petals are ſcarce longer than the empalement.* Lithoſpermum arvenſe, radice rubrâ. C. B. P. 258. *Field Gromwell with a red root.*
3. **Lithospermum** (*Purpurocæruleum*) ſeminibus lævibus, corollis calycem multoties ſuperantibus. Hort. Cliff. 46. *Gromwell with ſmooth ſeeds, and the petal many times longer than the empalement.* Lithoſpermum minus repens latifolium C. B. P. 258. *Smaller, creeping, broad-leaved Gromwell.*
4. **Lithospermum** (*Virginianum*) foliis ſubovalibus nervoſis, corollis acuminatis. Lin. Sp. Plant. 132. *Gromwell with veined leaves which are almoſt oval, and acute-pointed petals.* Lithoſpermum latifolium Virginianum, flore albido longiore. Mor. Hiſt. 3. p. 447. *Broad-leaved Gromwell of Virginia with a longer whitiſh flower.*
5. **Lithospermum** (*Fruticoſum*) fruticoſum, foliis linearibus hiſpidis, ſtaminibus corollam ſubæquantibus. Lin. Sp. 190. *Shrubby Gromwell with rough linear leaves, and the ſtamina almoſt equal to the petal.* Bugloſſum ſamium fruteſcens, foliis Roriſmarini obſcure virentibus lucidis & hirſutis. Tourn. Cor. 6.

The firſt ſort grows naturally upon the banks, and in dry fields in many parts of England, ſo is ſeldom admitted into gardens. This hath a biennial root, from which ariſe two or three upright ſtalks two feet high, which branch out toward the top, garniſhed with ſpear-ſhaped, rough, hairy leaves, placed alternate, ſitting cloſe to the ſtalks. The flowers come out ſingly at every joint of the ſmall branches; they are white, of one petal, cut into four parts at the top, and ſtand within the empalement; theſe are ſucceeded by four hard, white, ſhining ſeeds, which ripen in the empalement. It flowers in May, and the ſeeds ripen in Auguſt.

The ſeeds of this plant are accounted a powerful diuretic, and a cleanſer of the reins and urethers, being boiled in wine and water, and are of great ſervice againſt gravel or ſtoppage of urine.

The ſecond ſort is an annual plant, which grows among winter Corn in many parts of England. This riſes with a ſlender branching ſtalk a foot and a half high, garniſhed with narrow, ſpear-ſhaped, rough leaves placed alternately. The flowers are produced ſingly on the upper parts of the ſtalks. They are ſmall and white; theſe are ſucceeded by four rough ſeeds, which ripen in the empalement. It flowers in June, and the ſeeds ripen in Auguſt, ſoon after which the plants decay.

The third ſort grows naturally in woods in many parts of England; this hath a perennial root, from which come out two or three trailing ſtalks ſcarce a foot long, garniſhed with long, narrow, ſpear-ſhaped leaves, placed alternately; theſe are ſmoother than thoſe of the other ſorts. The flowers are produced at the end of the ſtalks from amongſt the leaves; they are white, and the petals are much longer than the empalements. Theſe appear the latter end of May, and each is ſucceeded by four ſmooth ſeeds, which ripen in the empalement.

The fourth ſort grows naturally in North America; this hath a perennial root, from which ariſe ſeveral very hairy ſtalks about a foot and a half high, garniſhed with rough, hairy, veined leaves, which are almoſt oval, ſitting cloſe to the ſtalks alternately. The flowers grow in ſhort reflexed ſpikes at the end of the branches: theſe are white, their petals being longer than the empalement, ending in acute points. It flowers in June, and the ſeeds ripen in autumn.

The fifth ſort grows naturally in the ſouth of France, and alſo in the Levant. This hath a perennial root, which runs deep in the ground, from which comes out in the ſpring a ſhrubby erect ſtalk two or three feet high, which is pretty cloſely ſet with hairs, and garniſhed with narrow leaves placed alternately. The flowers are produced in ſhort reflexed ſpikes at the end of the ſtalk, ſtanding in hairy empalements; they are of a reddiſh purple colour, but as they decay change to a deep purple; they are tubulous, but cut at the top into four or five ſegments; the upper two are reflexed. It flowers in June, but the ſeeds rarely ripen in England.

Theſe plants may be cultivated by ſowing their ſeeds in rows ſoon after they are ripe, in a bed of freſh earth, allowing the rows at leaſt a foot diſtance from each other, obſerving to keep them clear from weeds, and they will thrive in almoſt any ſoil or ſituation.

LOAM is a common ſuperficial earth, that is a mixture of ſand and clay, commonly of a yellowiſh colour, though there is ſome Loam that is blackiſh. Some call Loam the moſt common ſuperficial earth met with in England, without any regard to the proportion it bears to ſand or clay; but moſt generally the appellation of Loam is applied to a ſoft fat earth, partaking of clay, but eaſy to work.

It is found by experience, that plants of moſt ſorts will grow in it; and wherever it is found, it appears to be a more beneficial ſoil to plants than any other. A clay uſed in grafting is alſo called Loam.

LOBELIA. Plum. Nov. Gen. 21. tab. 31. Lin. Gen. Plant. 897.

The CHARACTERS are,

The empalement of the flower is ſmall, of one leaf, indented in five parts, and grows about the germen. The flower has but one petal, which is tubulous, and a little ringent, cut into five parts at the brim; two of the upper ſegments are ſmaller than the other, are more reflexed and deeper cut, theſe conſtitute the upper lip; the three lower are ſpread open, and larger. It hath five awl-ſhaped ſtamina the length of the tube, terminated by oblong cylindrical ſummits, divided at their baſe into five parts. It has a pointed germen under the petal, ſupporting a cylindrical ſtyle, crowned by an obtuſe prickly ſtigma. The germen afterward becomes an oval fleſhy berry with two cells, each containing a ſingle ſeed.

This genus of plants is ranged in the fifth ſection of Linnæus's nineteenth claſs, to which he has joined the Rapuntium of Tournefort; but although the form of the flowers, and the number of their ſtamina, agree pretty well, yet as the fruit of this is a pulpy berry, incloſing but two ſeeds, and the Rapuntii have dry capſules including many ſmall ſeeds, I ſhall keep them ſeparate.

We know but one SPECIES of this genus, viz.

LOBELIA (*Fruteſcens*) fruteſcens, foliis ovati-oblongis integerrimis. Flor. Zeyl. 313. *Shrubby Lobelia with oblong, oval, entire leaves.* Lobelia fruteſcens portulacæ folio. Plum. Nov. Gen. 21. *Shrubby Lobelia with a Purſlane leaf.*

This plant riſes with a ſucculent ſtalk five or ſix feet high, garniſhed with oval, oblong, ſucculent leaves, which are placed alternately; theſe ſit cloſe to the ſtalk. The flowers are produced upon long foot-ſtalks, which come out from the ſide of the ſtalk, and ſuſtain two or three white flowers of one petal, cut into five acute ſegments at the brim; theſe are ſucceeded by two oval berries as large as Bullace, containing a ſtone with two cells, in each of which is lodged a ſingle ſeed.

The ſeeds of this plant were ſent to England by Mr. Cateſby, in the year 1724, who gathered them in the Bahama Iſlands, where the plants grow in plenty, near the ſhore of the ſea; and ſince that time the ſeeds have been ſent to England by Dr. William Houſtoun, who gathered them at La Vera Cruz; ſo that I believe the plant is common in moſt of the warm parts of America.

It is propagated by ſeeds, which muſt be procured from the countries of its natural growth, for the plants will not produce them in Europe; theſe ſeeds ſhould be ſown in pots filled with light ſandy earth, and plunged into a hot-bed of tanners bark, where the plants will come up in about a month or five weeks, provided the bed is warm, and the earth often watered. When the plants are up, they ſhould be kept in a temperate hot-bed, and frequently refreſhed with water, but it muſt not be given them in large quantities, for they are very ſucculent, and ſubject to periſh with much moiſture, eſpecially while they are young. When the plants are about two inches high, they ſhould be carefully taken out of the pots in which they were ſown, and each planted in a ſeparate ſmall pot filled with freſh light ſandy earth, and then plunged into the hot-bed again, obſerving to ſhade them in the heat of the day until they have taken new root. In this hot-bed the plants may remain until the middle, or latter end of September, when they muſt be removed into the ſtove, and plunged into the tan-bed, in the warmeſt part of the ſtove, for they are very tender plants while young, therefore muſt be kept very warm, otherwiſe they will not live through the firſt winter in this country. In the ſpring following the plants may be ſhifted into ſomewhat larger pots, and then plunged into a freſh hot-bed to forward their growth; for if they are not puſhed on while they are young, they ſeldom grow to any ſize, nor will they ever flower; ſo that in order to have them in any beauty, they muſt be carefully managed. The leaves of this plant are very ſubject to contract filth, by being conſtantly kept in the ſtove, therefore they ſhould be waſhed with a ſponge frequently, to keep them clean, otherwiſe they will appear unſightly.

LOBUS ECHINATUS. See GUILANDINA.

LOCULAMENTS are little diſtinct cells, or partitions, within the ſeed-veſſels of plants.

LOLIUM. Darnel Graſs.

Of this ſort of Graſs we have two or three ſpecies, which grow naturally in England; ſome in dry Graſs grounds, and one which is an annual Graſs, is frequently found in arable land; but as neither of them are cultivated for uſe, ſo I ſhall not trouble the reader with any farther account of them.

LONCHITIS [ſo called of Λόγχη, a lance or ſpear, becauſe the leaves are ſo ſharp-pointed as to reſemble the point of a ſpear.] Rough Spleenwort.

The CHARACTERS are,

The leaves are like thoſe of the Fern, but the pinnulæ are eared at their baſe; the fruit alſo is like that of the Fern.

The SPECIES are,

1. LONCHITIS aſpera. Ger. *Rough Spleenwort.*
2. LONCHITIS aſpera major. Ger. Emach. *Greater rough Spleenwort.*

The firſt of theſe plants is very common in ſhady woods, by the ſides of ſmall rivulets, in divers parts of England; but the ſecond ſort is not quite ſo common, and has been brought into ſeveral curious botanic gardens from the mountains in Wales. There are alſo great variety of theſe plants in America, which at preſent are ſtrangers in the European gardens; they are ſeldom cultivated but in botanic gardens for the ſake of variety, where they muſt have a moiſt ſoil and ſhady ſituation.

LONGITUDINAL VESSELS, in plants, are ſuch as are extended in length through the woody parts of trees and plants, into which the air is ſuppoſed to enter, and mix with the juices of the plant, and thereby augment its bulk.

LONICERA. Lin. Gen. Plant. Chamæceraſus. Tourn. Inſt. R. H. 609. tab. 379. *Upright Honeyſuckle.*

The Characters are,

The flower has a ſmall empalement, cut into five parts, upon which the germen ſits. It hath one petal, with an oblong tube, cut into five parts at the brim, and five awl-ſhaped ſtamina, almoſt the length of the petal, terminated by oblong ſummits. Under the petal is ſituated a roundiſh germen, ſupporting a ſlender ſtyle the length of the petal, crowned by an obtuſe ſtigma. The germen afterward turns to two berries, which join at their baſe.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle; and to this genus he has joined the Caprifolium, Periclymenum, and Xyloſteum of Tournefort, and the Symphoricarpos of Dillenius. Tournefort places this genus in the ſixth ſection of his twentieth claſs, in which he ranges the trees and ſhrubs with a flower of one petal, whoſe empalement becomes a berry.

The Species are,

1. Lonicera (*Xyloſteum*) pedunculis bifloris, baccis diſtinctis, foliis integerrimis pubeſcentibus. Prod. Leyd. 238. *Lonicera with two flowers on each foot-ſtalk, diſtinct berries, and entire woolly leaves.* Chamæceraſus dumetorum fructu gemino rubro. C. B. P. 451. *Dwarf Cherry with twin red fruit, commonly called Fly Honeyſuckle.*
2. Lonicera (*Alpigena*) pedunculis bifloris, baccis coadunatis didymis. Lin. Sp. Plant. 174. *Lonicera with two flowers upon a foot-ſtalk, and twin berries which are joined together.* Chamæceraſus Alpina, fructu gemino rubro duobus punctis notato. C. B. P. 451. *Dwarf Alpine Cherry with a red twin fruit, marked with two points, commonly called red-berried upright Honeyſuckle.*
3. Lonicera (*Cærulea*) pedunculis bifloris, baccis coadunatis globoſis, ſtylis indiviſis. Lin. Sp. Plant. 174. *Lonicera with two flowers on a foot-ſtalk, globular berries, which are joined, and undivided ſtyles.* Chamæceraſus montana, fructu ſingulari-cæruleo. C. B. P. 451. *Mountain Dwarf Cherry with a ſingle blue fruit, commonly called ſingle, blue-berried, upright Honeyſuckle.*
4. Lonicera (*Nigra*) pedunculis bifloris, baccis diſtinctis, foliis ſerratis. Prod. Leyd. 238. *Lonicera with two flowers on a foot-ſtalk, diſtinct berries, and ſawed leaves.* Chamæceraſus Alpina, fructu nigro gemino. C. B. P. 451. *Alpine Dwarf Cherry with a black twin fruit, called black-berried upright Honeyſuckle.*
5. Lonicera (*Tartarica*) pedunculis bifloris, baccis diſtinctis, foliis cordatis obtuſis. Hort. Upſal. 42. *Lonicera with two flowers on a foot-ſtalk, diſtinct berries, and blunt heart-ſhaped leaves.* Chamæceraſus fructu gemino rubro, foliis glabris cordatis. Amm. Ruth. 184. *Dwarf Cherry with a twin red fruit, and ſmooth heart-ſhaped leaves.*
6. Lonicera (*Pyrenaica*) pedunculis bifloris, baccis diſtinctis, foliis oblongis glabris. Lin. Sp. Plant. 174. *Lonicera with two flowers on a foot-ſtalk, diſtinct berries, and oblong ſmooth leaves.* Xyloſteum Pyrenaicum. Tourn. Inſt. 609. *Pyrenean Dwarf Cherry.*
7. Lonicera (*Symphoricarpos*) capitulis lateralibus pedunculatis, foliis petiolatis. Lin. Sp. Plant. 175. *Lonicera with lateral heads of flowers growing upon foot-ſtalks, and leaves having foot-ſtalks.* Symphoricarpos foliis alatis. Dill. Hort. Elth. 371. *commonly called ſhrubby St. Peterſwort.*

The firſt ſort has been many years cultivated in the Engliſh gardens under the title of Fly Honeyſuckle. It grows naturally upon the Alps, and in other cold parts of Europe. It riſes with a ſtrong woody ſtalk ſix or eight feet high, covered with a whitiſh bark, dividing into many branches, which are garniſhed with oblong oval leaves placed oppoſite; they are entire, and covered with ſhort hairy down. The flowers come out on each ſide of the branches oppoſite, ſtanding upon ſlender foot-ſtalks, each ſuſtaining two white flowers ſtanding erect; theſe have one petal, which is cut into five parts; the three lower being narrow, are reflexed, the two broader ſtand upright; theſe appear in June, and are ſucceeded by two red clammy berries, which are joined at their baſe, and ripen the beginning of September.

The ſecond ſort grows naturally upon the Alps; this has been long cultivated in the Engliſh gardens, by the title of red-berried upright Honeyſuckle; this hath a ſhort, thick, woody ſtem, which divides into many ſtrong woody branches growing erect, garniſhed with ſpear-ſhaped leaves placed oppoſite, ſtanding upon foot-ſtalks; they are entire, their under ſide being of a pale green, but their upper of a dark green. The flowers ſtand upon very long ſlender foot-ſtalks, which come out oppoſite on each ſide the branches, at the baſe of the leaves; they are red on their outſide, but pale within, ſhaped like thoſe of the former ſort, but are a little larger, ſtanding erect; theſe appear the latter end of April, and are commonly ſucceeded by two oval red berries, joined at their baſe, which have two punctures; they ripen the beginning of Auguſt. Sometimes there is but one berry ſucceeding each flower, which is frequently as large as a Kentiſh Cherry; this I believe has led ſome to ſuppoſe it was a diſtinct ſpecies, as I thought myſelf, when I ſaw all the fruit upon the ſhrub were ſingle; but the following years, I found they had twin fruit like the others.

The third ſort grows naturally upon the Appenines; this is a ſhrub of humbler growth than either of the former, ſeldom riſing more than four or five feet high. The branches are ſlender, covered with a ſmooth purpliſh bark. The joints are diſtant, where the leaves come out oppoſite, and ſometimes there are two on each ſide. The foot-ſtalks of the flowers are very ſhort, each ſuſtaining two white flowers, ſhaped like thoſe of the former ſorts; theſe are ſucceeded by blue berries, which are ſingle and diſtinct. The flowers appear in May, and the berries ripen in Auguſt.

The fourth ſort grows naturally on the Alps and Helvetian Mountains; this is a ſhrub very like the former, but the branches are ſlenderer. The leaves are a little ſawed on their edges. The flowers have two berries ſucceeding them, in which conſiſts their difference. It flowers at the ſame time with the former.

The fifth ſort grows naturally in Tartary, from whence the ſeeds were ſent to the Imperial Garden at Peterſburgh, where they ſucceeded, and from thence the ſeeds were ſent to me; this is a ſhrub which grows about the ſame height with the two former, to which this has a great reſemblance in its branches; but the leaves of this are heart-ſhaped, and the berries are red, growing ſometimes ſingle, at others double, and frequently there are three joined together, which are about the ſame ſize with the former. It flowers in April, and the fruit is ripe in July.

The ſixth ſort grows naturally on the Pyrenean Mountains, and alſo in Canada, from whence the ſeeds were brought to Duke D'Ayen, which were ſown in his curious garden at St. Germain, where they ſucceeded, and his highneſs was ſo good as to furniſh me with a plant; this ſeldom riſes more than three or four feet high, dividing into ſeveral ſpreading irregular branches, which are garniſhed with oblong ſmooth leaves, placed oppoſite. The flowers come out from the ſide of the branches upon ſlender foot-ſtalks, each ſuſtaining two white flowers, which are cut into five ſegments almoſt to the bottom; theſe are ſucceeded by berries as the other ſorts. It flowers in April.

The ſeventh ſort grows naturally in North America, but has been many years propagated in the Engliſh gardens; this hath a ſhrubby ſtalk which riſes about four feet high, ſending out many ſlender plain branches, garniſhed with oval hairy leaves, placed by pairs oppoſite, having very ſhort foot-ſtalks. The flowers are produced in whorls round the ſtalk; they are of an herbaceous colour, and appear in Auguſt. The fruit, which is hollow, and ſhaped like a pottage pot, ripens in the winter. Dr. Dillenius, in his Hortus Elthamenſis, has titled this plant, Symphoricarpos foliis alatis, ſuppoſing the leaves to be winged;

but as the leaves fall off ſingle, and the branches remain upon which they were fixed, they cannot be called winged leaves.

Theſe ſhrubs are now propagated in the nurſery-gardens near London, for ſale, and are commonly intermixed with other flowering ſhrubs for the ſake of variety; but as there is little beauty in ſome of their flowers, a few of them only ſhould be admitted, to ſet off thoſe which are preferable; they are all of them very hardy plants, ſo will thrive in a cold ſituation better than in a warm one; they love a moiſt ſoil, in which they will thrive, and produce a greater quantity of fruit than in dry ground.

They may be propagated either by ſeeds or cuttings. The ſeeds commonly lie in the ground a year before they vegetate, but require no particular culture; if they are ſown in autumn, many of them will grow the following ſpring. The cuttings ſhould be planted in autumn in a ſhady border, where they will put out roots the following ſpring, and in the following autumn they may be removed into a nurſery, to grow two years to get ſtrength, after which they ſhould be tranſplanted where they are deſigned to remain.

LOPPING. It is very obſervable, that moſt old trees are hollow within, which does not proceed from the nature of the trees, but is the fault of thoſe who have the management of them, who ſuffer the tops to grow large before they lop them, as the Aſh, Elm, Hornbeam, &c. and perſuade themſelves, that they may have the more great wood; but, in the mean time, do not conſider that the cutting off great tops, or branches, endangers the life of a tree, or, at beſt, wounds it ſo, that many trees yearly decay more in their bodies, than the yearly tops come to; and at the ſame time that they furniſh themſelves with more great wood, they do it at the loſs of the owner. And, indeed, though the Hornbeam and Elm will bear great tops when the body is little more than a ſhell, yet the Aſh, if it comes to take wet at the head, very rarely bears more top after the body of the tree decays; therefore, if once theſe trees decay much in the middle, they will be worth little but for the fire, ſo that if you find a timber tree decay, it ſhould be cut down in time, that the timber be not loſt.

The Lopping of young trees, that is, at ten or twelve years old at moſt, will preſerve them much longer, and will occaſion the ſhoots to grow more into wood in one year, than they do in old tops at two or three. But when great boughs are ill taken off, it often ſpoils many a tree, for which reaſon they ſhould always be ſpared, unleſs there is an abſolute neceſſity. When they muſt be cut off, it ſhould be cloſe and ſmooth, and not parallel to the horizon, and cover the wound with loam and horſe-dung mixed, to prevent the wet from entering the body of the tree.

When trees are at their full growth, there are ſeveral ſigns of their decay, as, the withering or dying of many of their top branches; or if the wet enters at any knot, or they are any-wiſe hollow, or diſcoloured, if they make but poor ſhoots, or if woodpeckers make any holes in them.

This Lopping of trees is only to be underſtood for pollard trees, becauſe nothing is more injurious to the growth of timber trees, than that of Lopping or cutting off great branches from them; whoever will be at the trouble of trying the experiment upon two trees of equal age and ſize, growing near each other, to lop or cut off the ſide branches from one of them, and ſuffer all the branches to grow upon the other, will, in a few years, find the latter to exceed the other in growth every way, and this will not decay near ſo ſoon.

All ſorts of reſinous trees, or ſuch as abound with a milky juice, ſhould be lopped very ſparingly, for they are ſubject to decay when often cut. The beſt ſeaſon for Lopping theſe trees, is ſoon after Bartholomew tide, at which time they ſeldom bleed much, and the wound is commonly healed over before the cold weather comes on.

LORANTHUS. Vaill. Act. R. Sc. 1702. Lin. Gen. Plant. 400. Lonicera. Plum. Nov. Gen. 17. tab. 37.

The Characters are,

The empalement of the flower is entire, concave, and crowns the germen. The flower is tubulous, and cut into five narrow ſegments almoſt to the bottom, which are reflexed. It hath four ſtamina which are longer than the tube of the flower, terminated by globular ſummits. The germen, which is ſituated below the empalement, ſupports a ſingle ſtyle which is longer than the ſtamina, crowned by an oval ſtigma. The germen afterward becomes an oval pulpy fruit with one cell, including ſeveral compreſſed ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixth claſs, but it ſhould be placed in his fourth claſs, for the flower has but four ſtamina and one ſtyle.

There are ſeveral ſpecies of this genus, which grow naturally upon trees, in ſeveral parts of America; but as the plants cannot be cultivated in gardens, ſo it will be to no purpoſe to enumerate them.

LOTUS. Tourn. Inſt. R. H. 402. Lin. Gen. Plant. 803. Bird's-foot Trefoil; in French, *Lotier*.

The Characters are,

The empalement of the flower is of one leaf, permanent, and cut at the top into five parts. The flower is of the butterfly kind. The ſtandard is roundiſh, and reflexed backward. The wings are broad, roundiſh, and ſhorter than the ſtandard, cloſing together at the top. The keel is cloſed on the upper ſide, and convex on the under, riſing a little. It hath ten ſtamina, nine joined and one ſeparate, terminated by ſmall ſummits, with an oblong taper germen, ſupporting a ſingle ſtyle, crowned by an inflexed ſtigma. The germen afterward becomes a cloſe cylindrical pod with one cell, opening with two valves, having many tranſverſe partitions, in each of theſe is lodged one roundiſh ſeed.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, which contains the plants whoſe flowers have ten ſtamina in two houſes.

The Species are,

1. Lotus (*Corniculatus*) capitulis depreſſis, caulibus decumbentibus, leguminibus cylindricis patentibus. Lin. Sp. Plant. 775. *Bird's-foot Trefoil with depreſſed heads, trailing ſtalks, and cylindrical ſpreading pods.* Lotus corniculata glabra, minor. J. B. 2. 356. *Leſſer, ſmooth, corniculated Bird's-foot Trefoil.*
2. Lotus (*Anguſtiſſimus*) leguminibus ſubbinatis linearibus ſtrictis erectis, caule erecto, pedunculis alternis. Lin. Sp. Plant. 774. *Bird's-foot Trefoil with erect, linear, ſtrait pods, growing in pairs, an erect ſtalk, and alternate foot-ſtalks.* Lotus pentaphyllos, minor, hirſutus, ſiliquâ anguſtiſſimâ. C. B. P. 332. *Smaller, five-leaved, hairy Bird's-foot Trefoil, with very narrow pods.*
3. Lotus (*Glabrus*) capitulis depreſſis, caulibus decumbentibus, foliis linearibus glabris, leguminibus linearibus. *Bird's-foot Trefoil with depreſſed heads, trailing ſtalks, ſmooth linear leaves, and very narrow pods.* Lotus pentaphyllos fruteſcens, tenuiſſimis glabris foliis. C. B. P. 332. *Shrubby five-leaved Bird's-foot Trefoil, with very narrow ſmooth leaves.*
4. Lotus (*Rectus*) capitulis ſubgloboſis, caule erecto, leguminibus rectis glabris. Hort. Upſal. 221. *Bird's-foot Trefoil with globular heads, an erect ſtalk, and ſtrait ſmooth pods.* Lotus villoſus, altiſſimus, flore glomerato. Tourn. Inſt. R. H. 403. *Talleſt hairy Bird's-foot Trefoil with a glomerated flower.*
5. Lotus (*Cretica*) leguminibus ſubternatis, caule fruticoſo, foliis ſericeis nitidis. Hort. Cliff. 372. *Bird's-foot Trefoil with generally three pods on each foot-ſtalk, a ſhrubby ſtalk, and ſhining leaves.* Lotus argentea Cretica. Pluk. Alm. 226. *Silvery Bird's-foot Trefoil of Crete.*

6. Lotus (*Hirſutus*) capitulis hirſutis, caule erecto hirſuto, leguminibus ovatis. Hort. Upſal. 220. *Bird's-foot Trefoil with hairy heads, an erect hairy ſtalk, and oval pods.* Lotus pentaphyllos ſiliquoſus villoſus. C. B. P. 332. *Five-leaved, hairy, podded Bird's-foot Trefoil.*

7. Lotus (*Candidus*) capitulis ſubgloboſis hirſutis, caule erecto ramoſo, hirſuto, foliis tomentoſis. *Bird's-foot Trefoil with globular heads, which are hairy, an upright branching hairy ſtalk, and woolly leaves.* Lotus hæmorrhoidalis humilior & candidior. Tourn. Inſt. 403. *Lower bird's-foot Trefoil, having whiter leaves.*

8. Lotus (*Ornithopodioides*) leguminibus ſubquinatis arcuatis compreſſis, caulibus diffuſis. Hort. Cliff. 372. *Bird's-foot Trefoil with five arched compreſſed pods, and diffuſed ſtalks.* Lotus ſiliquis ornithopodii. C. B. P. 332. *Bird's-foot Trefoil with pods like birds feet.*

9. Lotus (*Peregrinus*) leguminibus ſubbinatis linearibus compreſſis nutantibus. Hort. Cliff. 372. *Bird's-foot Trefoil with two narrow compreſſed nodding pods.* Lotus ſiliquis geminis peregrina. Boerh. Ind. 2. p. 38. *Foreign Bird's-foot Trefoil with twin pods.*

10. Lotus (*Pratenſis*) leguminibus ſolitariis rectis teretibus terminalibus, caule erecto. Sauv. Monſp. 189. *Bird's-foot Trefoil with an erect ſtalk, terminated by a ſingle, taper, erect pod.* Lotus pratenſis ſiliquoſa lutea. C. B. P. 332. *Yellow, meadow, podded Bird's-foot Trefoil.*

11. Lotus (*Edulis*) leguminibus ſubſolitariis gibbis incurvis. Hort. Cliff. 370. *Bird's-foot Trefoil with ſingle, convex, incurved pods.* Lotus pentaphyllos, ſiliquâ cornutâ. C. B. P. 332. *Five-leaved Bird's-foot Trefoil with horned pods.*

12. Lotus (*Maritimus*) leguminibus ſolitariis membranaceo-quadrangulatis, bracteis lanceolatis. It. Oel. 143. Flor. Suec. 610. *Bird's-foot Trefoil with ſingle pods which are quadrangular by a membrane, and a ſpear-ſhaped bracteæ.* Lotus maritima lutea ſiliquoſa, folio pingui glabro. Bot. Monſp. *Podded, yellow, maritime Bird's-foot Trefoil with a ſmooth leaf.*

13. Lotus (*Conjugatus*) leguminibus conjugatis membranaceo quadrangulis, bracteis oblongo-ovatis. Lin. Sp. Plant. 774. *Bird's-foot Trefoil with conjugated pods which are quadrangular by a membrane, and oblong oval bracteæ.* Lotus lutea, ſiliquâ anguloſâ. Boerh. Ind. alt. 2. p. 37. *Yellow Bird's-foot Trefoil with angular pods.*

14. Lotus (*Tetragonolobus*) leguminibus ſolitariis membranaceo-quadrangulatis, bracteis ovatis. Hort. Upſal. 220. *Bird's-foot Trefoil with ſingle pods which are quadrangular, with a membrane, and oval bracteæ.* Lotus ruber ſiliquâ anguloſâ. C. B. P. 332. *Red Bird's-foot Trefoil with angular pods, commonly called winged Pea.*

15. Lotus (*Cytiſoides*) capitulis dimidiatis, caule diffuſo ramoſiſſimo, foliis tomentoſis. Prod. Leyd. 387. *Bird's-foot Trefoil with heads divided into two equal parts, a very branching diffuſed ſtalk, and woolly leaves.* Lotus ſiliquoſa maritima lutea, Cytiſi facie. Barrel. Icon. 1031. *Podded, yellow, maritime Bird's-foot Trefoil with the appearance of Cytiſus.*

16. Lotus (*Jacobæus*) leguminibus ſubternatis, caule herbaceo erecto, foliis linearibus. Hort. Cliff. 372. *Bird's-foot Trefoil with three pods, an erect herbaceous ſtalk and narrow leaves.* Lotus auguſtifolia, flore luteo purpuraſcente, inſulæ St. Jacobi. Hort. Amſt. 2. p. 165. *Narrow-leaved Bird's-foot Trefoil of St. James's iſland, with a yellow purpliſh flower.*

17. Lotus (*Dorycnium*) capitulis aphyllis, foliis ſeſſilibus quinatis. Lin. Sp. Plant. 776. *Bird's-foot Trefoil with naked heads, and leaves placed by fives ſitting cloſe to the branches.* Dorycnium Monſpelienſium. Lob. Icon. 51. *Dorycnium of Montpelier.*

The firſt, ſecond, and third ſorts grow naturally in many parts of England, ſo are rarely admitted into gardens. When theſe grow in moiſt land and a ſhady ſituation, they ſend out ſtalks near two feet long; but upon dry chalky and gravelly ground, their ſtalks are not more than four or five inches long, and lie flat upon the ground. I have always obſerved in thoſe paſtures where theſe plants have grown, that the cattle of all ſorts have avoided eating them, but the Graſs all round them has been eaten very bare. I have cut the plants when young, and given it to various kinds of animals, but could never get them to eat it; and yet the ſeeds of theſe have been gathered and ſold by ſome quacks in huſbandry, under the title of Lady's Finger Graſs, to be ſown as an improvement to land for paſture.

The roots of theſe are perennial, ſo are difficult to get out when they have had long poſſeſſion of the land; and they produce great quantities of ſeeds, which is caſt about by the elaſticity of the pods when ripe, to a conſiderable diſtance; they flower in June, and the ſeeds ripen in September.

The fourth ſort grows naturally in the ſouth of France, in Italy, and Sicily; this has by ſome been ſuppoſed the Cytiſus of Virgil, but without foundation, for it does not anſwer the deſcription given of that plant. This hath a ſtrong perennial root, from which ariſe many upright ſtrong ſtalks from three to four feet high, covered with a purpliſh bark, and toward the top ſend out a few ſide branches; theſe are garniſhed at every joint by a trifoliate leaf, whoſe lobes are wedge-ſhaped; at the baſe of the footſtalk are placed two heart-ſhaped lobes ſitting cloſe to the branch; the leaves are hairy on their under ſide; the flowers are produced at the end of the branches almoſt in globular heads, ſitting cloſe to the foot-ſtalk: theſe are of a pale fleſh colour and appear in June, and are ſucceeded by ſmooth ſtrait pods almoſt an inch long, which change to a brown colour when ripe, and contain ſeveral roundiſh ſeeds which ripen in September. It is rarely cultivated but in botanic gardens for variety, but if any perſon has an inclination to cultivate this plant for feeding of cattle, it may be done in the ſame way as the Lucern, for which there is full directions in the article Medicago. It riſes eaſily from ſeeds, is very hardy, and will thrive on any light dry poor ground. Cows and horſes will eat this plant when green, but I have not tried if they will feed on it when made into hay.

The fifth ſort grows naturally in Syria and Crete; this riſes with ſlender ſtalks which require ſupport, from three to four feet high, ſending out a few ſide branches; theſe are garniſhed at each joint with neat ſhining ſilvery leaves which are trifoliate, and have two appendages at the baſe of their foot-ſtalks, as the other ſorts; they are in ſhape like the former, but a little ſmaller, and have an acute point at their top. The foot-ſtalks of the flowers, which are from two to three inches long, ariſe from the ſide of the branches, and ſuſtain heads of yellow flowers, which part in the middle, each head containing four or ſix flowers; theſe appear in May, June, and July, and are ſucceeded by long taper pods filled with roundiſh ſeeds which ripen in the autumn.

This ſort has a perennial ſtalk, but is too tender to live through the winter in the open air in England, ſo is kept in pots and removed into the green-houſe in autumn, and treated like other hardy exotic plants which only require protection from froſt, ſo want no artificial heat. It may be propagated by ſeeds, which if ſown on a bed of light earth in April, the plants will come up in about a month after, and in another month will be fit to remove; when they ſhould be each put into a ſeparate ſmall pot filled with freſh light earth, placing them in the ſhade till they have taken new root; then they may be removed to a ſheltered ſituation, where they may remain till autumn.

It may be alſo propagated by cuttings, which may be planted during any of the ſummer months, upon a bed of light earth, covering them cloſe with a bell or hand-glaſs, and ſcreening them from the ſun; in about five or ſix weeks they will have taken root, when they muſt be inured to bear the open air, and ſoon after may be planted in pots, and treated in the ſame way as the ſeedling plants.

The ſixth ſort grows naturally in the ſouth of France and Italy; this hath a perennial ſtalk, which riſes three feet high; when the roots are large, they frequently ſend up ſeveral of theſe ſtalks, eſpecially if the old ones are cut down; the ſtalks are hairy, and divide into ſeveral branches, which are cloſely garniſhed with hoary trifoliate leaves, having two appendages at the baſe of the ſtalk; the flowers are collected into heads ſitting upon pretty long foot-ſtalks, which come out of the ſide of the ſtalks. They have very hairy empalements, and are of a dirty white colour with a few marks of pale red. They appear in June and July, and are ſucceeded by ſhort thick pods of a Cheſtnut colour, containing ſeveral roundiſh ſeeds which ripen in the autumn. This is propagated by ſeeds in the ſame way as the laſt ſort; the plants will live through the winter in the open air in moderate winters, but it will be proper to keep one or two plants in pots to be ſheltered in winter, leſt thoſe abroad ſhould be deſtroyed by ſevere froſt.

The ſeventh ſort grows naturally in Sicily; this riſes with an upright woody ſtalk near three feet high, garniſhed with leaves like the ſixth, but they are much whiter, covered with a ſhort woolly down, as are alſo the ſtalks; the flowers grow in cloſe heads like the laſt, and are ſucceeded by ſhort pods, which contain many yellow ſeeds. It flowers in ſummer, and the ſeeds ripen in autumn. This is too tender to live in the open air in England through the winter, ſo the plants muſt be kept in pots and houſed during that ſeaſon. It is propagated in the ſame way as the fifth ſort, and requires the ſame culture.

The eighth ſort grows naturally in Sicily; this is an annual plant, which ſends out from the root many ſtiff ſtalks from one to two feet high, which divide into many branches growing diffuſed without any order, and are garniſhed with trifoliate leaves, having two appendages at their baſe; the foot-ſtalks of the flower riſe from the wings of the ſtalks; they are two or three inches long, terminated by a cluſter of yellow flowers, which are ſucceeded by flat pods two inches long, which are bent like an arch, and have many joints, ſeparating the cells in which the ſeeds are lodged. It flowers in July, and the ſeeds ripen in autumn, and the plants decay ſoon after.

This is propagated by ſeeds, which ſhould be ſown early in April upon an open bed or border expoſed to the ſun, where the plants are to remain: when they come up they muſt be thinned, leaving them near two feet aſunder, and afterwards they muſt be kept clean from weeds, which is all the culture they require.

The ninth ſort grows naturally in Spain and Portugal: this is an annual plant like the former, but doth not branch ſo much; the ſmall leaves are rounder at their ends, and they are ſmoother; the foot-ſtalks are ſhorter, and ſeldom ſuſtain more than two flowers; theſe are ſucceeded by two very narrow pods about two inches long, which hang downward. This requires the ſame culture as the former.

The tenth ſort grows naturally in the ſouth of France; this hath a perennial root, from which is ſent out ſeveral hairy ſtalks near a foot long, garniſhed with trifoliate hairy leaves, ſtanding upon ſhort foot-ſtalks, with two appendages at the baſe of the foot-ſtalk; the flowers ſtand upon pretty long foot-ſtalks ſingly, which riſe from the end of the branches; they have long hairy empalements, with two oblong acute-pointed leaves immediately under them. The flowers are yellow, ſtanding erect, and are ſucceeded by taper erect pods an inch and a half long. It flowers in June and July, and the ſeeds ripen in the autumn. It is propagated by ſeeds, which ſhould be ſown where the plants are to remain, and muſt be treated as the two former ſorts, but the roots of this will continue ſeveral years.

The eleventh ſort grows naturally in Sicily and Crete, where the pods are eaten by the poorer inhabitants when they are young. It alſo grows about Nice, from whence I received the ſeeds. This is an annual plant, from whoſe roots come out ſeveral trailing ſtalks a foot long, garniſhed at each joint with trifoliate roundiſh leaves, having appendages. The flowers ſtand ſingly upon long foot-ſtalks, which ariſe from the ſide of the branches; they are yellow and ſmall, and are ſucceeded by ſingle pods, which are thick, and arched with a deep furrow on the outſide. The flowers appear in June and July, and in warm ſeaſons the ſeeds ripen in the autumn, but in cold ſummers they will not ripen here. This muſt have the ſame culture as the annual ſorts before mentioned.

The twelfth ſort grows near the borders of the ſea in France, Spain, and Italy; this hath a perennial root, ſending out many ſlender ſtalks about a foot and a half long, which trail upon the ground, and are garniſhed with trifoliate leaves at each joint, which are ſmooth, and have two appendages to the baſe of the foot-ſtalk. The flowers ſtand ſingly, upon very long foot-ſtalks ariſing from the wings of the ſtalk; they are yellow, and are ſucceeded by ſingle pods near two inches long, having four leafy membranes running longitudinally at the four corners. This flowers in June and July, and the ſeeds ripen in the autumn. It is propagated by ſeed in the ſame way as the tenth ſort.

The thirteenth ſort grows naturally in the ſouth of France and Italy; this is an annual plant, from whoſe roots are ſent forth ſeveral branching ſtalks a foot long, garniſhed with trifoliate leaves, whoſe lobes are acute-pointed, and have two oblong oval appendages at the baſe of their foot-ſtalks: the foot-ſtalks of the flower ariſe from the wings of the branches, each ſuſtaining two yellow flowers, which are ſucceeded by taper pods near two inches long, having four leafy membranes running longitudinally their length. It flowers in July, and the ſeeds ripen in autumn. It is propagated by the ſeeds in the ſame way as the annual ſorts before mentioned.

The fourteenth ſort grows naturally in Sicily, but has been long cultivated in the Engliſh gardens; it was formerly cultivated as an eſculent plant. The green pods of it were dreſſed and eaten as Peas, which the inhabitants of ſome of the northern counties ſtill continue, but they are very coarſe, ſo not agreeable to the taſte of thoſe who have been accuſtomed to better fare.

It is an annual plant which is cultivated in the flower-gardens near London for ornament. This ſends out from the root ſeveral decumbent ſtalks about a foot long, garniſhed at each joint with trifoliate oval leaves, having oval appendages at the baſe of their foot-ſtalks; from each joint ariſe alternately the foot-ſtalks of the flowers, which are from two to three inches long, each ſuſtaining one large red flower at the top, with three leaves juſt under the flower. After the flower fades, the germen becomes a ſwelling taper pod two inches long, having four leafy membranes or wings running longitudinally. It flowers in June and July, and the ſeeds ripen in autumn.

The ſeeds of this ſort are commonly ſown in patches, five or ſix ſeeds being ſown near each other, in the borders of the pleaſure-garden, where they are deſigned to remain. If the ſeeds all grow, ſome of the plants may be pulled up, leaving only two or three in each patch, and afterward they will require no other care but to keep them clean from weeds.

The fifteenth ſort grows near the borders of the ſea, in the ſouth of France and Spain. This is a perennial plant, ſending out from the root many ſtalks, which branch out their whole length, and are garniſhed with roundiſh trifoliate leaves with two appendages; they are covered with a woolly down: the flowers ſtand upon ſhort foot-ſtalks, four or ſix growing in a divided head; they are yellow, and appear in July, and are ſucceeded by taper pods filled with roundiſh ſeeds, which ripen in autumn. This is propagated by ſeeds, which ſhould be ſown in the ſpring in the place where the plants are to remain, and muſt be treated in the ſame manner as the hardy perennial ſorts before mentioned.

The ſixteenth ſort grows naturally in the Iſland of St. James, from whence the ſeeds were firſt brought to Europe, but I have ſince received the ſeeds from the Cape of Good Hope. This hath a ſlender ſtalk which is woody, riſing from two to three feet high, ſending out many ſlender herbaceous branches, garniſhed with narrow white leaves, which are ſometimes trifoliate, and at others there are five narrow lobes to each; theſe ſit cloſe to the branches, and are hoary. The flowers are produced from the ſide of the ſtalks towards their upper part, upon very ſlender foot-ſtalks, each ſuſtaining four or five flowers collected in a head, of a yellowiſh deep purple colour, which are ſucceeded by taper ſlender pods little more than an inch long, containing five or ſix ſmall roundiſh ſeeds. This plant flowers all the ſummer and autumn, and many times great part of the winter, eſpecially if the plants are placed in a dry airy glaſs-caſe, where they may be free from damp, for nothing is more prejudicial to them. It is too tender to live abroad in England, ſo the plants muſt be kept in pots; and in the winter placed in a warm airy glaſs-caſe, but in the ſummer they ſhould be placed abroad in a ſheltered ſituation. It may be eaſily propagated by cuttings, during the ſummer ſeaſon, in the ſame way as the fifth ſort, and alſo by ſeeds; but the plants which have been two or three times propagated by cuttings, ſeldom are fruitful.

The ſeventeenth ſort grows naturally about Montpelier; it riſes with weak ſhrubby ſtalks three or four feet high, ſending out many ſlender branches, which are thinly garniſhed with ſmall hoary leaves, growing with five lobes in form of a hand; they ſit cloſe to the branches. The flowers are produced at the extremity of the branches in ſmall heads; they are very ſmall and white, ſo make no great appearance; they appear in June, and are ſucceeded by ſhort pods containing two or three ſmall round ſeeds which ripen in the autumn. This ſhrub will live in the open air, if it be planted in a dry ſoil and a warm ſituation. It is propagated by ſeeds, which will come up in any common border.

LOTUS ARBOR See Celtis.

LOVE-APPLE. See Lycopersicon.

LUDVIGIA. Lin. Gen. Plant. 142.

This title was given to this genus of plants by Dr. Linnæus, in honour of M. Chriſt. Ludwig, of Leipſic, who publiſhed Remarks on Rivinus's Method of claſſing Plants, at Leipſic, in 1737.

The Characters are,

The empalement of the flower is of one leaf, cut into four ſegments at the top, and ſits upon the germen. The flower conſiſts of four ſpear-ſhaped petals, which are equal, and ſpread open. In the center of the flower is ſituated the four-cornered pointal, attended by four ſtamina: the germen afterward becomes a four-cornered fruit, crowned with the empalement, and has four cells which are full of ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fourth claſs, which includes thoſe plants whoſe flowers have four ſtamina and one ſtyle.

We have but one Species of this genus in the Engliſh gardens at preſent, which is

Ludvigia (*Alternifolia*) foliis alternis lanceolatis. Lin. Sp. Plant. 118. *Ludvigia wich alternate ſpear-ſhaped leaves.* Ludvigia capſulis ſubrotundis. Hort. Cliff. 491. *Ludvigia with roundiſh capſules.*

We have no Engliſh name for this plant, but it is very near akin to the Onagra, or Tree Primroſe, from which it differs in the number of ſtamina.

This plant grows naturally in South Carolina, from whence the late Dr. Dale ſent me the ſeeds. It is annual, and riſes with an upright branching ſtalk a foot high, garniſhed with ſpear-ſhaped leaves placed alternate. The flowers come out ſingly at the foot-ſtalks of the leaves; they are compoſed of four ſmall yellow petals, which ſpread open, ſtanding upon ſhort foot-ſtalks, and have four ſtamina; the flowers are ſucceeded by roundiſh ſeed-veſſels with four leafy membranes they open in four cells, including many ſmall ſeeds. It flowers in July, and the ſeeds ripen in the autumn. The plants muſt be raiſed in a hot-bed in the ſpring, and treated in the ſame manner as hath been directed for the Amaranthus; for if they are not brought forward in the ſpring, they ſeldom produce good ſeeds in England.

LUFFA. Tourn. Act. R. S. 1709. Momordica. Lin. Gen. 967. Egyptian Cucumber.

The Characters are,

It hath a bell-ſhaped flower conſiſting of one leaf, which is divided into five parts to the center; there are male and female flowers on the ſame plant. The male flowers are produced on ſhort foot-ſtalks, having no embryos; but the female flowers reſt on the top of the embryos, which afterward become a fruit like a Cucumber to outward appearance, but is not fleſhy; the inner part conſiſting of many fibres, which are elegantly netted; and there are three cells which are filled with ſeeds, which are almoſt of an oval ſhape.

We have but one Species of this plant, viz.

Luffa (*Ægyptiaca*) Arabum. Tourn. Act. R. 170. *The Luffa of the Arabians.*

There are two varieties of this plant, one having white, and the other black ſeeds; but theſe are not diſtinct ſpecies.

This plant may be propagated after the ſame manner as Cucumbers and Melons, by ſowing the ſeeds on a hot-bed the beginning of March; and when the plants are come up, they muſt be pricked into a freſh hot-bed to ſtrengthen the plants, obſerving to let them have freſh air every day in warm weather, and to refreſh them frequently with water. When the plants have four or five leaves, they ſhould be planted out upon a hot-bed where they are deſigned to remain, which ſhould be under frames, and but one plant put into each light; for as theſe plants ſend forth a great number of ſide-ſhoots, ſo where they are planted too cloſe, they will entangle one into the other, and become ſo thick, as to cauſe the fruit to drop. In the management of theſe plants, after they are planted out for good, there muſt be the ſame care taken as for Melons and Cucumbers, with this difference only, that theſe require a larger ſhare of air in warm weather; otherwiſe the Vines will grow weak, and will not produce fruit.

When the plants have ſpread, ſo as to fill the frames on every ſide, the frames ſhould be raiſed on bricks, and the ends of the plants drawn out, that they may have room to grow; for when theſe plants are in a vigorous ſtate, they will ſpread eight or ten feet; ſo that if they are confined, they will become ſo thick, as to rot the tender branches which are covered from the air, and there will be no fruit produced.

The fruit, when it is young, is by ſome people eaten, and made into Mangoes, and preſerved in pickle; but it hath a very diſagreeable taſte, and is not accounted very wholeſome: wherefore theſe plants are ſeldom cultivated in Europe, except by ſuch perſons as are curious in botany, for variety.

LUNARIA. Tourn. Inſt. R. H. 218. tab. 105. Gen. Plant. 725. [ſo called of Luna, *Lat.* the moon. becauſe the ſeed-veſſels reſemble the form of the moon.] Moonwort, Sattin Flower, or Honeſty; in French, *Bulbonac.*

The Characters are,

The empalement of the flower is compoſed of four oblong, oval, ſmall leaves, which are obtuſe and fall off; the flower has four petals in form of a croſs, which are large, obtuſe, and entire: it hath ſix awl-ſhaped ſtamina, four of theſe are the length of the empalement; the other two are ſhorter, terminated by erect ſummits. It has an oblong oval germen ſitting upon a ſmall foot-ſtalk, ſupporting a ſhort ſtyle, crowned by an entire obtuſe ſtigma. The germen afterward becomes an erect, plain, compreſſed, elliptical pod, ſitting upon the ſmall foot-ſtalk, terminated by the ſtyle, having two cells opening with two valves, which are parallel, incloſing ſeveral compreſſed kidney-ſhaped ſeeds, which are bordered, ſitting in the middle of the pod.

This genus of plants is ranged in the ſecond ſection of Linnæus fifteenth claſs, intitled Tetradynamia ſiliculoſa, which includes thoſe plants whoſe flowers have four long and two ſhorter ſtamina, and the ſeeds are included in ſhort pods.

The Species are,

1. Lunaria (*Rediviva*) ſiliculis oblongis. Lin. Sp. Plant. 653. *Sattin Flower with oblong pods.* Lunaria major, ſiliquâ longiore. J. B. 2. 881. *Greater Moonwort with longer pods, commonly called Honeſty, or White Sattin.*
2. Lunaria (*Annua*) ſiliculis ſubrotundis. Lin. Sp. Plant. 653. *Sattin Flower with roundiſh pods.* Lunaria major, ſiliquâ rotundiore. J. B. *Greater Moonwort with a rounder pod.*
3. Lunaria (*Ægyptiaca*) foliis ſuprà decompoſitis, foliolis trifidis, ſiliculis oblongis pendulis. *Moonwort with leaves decompounded whoſe lobes are trifid, and oblong hanging pods.* Cardamine foliis ſuprà decompoſitis, ſiliquis unilocularibus pendulis. Lin. Sp. Plant. 656. *Lady's Smock with leaves decompounded above, and hanging pods containing one cell.*
4. Lunaria (*Perennis*) perennis, ſiliculis oblongis, foliis lanceolatis incanis. *Perennial Moonwort, with oblong pods and ſpear-ſhaped hoary leaves.* Lunaria perennis, lutea, folio leucoii, ramis expanſis. Vaill. *Yellow perennial Moonwort, with a Stock Gilliflower leaf and expanded branches.*

The firſt ſort grows naturally in Hungary, Iſtria, and Auſtria, but has been long an inhabitant of the Engliſh gardens. It is a biennial plant, which periſhes ſoon after the ſeeds are ripe; it riſes with a branching ſtalk from two to three feet high, covered with a reddiſh hairy bark, ſending out branches on every ſide from the ground upward; theſe are garniſhed with heart-ſhaped leaves placed alternately, ending in acute points indented on their edges, and are a little hairy; the lower ſtanding upon pretty long foot-ſtalks, but the upper ſit cloſe to the branches. The flowers are produced at the top and from the ſide of the branches toward their ends, in cluſters; they are compoſed of four purpliſh heart-ſhaped petals, placed in form of a croſs. Theſe appear in May, and are ſucceeded by large flat roundiſh pods with two cells, incloſing two rows of flat kidney-ſhaped ſeeds, which have a border round them. Theſe pods, when ripe, turn to a clear white or ſattin colour, from whence the title of Sattin Flower has been given to it, and are tranſparent.

The ſeed-veſſels of this plant, when they are full ripe, become very tranſparent, and of the appearance of white ſattin, at which time the branches are cut off and dried; after which they are preſerved to place in the chimneys of halls and large rooms, where they continue a long time in beauty.

This is propagated by ſeeds, which ſhould be ſown in the autumn; for thoſe which are ſown in the ſpring often miſcarry, or lie a long time in the ground before they appear. The plants will grow in almoſt any ſoil, but love a ſhady ſituation; it requires no other culture, but to keep it clean from weeds. If the ſeeds are permitted to ſcatter, the plants will riſe without any farther care; and if they are left unremoved, they will grow much larger than thoſe which are tranſplanted; the roots of this ſort periſh ſoon after the ſeeds are ripe.

The ſecond ſort grows naturally upon the mountains in Italy; this hath ſtalks and leaves very like the firſt, but the flowers are rather larger, and of a lighter purple colour; but the principal difference is in the pods of this being longer and narrower than thoſe of the other. It flowers and ſeeds at the ſame time with the firſt, and requires the ſame culture.

The third ſort is an annual plant, which grows naturally in Egypt. This riſes with a ſmooth branching ſtalk little more than a foot high, garniſhed with winged leaves, compoſed of ſeveral pair of lobes ranged along the midrib, terminated by an odd one; theſe lobes are of unequal ſizes, and vary in their form; ſome of them are almoſt entire, and others are cut at their extremities into three parts; they are ſmooth, and of a lucid green. The flowers ſtand each upon pretty long ſlender foot-ſtalks, which come out from the ſide, and alſo at the end of the branches, in looſe ſmall cluſters; they are of a purple colour, and are ſucceeded by oblong compreſſed pods, which hang downward. This ſort flowers in June and July, the ſeeds ripen the beginning of September, and the plants decay ſoon after.

This is propagated by ſeeds, which ſhould be ſown upon an open border where the plants are to remain; if they are ſown ſoon after they are ripe, the plants will come up in the autumn, and live through the winter in a ſheltered ſituation; theſe will flower early the following ſummer, whereby ripe ſeeds may be obtained; they may alſo be ſown in the ſpring in like manner. When the plants come up, they will require no other care but to keep them clean from weeds, and thin them where they are too cloſe. If the ſeeds are permitted to ſcatter in the autumn, the plants will riſe without care, and may be treated in the ſame way, which is much preferable to the ſowing the ſeeds in the ſpring.

The fourth ſort grows naturally in the Archipelago; this hath a perennial root, from which ariſe two or three ligneous ſtalks a foot high, covered with a white hairy bark, dividing upward into ſeveral ſmaller branches, garniſhed with ſpear-ſhaped leaves ſitting cloſe to the ſtalks, which are a little hoary. The branches are terminated by looſe ſpikes of yellow flowers which appear in June, and are ſucceeded by oblong flat pods, containing flat kidney-ſhaped ſeeds, which ripen in the autumn.

This ſort is propagated by ſeeds, which, if ſown in the autumn, will ſucceed better than in the ſpring; they ſhould be ſown on a warm border, and on a dry poor ſoil, otherwiſe they will not live through the winter; but in a rubbiſhing ſoil the plants will continue two or three years.

LUPINUS. Tourn. Inſt. R. H. 392. tab. 213. Lin. Gen. Plant. 774. Lupine; in French, *Lupin*.

The Characters are,

The empalement is bifid and of one leaf; the flower is of the butterfly kind; the ſtandard is roundiſh, heart-ſhaped, indented at the top, and the ſides reflexed and compreſſed. The wings are nearly oval, and almoſt as long as the ſtandard; they are not fixed to the keel, but cloſe at their baſe; the keel is as long as the wings, but is narrow, falcated, and ends in a point. It hath ten ſtamina joined at their baſe in two bodies, but as they riſe are diſtinct above, terminated by five oblong ſummits. In the center is ſituated a hairy, compreſſed, awl-ſhaped germen, ſupporting a riſing ſtyle, terminated by an obtuſe ſtigma. The germen afterward becomes a large, oblong, thick pod with one cell, ending with an acute point, including ſeveral roundiſh compreſſed ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, intitled Diadelphia Decandria, which includes thoſe plants whoſe flowers have ten ſtamina joined in two bodies.

The Species are,

1. Lupinus (*Varius*) calycibus ſemiverticillatis appendiculatis, labio ſuperiore bifido, inferiore ſubtridentato. Hort. Cliff. 499. *Lupine with empalements half whorled, having appendages, whoſe upper lip is bifid, and the under one almoſt trifid.* Lupinus ſylveſtris, purpureo flore, ſemine rotundo vario. J. B. 2. 291. *Wild Lupine, with a purple flower and a round variegated ſeed, commonly called the leſſer blue Lupine.*
2. Lupinus (*Anguſtifolius*) calycibus verticillatis appendiculatis, labio ſuperiore bipartito, inferiore integro. Lin. Sp. Plant. 721. *Lupine with empalements having alternate appendages, whoſe upper lip is divided into two, and the under one entire.* Lupinus anguſtifolius cœruleus elatior. Raii Hiſt. 908. *Narrow-leaved taller blue Lupine.*
3. Lupinus (*Luteus*) calycibus verticillatis appendiculatis, labio ſuperiore bipartito, inferiore tridentato. Hort. Cliff. 499. *Lupine with empalements growing in whorls, having appendages to them, whoſe upper lips are cut into two parts, and the under one into three.* Lupinus ſylveſtris, flore luteo. C. B. P. 348. *The common yellow Lupine.*

4. Lupinus (*Hirſutis*) calycibus verticillatis appendiculatis, labio ſuperiore inferioreque integris. Hort. Cliff. 499. *Lupine with whorl-ſhaped empalements having appendages, and the upper and under lip entire.* Lupinus peregrinus major, vel villoſus, cœruleus, major. C. B. P. *Foreign, greater, hairy Lupine, with a large blue flower, commonly called the great blue Lupine.*

5. Lupinus (*Albus*) calycibus alternis inappendiculatis, labio ſuperiore integro, inferiore tridentato. Hort. Cliff. 499. *Lupine with alternate empalements having no appendages, and the upper lip entire, but the under cut into three parts.* Lupinus ſativus, flore albo. C. B. P. 347. *Garden or manured Lupine, with a white flower.*

6. Lupinus (*Perennis*) calycibus alternis inappendiculatis, labio ſuperiore emarginato, inferiore integro. Lin. Sp. Plant. 721. *Lupine with alternate empalements having no appendages, the upper lip indented, and the under entire.* Lupinus cœruleus, minor, perennis, Virginianus, repens. Mor. Hiſt. 2. p. 87. *Smaller perennial, creeping, blue Lupine of Virginia.*

The firſt ſort grows naturally among the Corn in the ſouth of France and Italy, and in great abundance in Sicily. This is an annual plant, which riſes with a firm, ſtrait, channelled ſtalk near three feet high, divided toward the top into ſeveral branches, which are garniſhed with hand-ſhaped leaves, compoſed of five, ſix, or ſeven oblong lobes, which join in one center at their baſe, and are hairy. The flowers are produced in ſpikes at the end of the branches, ſtanding half round the ſtalk in ſort of whorls; they are of a light blue colour, ſhaped like thoſe of Peas, and are ſucceeded by ſtrait taper pods with one cell, incloſing a row of roundiſh ſeeds. This ſort flowers in June and July, and the ſeeds ripen in the autumn.

It is propagated in the borders of the pleaſure-garden for ornament, by ſowing the ſeeds in April, in the places where they are to remain; and when the plants come up they ſhould be thinned where they are too cloſe, and kept clean from weeds, which is all the culture they require.

The ſecond ſort has much the appearance of the firſt, but the ſtalks riſe higher; the leaves have more lobes, and ſtand upon longer foot-ſtalks; the lobes are blunt-pointed, and the ſeeds are variegated. This requires the ſame culture as the firſt, and flowers at the ſame time.

The third ſort is the common yellow Lupine, which has been long cultivated in the Engliſh gardens for the ſweetneſs of its flowers. This grows naturally in Sicily; it riſes about a foot high, with a branching ſtalk garniſhed with hand-ſhaped leaves, compoſed of nine narrow hairy lobes, which join at their baſe to the foot-ſtalks; theſe are four or five inches long. The flowers are yellow, and are produced in looſe ſpikes at the end of the branches, ſtanding in whorls round the ſtalks, with ſpaces between them, terminated by three or four flowers, ſitting cloſe at the top; theſe are ſucceeded by flattiſh hairy pods about two inches long, ſtanding erect, incloſing four or five roundiſh ſeeds, a little compreſſed on their ſide, of a yellowiſh white, variegated with dark ſpots. This ſort flowers at the ſame time as the former, but to have a ſucceſſion of the flowers, the ſeeds are ſown at different times, viz. in April, May, and June; but thoſe only, which are firſt ſown, will ripen their ſeeds. It may be cultivated in the ſame manner as the two former, and is equally hardy.

The fourth ſort is ſuppoſed to be a native of India, but has been many years in the Engliſh gardens. It is an annual plant, which riſes with a ſtrong, firm, channelled ſtalk from three to four feet high, covered with a ſoft browniſh down, dividing upward into ſeveral ſtrong branches, garniſhed with hand-ſhaped leaves, compoſed of nine, ten, or eleven wedge-ſhaped hairy lobes, which are narrow at their baſe where they join the foot-ſtalk, but enlarge upward, and are rounded at the top where they are broadeſt; the foot-ſtalks of the leaves are three or four inches long. The flowers are placed in whorls round the ſtalks above each other, forming a looſe ſpike, which proceeds from the end of the branches; they are large, and of a beautiful blue colour, but have no ſcent. Theſe appear in July, and the ſeeds ripen in the autumn. The pods of this ſort are large, almoſt an inch broad, and three inches long, incloſing three large roundiſh ſeeds compreſſed on their ſides, very rough, and of a purpliſh brown colour. There is a variety of this with fleſh-coloured flowers, which is commonly called the Roſe Lupine; it differs from the blue only in the colour of the flower, but this difference is permanent, for neither of the ſorts vary.

This is generally late in ripening the ſeeds, ſo that unleſs the autumn proves warm and dry, they do not ripen; therefore the beſt way to have good ſeeds, is to ſow them in September cloſe to a warm wall on dry ground, where they will live through our ordinary winters; and theſe plants will flower early the following ſummer, ſo there will be time for the ſeeds to ripen before the rains fall in the autumn, which frequently cauſes the ſeeds to rot which are not ripe. If a few of the ſeeds of both theſe varieties are ſown in ſmall pots the beginning of September, and when the froſts begin, the pots are removed into a common hot-bed frame, where they may be protected from hard froſt, but enjoy the free air in mild weather, the plants may be thus ſecured in winter; and in the ſpring they may be ſhaken out of the pots, preſerving the earth to their roots, and planted in a warm border, where they will flower early, and produce very good ſeeds.

The fifth ſort grows naturally in the Levant, but is cultivated in ſome parts of Italy, as other pulſe, for food. This hath a thick upright ſtalk about two feet high, which divides toward the top into ſeveral ſmaller hairy branches, garniſhed with hand-ſhaped leaves, compoſed of ſeven or eight narrow oblong lobes, which are hairy, and join at their baſe, of a dark grayiſh colour, and have a ſilvery down. The flowers are produced in looſe ſpikes at the end of the branches; they are white, and ſit cloſe to the ſtalk; theſe are ſucceeded by hairy ſtrait pods about three inches long, a little compreſſed on the ſides, containing five or ſix flattiſh ſeeds which are white, having a little cavity like a navel, in that part which is fixed to the pod. This ſort flowers in July, and the ſeeds ripen in the autumn. It is an annual plant, which is cultivated for ornament in the pleaſure-garden. The ſeeds muſt be ſown in the places where the plants are to remain, and may be treated in the ſame way as the firſt ſort.

The ſixth ſort grows naturally in Virginia, and other of the northern parts of America. This hath a perennial creeping root, from which ariſe ſeveral erect channelled ſtalks a foot and a half high, ſending out two or three ſmall ſide branches, garniſhed with hand-ſhaped leaves, compoſed of ten or eleven narrow ſpear-ſhaped lobes, which join at their baſe, ſtanding upon very long foot-ſtalks, having a few hairs on their edges. The flowers grow in long looſe ſpikes, which terminate the ſtalks, and are placed without order on each ſide; they are of a pale blue colour, having ſhort foot-ſtalks. Theſe appear in June, and the ſeeds ripen in Auguſt, which are ſoon ſcattered if they are not gathered when ripe; for after a little moiſture, the ſun cauſes the pods to open with an elaſticity, and caſt out the ſeeds to a diſtance all round. This ſort is propagated by ſeeds as the former, which ſhould be ſown where the plants are to remain; for although the root is perennial, yet it runs ſo deep into the ground as that it cannot be taken up entire; and if the root is cut or broken, the plant ſeldom thrives well after. I have traced ſome of the roots of this plant, which have been three feet deep in the ground in one year from ſeed, and ſpread out as far on every ſide, ſo that they muſt have room, therefore the young plants ſhould not be left nearer than three feet aſunder. If this plant is in a light dry ſoil, the roots will continue ſeveral years, and produce many ſpikes of flowers; and although the uſual ſeaſon of flowering is in June and

July, yet when rain happens to fall in Auguſt, there are frequently freſh ſtalks ariſe from the roots, which flower the end of September, or beginning of October.

The ſeeds of the fifth ſort are uſed in medicine; they have a bitter taſte, ſo open, digeſt, diſſolve, and cleanſe; and if they are ſteeped in water for ſome days, till they have loſt their bitterneſs, they may be eaten out of neceſſity, but they are ſuppoſed to breed groſs humours, and are hard of digeſtion. Some women uſe the flower of the ſeed mixed with the juice of Lemons, and a little Alumen ſaccharinum, made into the form of ſoft ointment, to make the face ſmooth, and look more amiable.

The ſmall blue Lupine is frequently ſown in Italy, to dreſs and manure the ground, eſpecially that which is intended for vineyards; where, if they have time, the ground is ſown with Lupines, which grow till they begin to flower; then they cut them down and plough them into the ground, where the ſtalks rot with the winter's rain; but it is doubtful whether this is any real benefit to the ground, for there are few plants which draw and impoveriſh the ground ſo much as Lupines; therefore the dreſſing they yield, is ſcarce an equivalent for what they have drawn from the ground: but when there is not time for this operation, they parboil the ſeeds to prevent their growing, and ſow them upon the ground before it is ploughed, allowing ſixteen buſhels to an acre of land; and this dreſſing is preferable to the former.

All the ſorts of Lupines make a pretty appearance when they are in flower, but the yellow ſort is preferred for its ſweetneſs, though the flowers of this are of ſhort duration, eſpecially in warm weather; therefore the ſeeds of this ſhould be ſown at ſeveral times, that there may be a ſucceſſion of flowers through the ſeaſon, for they will continue flowering till they are ſtopped by hard froſt; and thoſe which come in the autumn to flower, will continue in beauty a longer time than the early ones. If ſome of the ſeeds are ſown in the autumn on a warm border, the plants will often live through the winter, and flower early in the ſpring.

LUPULUS. Tourn. Inſt. R. H. 535. tab. 309. Humulus. Lin. Gen. Plant. 989. [This plant takes its name of Lupus, *Lat.* a wolf, becauſe the antients had a notion, that wolves were wont to hide themſelves under this plant.] The Hop; in French, *Houblon.*

The CHARACTERS are,

The male and female flowers are upon different plants. The empalement of the male flower is compoſed of five ſmall, concave, obtuſe leaves; it hath no petal, but has five ſhort hairy ſtamina, terminated by oblong ſummits. The female flowers have a general, four-pointed, acute peranthium, and a ſeparate oval one of four leaves, including eight flowers; each of theſe have an empalement of one leaf, which is cloſed at the baſe. Theſe have neither petal or ſtamina, but a ſmall germen ſituated in the center, ſupporting two awl-ſhaped ſtyles, crowned by acute, reflexed, ſpreading ſtigmas. The germen afterward turns to a roundiſh ſeed covered with a thin ſkin, incloſed in the baſe of the empalement.

This genus of plants is ranged in the fifth ſection of Linnæus's twenty-ſecond claſs, intitled Diœcia Pentandria, which includes thoſe plants whoſe male and female flowers are upon different plants, and the male flowers have five ſtamina.

We have but one SPECIES of this genus, viz.

LUPULUS (*Humilus*) mas & femina. C. B. P. 298. *Male and female Hop.*

The male Hop grows wild by the ſide of hedges and upon banks, in many parts of England: the young ſhoots of theſe plants are often gathered in the ſpring by the poor people, and boiled as an eſculent herb; but theſe muſt be taken very young, otherwiſe they are tough and ſtringy; it is eaſily diſtinguiſhed by the flowers, which are ſmall, and hang in long looſe bunches from the ſide of the ſtalks, abounding with farina on their ſummits; theſe have no Hops ſucceeding to the flowers.

The female Hop is the ſort which is cultivated for uſe; of this ſort, the people who cultivate them reckon three different varieties: as firſt, the long and ſquare Garlick Hop, the long white Hop, and the oval Hop, all which are indifferently cultivated in England, but of the male Hop there is no different varieties.

There being the greateſt plantation of Hops in Kent that are in any county of England, it is very probable, that their method of planting and ordering them ſhould be the beſt.

As for the choice of their Hop-grounds, they eſteem the richeſt and ſtrongeſt grounds as the moſt proper; they chuſe a warm dry ſoil, that has a good depth of hazel mould; and if it be rocky within two or three feet of the ſurface, the Hops will proſper well; but they will by no means thrive on a ſtiff clay, or ſpongy wet land.

If it may be, chuſe a piece of meadow or lay ground to plant Hops on, ſuch as has not been tilled or ſown with other crops for many years, or an old decayed orchard; for land that is worn out by long bearing of Corn, will require abundance of dung to bring it into any tolerable condition to bear a crop of Hops.

The Kentiſh planters accounting new land beſt for Hops, they plant their Hop-gardens with Apple-trees at a large diſtance, and with Cherry-trees between; and when the land hath done its beſt for Hops, which they reckon it will in about ten years, the trees may begin to bear. The Cherry-trees laſt about thirty years, and by that time the Apple-trees are large, they cut down the Cherry-trees.

The Eſſex planters account a moory land the propereſt for Hops, though there are ſeveral other ſorts of ſoil that are eſteemed very good.

Some account that land which has a roſſelly top, and a brick earth bottom, the beſt; a true roſſel or light ſand, is what they generally plant in, whether it be white or black.

Moory land is of different ſorts, ſome being ſtrong and heavy, ſo as to crack in ſummer; and ſome ſo light, that in dry ſeaſons it will blow away with the wind; and ſome are of a middle conſiſtence, being compoſed of both.

Theſe moors for goodneſs and value, are according to the nature and goodneſs of the ſoil that is underneath them; which being flung up upon the ſurface, will make a very good mixture, it being beſt to fling the under ſoil downward for Hops, becauſe they naturally root downwards, ſometims four or five yards deep, and therefore the deepeſt and richeſt ſoil is beſt for them.

Few are acquainted with the value of moors, becauſe they do not ſearch into the bottom of them, by reaſon of the expenſiveneſs of doing it, and the difficulty of carrying off the water.

If the land be moiſt, it ought to be laid up in high ridges, and to be well drained, and the drains kept clear and open, eſpecially in winter, that the water do not rot or too much chill the roots.

If the land be ſour or cold, it will be very much helped by burning it; and if the haulm and ſtrings of the Hops be burnt every year, and ſome of the paring or ſides of the garden or other earth be laid on them as they burn, and then more haulm be laid over that, and ſo continued layer upon layer, it will make an excellent compoſt to make the hills with.

As to the ſituation of a Hop-ground, one that inclines to the ſouth or weſt is the moſt eligible; but if it be expoſed to the north-eaſt or ſouth-weſt winds, there ſhould be a center of ſome trees at a diſtance; becauſe the north-eaſt are apt to nip the tender ſhoots in the ſpring, and the ſouth-weſt frequently break and blow the poles at the latter end of the ſummer, and very much endanger the Hops.

Hops require to be planted in an open ſituation, that the air may freely paſs round and between them to dry up and diſſipate the moiſture, whereby they will not be ſo ſubject to fire blaſts, which often deſtroy the middles of large plantations, while the outſides remain unhurt.

As for the preparation of the ground for planting, it ſhould, the winter before, be ploughed and harrowed even; and then lay upon it in heaps a good quantity of freſh rich earth, or well rotted dung and earth mixed together, ſufficient to put half a buſhel in every hole to plant the Hops in, unleſs the natural ground be very freſh and good.

Then lay a line acroſs it from the hedge, in which knots have been tied, at the diſtance you deſign your Hop-hills to be at, about eight or nine feet diſtance the whole length of the ground, and place a ſharp pointed ſtick at every knot; then lay aſide the line, and with two forked ſticks of about eight or nine feet long, you may from the firſt row ſet out the whole ground, by applying the two forks to two of the ſticks which were firſt ſet up, and placing another row at the ends, where the forked ſticks meet triangular-wiſe; then you ſhould dig a hole at every ſtick about a foot and a half wide, and fill it full of the good earth you brought in.

If you plough the ground with horſes between the hills, it will be beſt to plant them in ſquares chequer-wiſe; but the quincunx form is the moſt beautiful, and it will alſo be better for the Hop; but if the ground is intended to be cultivated by the breaſt-plough, it will be beſt to plant them in ſquares; but which way ſoever you make uſe of, a ſtake ſhould be ſtuck down at all the places where the hills are to be made.

Perſons ought to be very curious in the choice of the plants and ſets, as to the kind of the Hop; for if the Hop-garden be planted with a mixture of two or three ſorts of Hops that ripen at different times, it will cauſe a great deal of trouble, and be a great detriment to the owner.

The two beſt ſorts are the white and the gray bind; the latter is a large ſquare Hop, more hardy, and is the more plentiful bearer, but ripens later than the former.

There is alſo another ſort of the white bind, which ripens in a week or ten days before the common; but this is tenderer, and a leſs plentiful bearer, but it has this advantage, it comes firſt to market.

But if three grounds, or three diſtant parts of one ground, be planted with theſe three ſorts, there will be this conveniency, that they may be picked ſucceſſively as they become ripe.

The ſets ought to be procured out of grounds that are entirely of the ſame ſort you would have, they ſhould be five or ſix inches long, with three or more joints or buds on them, all the old bind and hollow part of the ſet being cut off.

If there be a ſort of Hop you value, and would increaſe plants and ſets from, the ſuperfluous binds may be laid down when the Hops are tied, cutting off the tops, and burying them in the hill; or when the Hops are dreſſed, all the cuttings may be ſaved, and laid in rows in a bed of good earth; for almoſt every part will grow, and become a good ſet the next ſpring.

Some have tried to raiſe a Hop-ground by ſowing ſeeds, but that turns to no account, becauſe that way is not only tedious, but the Hops ſo produced are commonly of different kinds, and many of them wild and barren.

As to the ſeaſons of planting Hops, the Kentiſh planters beſt approve the months of October and March, both which ſucceed very well; but the common ſets are not to be had in October, unleſs from ſome ground that is to be digged up and deſtroyed; and likewiſe there is ſome danger that the ſets may be rotted, if the winter prove very wet; but the moſt uſual time of procuring them is in March, when the Hops are cut and dreſſed.

As to the manner of planting the ſets, you ſhould put two or three good ſets in every hole with a ſetting ſtick, at about four inches diſtance, placing them ſloping; they muſt ſtand even with the ſurface of the ground; let them be preſſed cloſe with the hand, and covered with fine earth, and a ſtick ſhould be placed on each ſide the hill to ſecure it.

The ground being thus planted, all that is to be done more that ſummer, is to keep the hills clear from weeds, and to horſe-hoe the ground about the month of May, gathering up the ſtones, if more are turned up by ploughing, and to raiſe a ſmall hill round about the plants; and in June you muſt twiſt the young binds or branches together in a bunch or knot, for if they are tied up to ſmall poles the firſt year, in order to have a few Hops from them, it will not countervail the weakening the plants.

A mixture of compoſt or dung being prepared for your Hop-ground, the beſt time for laying it on, if the weather prove dry, is about Michaelmas, that the wheels of the dung-cart may not injure the Hops, nor furrow the ground: if this be not done then, you muſt be obliged to wait till the froſt has hardened the ground, ſo that it will bear the dung-cart; and this is alſo the time to carry on your new poles, to recruit thoſe that are decayed, and to be caſt out every year.

If you have good ſtore of dung, the beſt way will be to ſpread it in the alleys all over the ground, and to dig or plough it in the winter following. The quantity they will require, will be forty loads to an acre, reckoning about thirty buſhels to the load.

If you have not dung enough to cover all the ground in one year, you may lay it on one part one year, and on the reſt in another, or a third; for there is no occaſion to dung the ground after this manner, oftener than once in two or three years.

Thoſe who have but a ſmall quantity of dung, uſually content themſelves with laying on about twenty loads upon an acre every year; this they lay only on the hills, either about November, or in the ſpring; which laſt ſome account the beſt time, when the Hops are dreſſed, to cover them after they are cut; but if it be done at this time, the compoſt or dung ought to be very well rotted and fine.

As to the dreſſing of the Hops, when the Hop-ground is dug or ploughed in January or February, the earth about the hills, and very near them, ought to be taken away with a ſpade, that you may come the more conveniently at the ſtock to cut it.

About the end of February, if the Hops were planted the ſpring before, or if the ground be weak, they ought to be dreſſed in dry weather; but elſe, if the ground be ſtrong and in perfection, the middle of March will be a good time; and the latter end of March, if it be apt to produce over rank binds, or the beginning of April, may be ſoon enough.

Then having with an iron picker cleared away all the earth out of the hills, ſo as to make the ſtock bear to the principal roots, with a ſharp knife you muſt cut off all the ſhoots which grew up with the binds the laſt year; and alſo all the young ſuckers, that none be left to run in the alley and weaken the hill. It will be proper to cut one part of the ſtock lower than the other, and alſo to cut that part low, that was left higheſt the preceding year. By purſuing this method, you may expect to have ſtronger buds, and alſo keep the hill in good order.

In dreſſing thoſe Hops that have been planted the year before, you ought to cut off both the dead tops, and the young ſuckers which have ſprung up from the ſets, and alſo to cover the ſtocks with fine earth a finger's length in thickneſs.

About the middle of April the Hops are to be polled, when the ſhoots begin to ſprout up; the poles muſt be ſet to the hills deep into the ground, with a ſquare iron pitcher or crow, that they may the better endure the wind; three poles are ſufficient for one hill. Theſe ſhould be placed as near the hills as may be, with their bending tops turned outwards from the hill, to prevent the binds from entangling; and a ſpace between two poles ought to be left open to the ſouth, to admit the ſun beams.

The poles ought to be in length ſixteen or twenty feet, more or leſs, according as the ground is in ſtrength; and great care is to be taken not to over-pole a young or weak ground, for that will draw the ſtock too much, and weaken it. If a ground be over-polled, you are not to expect a good crop from it; for the branches which bear the Hops will grow very little, till the binds have over-reached the poles, which they cannot do when the poles are too long. Two ſmall poles are ſufficient for a ground that is young.

If you wait till the ſprouts or young binds are grown to the length of a foot, you will be able to make a better judgement where to place the largeſt poles; but if you ſtay till they are ſo long as to fall into the alleys, it will be injurious to them, becauſe they will entangle one with another, and will not claſp about the pole ſo readily.

Maple or Aſpen poles are accounted the beſt for Hops, on which they are thought to proſper beſt, becauſe of their warmth; or elſe, becauſe the climbing of the Hop is furthered by means of the roughneſs of the bark. But for laſtingneſs, Aſhen or Willow poles are preferable; but Cheſtnut poles are the moſt durable of all.

If, after the Hops are grown up, you find any of them have been under-polled, taller poles may be placed near thoſe that are too ſhort, to receive the binds from them.

As to the tying of Hops, the buds that do not claſp of themſelves to the neareſt pole when they are grown to three or four feet high, muſt be guided to it by the hand, turning them to the ſun, whoſe courſe they will always follow. They muſt be bound with withered Ruſhes, but not ſo cloſe as to hinder them from climbing up the pole.

This you muſt continue to do till all the poles are furniſhed with binds, of which two or three are enough for a pole; and all the ſprouts and binds that you have no occaſion for, are to be plucked up; but if the ground be young, then none of theſe uſeleſs binds ſhould be plucked up, but ſhould be wrapt up together in the middle of the hill.

When the binds are grown beyond the reach of your hands, if they forſake the poles, you ſhould make uſe of a ſtand ladder in tying them up.

Some adviſe, that if the binds be very ſtrong, and overgrow the poles very much, you ſtrike off their heads with a long ſwitch, to increaſe their branching below.

Towards the latter end of May, when you have made an end of tying them, the ground muſt have the ſummer ploughing or digging, which is done by caſting up with the ſpade ſome fine earth into every hill, and a month after it muſt be again repeated, and the hills made up to a convenient bigneſs.

It is not at all to be doubted, but that a thorough watering would be of very great advantage to Hops in a hot dry ſummer; but it is ſo much charge and trouble to do this, that unleſs you have a ſtream at hand to flow the ground, it is ſcarce practicable.

When the Hops blow, you ſhould obſerve if there be any wild barren hills among them, and mark them, by driving a ſharpened ſtick into every ſuch hill, that they may be digged up and replanted.

Hops as well as other vegetables, are liable to diſtempers and diſaſters, and among the reſt, to the fen. The Rev. Dr. Hales, in his excellent Treatiſe of Vegetable Statics, treating of Hops, gives us the following account of the ſtate of Hops in Kent in the year 1725, that he received from Mr. Auſten of Canterbury, which is as follows:

In mid April not half the ſhoots appeared above ground, ſo that the planters knew not how to pole them to the beſt advantage.

This defect of the ſhoot, upon opening the hills, was found to be owing to the multitude and variety of vermin that lay preying upon the roots; the increaſe of which, was imputed to the long and almoſt uninterrupted ſeries of dry weather for three months before.

Towards the end of April many of the Hop-vines were infeſted with flies.

About the 20th of May there was a very unequal appearance, ſome Vines being run ſeven feet, others not above three or four; ſome juſt tied to the poles, and ſome not viſible; and this diſproportionate inequality in their ſize, continued through the whole time of their growth.

The flies now appeared upon the leaves of the forwardeſt Vines, but not in ſuch numbers here, as they did in moſt other places. About the middle of June the flies increaſed, yet not ſo as to endanger the crop; but in diſtant plantations they were exceedingly multiplied, ſo as to ſwarm towards the end of the month.

June the 27th ſome ſpecks of fen appeared. From this day to the 9th of July was very dry weather. At this time, when it was ſaid, that the Hops in moſt parts of the kingdom looked black and ſickly, and ſeemed paſt recovery, ours held it out pretty well, in the opinion of the moſt ſkilful planters.

The great leaves were indeed diſcoloured, and a little withered, and the fen was ſomewhat increaſed. From the 9th of July to the 23d, the fen increaſed a great deal; but the flies and lice decreaſed, it raining much daily. In a week more the fen, which ſeemed to be almoſt at a ſtand, was conſiderably increaſed, eſpecially in thoſe grounds where it firſt appeared.

About the middle of Auguſt the Vines had done growing both in ſtem and branch, and the forwardeſt began to be in the Hop, the reſt in bloom; the fen continued ſpreading where it was not before perceived, and not only the leaves, but many of the burs were alſo tainted with it.

About the 20th of Auguſt ſome of the Hops were infected with the fen, and whole branches corrupted by it. Half the plantations had pretty well eſcaped hitherto, and from this time the fen increaſed but little; but ſeveral days wind and rain the following week ſo diſtorted them, that many of them began to dwindle, and at laſt came to nothing; and of thoſe that then remained in bloom, ſome never turned to Hops; and of the reſt which did, many of them were ſo ſmall, that they very little exceeded the bigneſs of a good thriving bur.

We did not begin to pick till the 8th of September, which is eighteen days later than we began the year before; the crop was little above two hundred on an acre round, and not good. The beſt Hops ſold this year at Way-hill, for 16 l. the hundred.

The Rev. Dr. Hales, in his aforeſaid Treatiſe, gives us an account of the following experiment that he made on Hop-vines. He tells us, that in July he cut off two thriving Hop-vines near the ground, in a thick ſhady part of the garden, the pole ſtill ſtanding; he ſtripped the leaves off from one of theſe Vines, and ſet their ſtems in known quantities of water in little bottles; that with leaves imbibed in a twelve hours day four ounces, and that without leaves three-fourths of an ounce.

He took another Hop-pole with its Vines on it, and carried it out of the Hop-ground into a free and open expoſure; theſe imbibed and perſpired as much more as the former in the Hop-ground, which is, doubtleſs, the reaſon why the Hop-vines on the outſides of plantations, where they are moſt expoſed to the air, are ſhort and poor, in compariſon of thoſe in the middle of the ground, viz. becauſe being much dried, their fibres harden ſooner, and therefore they cannot grow ſo kindly as thoſe in the middle of the ground, which, by ſhade, are always kept moiſter, and more ductile.

The ſame curious author proceeds as followeth: Now there being 1000 hills in an acre of Hop-ground, and each hill having three poles, and each pole three Vines, the number of Vines will be 9000, each of which perſpiring four ounces, the ſum of all the ounces perſpired by an acre in twelve hours day will be 36000 ounces = 15750000 grains = 62007 cube inches, or 220 gallons, which divided by 6272640, the number of ſquare inches in an acre, it will be found, that the quantity of liquor perſpired by all the Hop-vines will be equal to an area of liquor as broad as an acre, and

$\frac{1}{161}$ part of an inch deep, beſides what evaporated from the earth.

And this quantity of moiſture, in a kindly ſtate of the air, if daily carrried off, is a ſufficient quantity to keep the Hops in a healthy ſtate; but in a rainy moiſt ſtate of air, without a due mixture of dry weather, too much moiſture hovers about the Hops, ſo as to hinder, in ſome meaſure, the kindly perſpiration of the leaves, whereby the ſtagnating ſap corrupts, and breeds mouldy fen, which often ſpoils vaſt quantities of flouriſhing Hop-grounds.

This was the caſe in the year 1723, when for ten or fourteen days almoſt continual rains fell, about the latter half of July, after four months dry weather, upon which the moſt flouriſhing and promiſing Hops were all infected with mould, or fen, in their leaves and fruit, while the then poor and unpromiſing Hops eſcaped, and produced plenty, becauſe they, being ſmall, did not perſpire ſo great a quantity as others, nor did they confine the perſpired vapour, ſo much as the large thriving Vines did in their ſhady thickets.

This rain on the then warm earth, made the Graſs ſhoot out as faſt as if it were in a hot-bed, and the Apples grew ſo precipitately, that they were of a flaſhy conſtitution, ſo as to rot more remarkably than had ever been remembered.

The planters obſerve, That when a mould, or fen, has once ſeized any part of the ground, it ſoon runs over the whole, and that the Graſs, and other herbs under the Hops, are infected with it, probably, becauſe the ſmall ſeeds of this quick-growing mould, which ſoon come to maturity, are blown over the whole ground; which ſpreading of the ſeed may be the reaſon why ſome grounds are infected with fen for ſeveral years ſucceſſively, viz. from the ſeeds of the laſt year's fen. Might it not then be adviſed to burn the fenny Hop-vines, as ſoon as the Hops are picked, in hopes thereby to deſtroy ſome of the ſeed of the mould?

Mr. Auſten, of Canterbury, obſerves fen to be more fatal to thoſe grounds that are low and ſheltered, than to the high and open grounds, to thoſe that are ſhelving to the north, than to thoſe ſhelving to the ſouth; to the middle of grounds than to the outſides; to the dry and gentle grounds, than to the moiſt and ſtiff grounds.

This was very apparent throughout the plantations where the land had the ſame workmanſhip and help beſtowed upon it, and was wrought at the ſame time. But if in either of theſe caſes there was a difference, it had a different effect, and the low and gentle grounds, that lay neglected, were then ſeen leſs diſtempered than the open and moiſt, which were carefully managed and looked after.

The honey dews are obſerved to come about the 11th of June, which, by the middle of July, turn the leaves black, and make them ſtink.

The ſaid Dr. Hales relates, That in the month of July (the ſeaſon for fire-blaſts, as the planters call them) he has ſeen the Vines in the middle of the Hop-ground ſcorched up almoſt from one end of a large ground to the other, when a hot gleam of ſun-ſhine has come immediately after a ſhower of rain, at which time vapours are all ſeen with the naked eye, but eſpecially with reflecting teleſcopes, to aſcend ſo plentifully as to make a clear and diſtinct object become immediately very dim and tremulous; nor was there any dry gravelly vein in the ground along the courſe of this ſcorch; it was therefore, probably, owing to the much greater quantity of ſcorching vapours in the middle, than the outſides of the ground, and that being a denſer medium, it was much hotter than a more rare medium.

And, perhaps, the great volume of aſcending vapours might make the ſun-beams converge a little towards the middle of the ground, that being a denſer medium, and thereby increaſe the heat conſiderably; for he obſerved, That the courſe of the ſcorched Hops was in lines at right angles to the ſun-beams about eleven o'clock, at which time the hot gleam was. The Hop-ground was in a valley which ran from ſouth-weſt to north-eaſt, and to the beſt of his remembrance, there was but little wind, and that in the courſe of the ſcorch; but had there been ſome other gentle wind, either north or ſouth, it is not improbable but that the north wind gently blowing the volume of riſing wreak on the ſouth ſide of the ground, that ſide might have been moſt ſcorched, and ſo vice verſa.

As to particular fire-blaſts, which ſcorch here and there a few Hop-vines, or one or two branches of a tree, without damaging the next adjoining, what aſtronomers obſerve, may hint to us no very improbable cauſe of it, viz. They frequently obſerve (eſpecially with reflecting teleſcopes) ſmall ſeparate portions of pellucid vapours floating in the air, which, though not viſible to the naked eye, are yet conſiderably denſer than the circumambient air; and vapours of ſuch a degree of denſity may very probably either acquire ſuch a ſcalding heat from the ſun as will ſcorch what plants they touch, eſpecially the more tender.

(An effect which the gardeners about London have too often found to their coſt, when they have incautiouſly put bell-glaſſes over their Cauliflowers early in a froſty morning, before the dew was evaporated off them; which dew, being raiſed by the ſun's warmth, and confined within the glaſs, did there form a denſe, tranſparent, ſcalding vapour, which burned and killed the plants:)

Or, perhaps, the upper or lower ſurface of theſe tranſparent, ſeparate, flying volumes of vapours, may, among the many forms they revolve into, ſometimes approach ſo near to an hemiſphere, or hemicylinder, as thereby to make the ſun-beams converge, ſo as often to ſcorch the more tender plants they ſhall fall on, and ſometimes alſo parts of the more hardy plants and trees, in proportion to the greater or leſſer convergency of the ſun's rays.

The learned Boerhaave, in his Theory of Chymiſtry, p. 245, Shaw's edition, obſerves, That thoſe white clouds which appear in ſummer time, are, as it were, ſo many mirrours, and occaſion exceſſive heat. Theſe cloudy mirrours are ſometimes round, ſometimes concave, polygonous, &c. When the face of heaven is covered with ſuch white clouds, the ſun ſhining among them, muſt, of neceſſity, produce a vehement heat, ſince many of his rays, which would otherwiſe, perhaps, never touch our earth, are hereby reflected to us. Thus, if the ſun be on one ſide, and the clouds on the oppoſite one, they will be perfect burning-glaſſes, and hence the phænomena of thunder.

I have ſometimes (continues he) obſerved a kind of hollow clouds full of hail and ſnow, during the continuance of which the heat was extreme, ſince, by ſuch condenſation, they were enabled to reflect more ſtrongly. After this came a ſharp cold, and then the clouds diſcharged their hail in great quantity, to which ſucceeded a moderate warmth. Frozen concave clouds, therefore, by their great reflexions, produce a vigorous heat, and the ſame, when reſolved, exceſſive cold.

From which the Rev. Dr. Hales obſerves as follows: Hence we ſee, that blaſts may be occaſioned by the reflexions of the clouds, as well as by the above-mentioned refraction of denſe tranſparent vapours.

About the middle of July Hops begin to blow, and will be ready to gather about Bartholomew-tide. A judgment may be made of their ripeneſs, by their ſtrong ſcent, their hardneſs, and the browniſh colour of their ſeed.

When by theſe tokens they appear to be ripe, they muſt be picked with all the expedition poſſible; for if at this time a ſtorm of wind ſhould come, it would do them great damage, by breaking the branches, and bruiſing and diſcolouring the Hops; and it is very well known, that Hops, being picked green and bright, will ſell for a third part more than thoſe which are diſcoloured and brown.

The moſt convenient way of picking them is into a long ſquare frame of wood, called a bin, with a cloth hanging on tenter-hooks within it, to receive the Hops as they are picked.

The frame is compoſed of four pieces of wood joined together, ſupported by four legs, with a prop at each end to bear up another long piece of wood, placed at a convenient height over the middle of the bin; this ſerves to lay the poles upon which are to be picked.

This bin is commonly eight feet long, and three feet broad; two poles may be laid on it at a time, and ſix or eight perſons may work at it, three or four on each ſide.

It will be beſt to begin to pick the Hops on the eaſt or north ſide of your ground, if you can do it conveniently; this will prevent the ſouth-weſt wind from breaking into the garden.

Having made choice of a plot of the ground containing eleven hills ſquare, place the bin upon the hill which is in the center, having five hills on each ſide; and when theſe hills are picked, remove the bin into another piece of ground of the ſame extent, and ſo proceed till the whole Hop-ground is finiſhed.

When the poles are drawn up to be picked, you muſt take great care not to cut the binds too near the hills, eſpecially when the Hops are green, becauſe it will make the ſap to flow exceſſively.

And if the poles do not come up without difficulty, they ſhould be raiſed by a piece of wood in the nature of a lever, having a forked piece of iron, with teeth on the inſide, faſtened within two feet of the end.

The Hops muſt be picked very clean, i. e. free from leaves and ſtalks, and, as there ſhall be occaſion, two or three times in a day the bin muſt be emptied into a Hop-bag made of coarſe linen cloth, and carried immediately to the oaſt, or kiln, in order to be dried; for if they ſhould be long in the bin, or bag, they will be apt to heat, and be diſcoloured.

If the weather be hot, there ſhould no more poles be drawn than can be picked in an hour, and they ſhould be gathered in fair weather, if it can be, and when the Hops are dry; this will ſave ſome expence in firing, and preſerve their colour better when they are dried.

The beſt method of drying Hops is with charcoal on an oaſt or kiln, covered with hair-cloth, of the ſame form and faſhion that is uſed for drying malt. There is no need to give any particular directions for the making it, ſince every carpenter, or bricklayer, in thoſe countries where Hops grow, or malt is made, knows how to build them.

The kiln ought to be ſquare, and may be of ten, twelve, fourteen, or ſixteen feet over at the top, where the Hops are laid, as your plantation requires, and your room will allow. There ought to be a due proportion between the height and breadth of the kiln, and the beguels of the ſteddle where the fire is kept, viz. if the kiln be twelve feet ſquare on the top, it ought to be nine feet high from the fire, and the ſteddle ought to be ſix feet and a half ſquare, and ſo proportionable in other dimenſions.

The Hops muſt be ſpread even upon the oaſt a foot thick or more, if the depth of the curb will allow it, but care is to be taken not to overload the oaſt, if the Hops be green or wet.

The oaſt ought to be firſt warmed with a fire before the Hops are laid on, and then an even ſteady fire muſt be kept under them; it muſt not be too fierce at firſt, leſt it ſcorch the Hops; nor muſt it be ſuffered to ſink or ſlacken, but rather be increaſed till the Hops be near dried, leſt the moiſture, or ſweat, which the fire has raiſed, fall back, or diſcolour them. When they have lain about nine hours, they muſt be turned, and in two or three hours more they may be taken off the oaſt. It may be known when they are well dried by the brittleneſs of the ſtalks, and the eaſy falling off of the Hop leaves.

The Dutch and Flemings have another method of drying their Hops: they make a ſquare kiln, or room, about eight or ten feet wide, built of brick or ſtone, having a door at one ſide, and a fire-place in the middle of the room, on the floor, about thirteen inches wide within, and thirteen inches high in length from the mouth of it, almoſt to the back part of the kiln, a paſſage being left juſt enough for a man to go round the end of it; this they call a horſe, ſuch as is commonly made in malt-kilns, the fire paſſing out at the holes at each ſide, and at the end of it.

The bed, or floor, on which the Hops lie to be dried, is placed about five feet high above; about that is a wall near four feet high, to keep the Hops from falling.

A window is made at one ſide of the upper bed, to ſhove off the dry Hops down into a room prepared to receive them. The beds are made of laths, or rails, ſawn very even, lying a quarter of an inch diſtant from one another, with a croſs beam in the middle, to ſupport them; the laths are let in even with the top of the beam, and this keeps them even in the places; this they call an oaſt.

The Hops are laid on this bed by baſkets full, without any oaſt-cloth, beginning at one end, and ſo going on till all is covered, half a yard thick, without treading them; then they even them with a rake, that they may lie of equal thickneſs.

This being done, they kindle the fire below, either of wood or charcoal, but the latter is accounted the better fuel for Hops; this fire is kept as much as may be at an equal or conſtant heat, and only at the mouth of the furnace, for the air will ſufficiently diſperſe it.

They do not ſtir them till they are thoroughly dried, i. e. till the top is as fully dried as the bottom; but if they find any place not to be ſo dry as the reſt, (which may be known by reaching over them with a ſtick or wand, and touching them in ſeveral places,) they obſerve where they do not rattle, and where they do; and where they do not rattle, they abate them there, and diſpoſe of them where the places were firſt dry.

They know when they are thoroughly dry, by the brittleneſs of the inner ſtalk, if it be ſhort when it is rubbed; which when they find, they take out the fire, and ſhove out the Hops at the window that is made for that purpoſe, into the room made to receive them, with a coal-rake made with a board at the end of a pole, and then go in at a door below, and ſweep up the Hops and ſeeds that fall through, and put them to the other Hops; then they lay another bed of green Hops, and renew the fire, and proceed as before.

This method is diſapproved by ſome, becauſe (they ſay) the Hops lying ſo thick, and not being turned, the under part of them muſt needs dry before the upper; and the fire paſſing through the whole bed to dry the uppermoſt, muſt neceſſarily over-dry, and much prejudice the greateſt part of the Hops, both in ſtrength and weight, beſides the unneceſſary expence of firing, which muſt be long continued to dry thoroughly ſo many together.

Therefore ſome have improved on this method, and adviſed to make the kiln much as is before directed as to the Dutch way.

Firſt to make a bed of flat ledges about an inch thick, and two or three inches broad, ſawn, and laid acroſs one another the flat way, chequerwiſe, at about three or four inches diſtance one from the other, the edges being ſo entered one into the other, that the floor may be even and ſmooth; this bed may be made to reſt on two or three joiſts, ſet edgewiſe, to ſupport it from ſinking.

This bed is to be covered with large double tin, ſoldered together at each joint, and the ledges muſt be ſo ordered, before they are laid, that the joints of the tin may always lie over the middle of the ledge, the bed being wholly covered over with tin: boards muſt be fitted about the edges of the kiln, to keep up the Hops, but one ſide muſt be made to remove, that the Hops may be ſhoved off as before.

On this bed, or floor of tin, the Hops may be turned without ſuch hazard or loſs, as upon the hair-cloth: and alſo it will require a leſs expence of fuel, and, beſides, any ſort of fuel will ſerve in this kiln, as well as charcoal, becauſe the ſmoke does not paſs through the Hops as it does the former ways; but then care is to be taken, that there be paſſages made for it at the ſeveral corners and ſides of the kiln.

It is found by experience, that the turning of Hops, though it be after the moſt eaſy and beſt manner, is not only an injury and waſte to the Hops, but alſo an expence of fuel and time, becauſe they require as much fuel, and as long a time, to dry a ſmall quantity, by turning them, as a large one.

Now, this may be prevented, by having a cover (to be let down and raiſed at pleaſure) to the upper bed whereon the Hops lie.

This cover may alſo be tinned, by nailing ſingle tin plates over the face of it, ſo that when the Hops begin to dry, and are ready to burn, i. e. when the greateſt part of their moiſture is evaporated, then the cover may be let down within a foot, or leſs, of the Hops (like a reverbatory) and will reflect the heat upon them, ſo that the top will ſoon be as dry as the lowermoſt, and every Hop be equally dried.

As ſoon as the Hops are taken off the kiln, lay them in a room for three weeks or a month to cool, give, and toughen; for if they are bagged immediately, they will powder, but if they lie a while (and the longer they lie the better, provided they be covered cloſe with blankets to ſecure them from the air,) they may be bagged with more ſafety, as not being liable to be broken to powder in treading, and this will make them bear treading the better, and the harder they are trodden, the better they will keep.

The common method of bagging is as follows; they have a hole made in an upper floor, either round or ſquare, large enough to receive a Hop-bag (which conſiſts of four ells and a half of ell-wide cloth, and alſo contains ordinarily two hundred and a half of Hops) they tie a handful of Hops in each lower corner of the bag, to ſerve as handles to it, and they faſten the mouth of the hole, ſo placed that the hoop may reſt upon the edges of the hole.

Then he that is to tread the Hops down into the bag, treads the Hops on every ſide, another perſon continually putting them in as he treads them, till the bag is full, which being well filled and trodden, they unrip the faſtening of the bag to the hoops, and let it down, and cloſe up the mouth of the bag, tying up a handful of Hops in each corner of the mouth, as was done in the lower part.

Hops being thus packed, if they have been well dried, and laid up in a dry place, they will keep good ſeveral years; but care muſt be taken, that they be neither deſtroyed nor ſpoiled by the mice making their neſts in them.

The crop of Hops being thus beſtowed, you are to provide for another, firſt by taking care of the poles againſt another year, which are beſt to be laid up in a ſhed, having firſt ſtripped off the haulm from them; but if you have not that conveniency, ſet up three poles in the form of a triangle, or ſix poles (as you pleaſe) wide at the bottom, and having ſet them into the ground, with an iron pitcher, and bound them together at top, ſet the reſt of your poles about them; and being thus diſpoſed, none but thoſe on the outſide will be ſubject to the injuries of the weather, for all the inner poles will be kept dry, unleſs at the top; whereas, if they were on the ground, they would receive more damage in a fortnight, than by their ſtanding all the reſt of the year.

In the winter time provide your ſoil and manure for the Hop-ground againſt the following ſpring.

If the dung be rotten, mix it with two or three parts of common earth, and let it incorporate together till you have occaſion to make uſe of it in making your Hop-hills; but if it be new dung, then let it be mixed as before, till the ſpring come twelvemonths, for new dung is very injurious to Hops.

Dung of all ſorts was formerly more commonly made uſe of than now it is, eſpecially when rotted, and turned to mould, and they who have no other manure muſt uſe it; which, if they do, cows or hogs dung, or human ordure mixed with mud, may be a proper compoſt, becauſe Hops delight moſt in a manure that is cool and moiſt.

Some recommend chalk, or lime, as the beſt manure, except in cold lands, and in ſuch, pigeons dung will do beſt; a little of which laid to a hill, and ſo mixed, that it may not be too hot in a place, is of great advantage.

LUTEOLA. See Reseda.

LYCHNIDEA. See Phlox.

LYCHNIS. Tourn. Inſt. R. H. 333. tab. 175. Lin. Gen. Plant. 517. [ſo called of Λύχνος, a candle, or light, becauſe the flowers of this plant imitate the flame or rays of light.] Campion.

The Characters are,

The flower has a permanent ſwollen empalement of one leaf, indented in five parts at the top. It hath five petals, whoſe tails are the length of the empalement, their upper part plain, broad, and frequently cleft in laminæ. It hath ten ſtamina which are longer than the empalement, alternately ranged, and faſtened to the tails of the petals, terminated by proſtrate ſummits. In the center is ſituated an almoſt oval germen, ſupporting five awl-ſhaped ſtyles, crowned by reflexed hairy ſtigmas. The empalement afterward becomes an oval capſule with one cell, opening with five valves, filled with roundiſh ſeeds.

This genus of plants is ranged in the fifth ſection of Linnæus's tenth claſs, intitled Decandria Pentagynia, which includes thoſe plants whoſe flowers have ten ſtamina and five ſtyles.

The Species are,

1. Lychnis (*Chalcedonica*) floribus faſciculatis faſtigiatis. Hort. Cliff. 174. *Campion with flowers gathered into a pyramid.* Lychnis hirſuta, flore coccineo, major. C. B. P. 203. *Greater hairy Campion with a ſcarlet flower.*
2. Lychnis (*Viſcaria*) petalis integris. Lin. Sp. Plant. 436. *Campion with entire petals.* Lychnis ſylveſtris viſcoſa, rubra, anguſtifolia. C. B. P. 205. *Wild viſcous Lychnis with a red flower and narrow leaves, commonly called the Single Catchfly.*
3. Lychnis (*Diœci*) floribus diœcis. Hort. Cliff. 171. *Campion with male and female flowers on different plants.* Lychnis ſylveſtris, ſive aquatica purpurea; ſimplex. C. B. P. 204. *Wood or aquatic Lychnis with a ſingle purple flower, frequently called Bachelors Button.*
4. Lychnis (*Alba*) floribus diœcis, calycibus inflatis hirſutis. *Campion with male and female flowers growing on different plants, and ſwollen hairy empalements.* Lychnis ſylveſtris, alba, ſimplex. C. B. P. 204. *Wild campion with a ſingle white flower.*
5. Lychnis (*Floſcuculi*) petalis quadrifidis, fructu ſubrotundo. Hort. Cliff. 174. *Campion with quadrifid petals, and a roundiſh fruit.* Lychnis pratenſis flore laciniato ſimplici. Mor. Hiſt. 2. p. 537. *Meadow Campion with a ſingle jagged flower, commonly called Ragged Robin.*
6. Lychnis (*Alpina*) petalis bifidis corymboſis. Lin. Sp. Plant. 436. *Campion with bifid petals, and flowers growing in a corymbus.* Silene floribus in capitulum congeſtis. Haller. Helv. 376. *Lychnis with flowers collected in a head.*
7. Lychnis (*Siberica*) petalis bifidis, caule dichotomo, foliis ſubhirtis. Lin. Sp. Plant. 437. *Campion with bifid petals, a ſtalk divided by pairs, and leaves which are ſomewhat hairy.*
8. Lychnis (*Luſitanica*) caule erecto, calycibus ſtriatis acutis, petalis diſſectis. Plat. 170. *Campion with an erect ſtalk, ſtriped acute empalements, and petals cut into many parts.*
9. Lychnis (*Apetala*) calyce inflato, corollâ calyce breviore, caule ſubunifloro. Lin. Sp. Plant. 437. *Campion with a ſwollen empalement, the petals of the flower ſhorter than the cup, and ſtalks having chiefly one flower.* Lychnis ſylveſtris alba, calyce amplo veſi-

cario. Vaill. *Wild white Campion with a large inflated empalement.*

The firſt ſort is commonly known by the title of Scarlet Lychnis; of which there is one with double flowers, which is moſt eſteemed for the ſize of the flowers and multiplicity of the petals; as alſo for the duration of the flowers, which continue much longer in beauty than the ſingle flowers, ſo that the latter is not much cultivated at preſent, though the flowers of this are very beautiful; and as the plants are ſo eaſily propagated by ſeed, they may ſoon be had in greater plenty than thoſe with double flowers, which do not produce ſeeds. Of the ſingle ſort there are three varieties, the deep ſcarlet, the fleſh-colour, and the white, but the firſt is the moſt beautiful.

This is eaſily propagated by ſeeds, which ſhould be ſown on a border expoſed to the eaſt, in the middle of March. The plants will appear in April, when if the ſeaſon is dry, they ſhould be refreſhed with water two or three times a week. By the beginning of June the plants will be fit to remove, when there ſhould be a bed of common earth prepared to receive them; into which they ſhould be planted at about four inches apart, obſerving to water and ſhade them till they have taken root; after which time they will require no other care but to keep them clean from weeds till the following autumn, when they ſhould be tranſplanted into the borders of the pleaſure-garden, where they are to continue. The ſummer following theſe plants will flower and produce ripe ſeeds, but the roots will abide ſeveral years and continue to flower. This ſort flowers in June and July, and the ſeeds ripen in autumn. It may alſo be propagated by offſets, but as the ſeeds ripen ſo freely, few perſons trouble themſelves to propagate the plants any other way. The French call this plant Jeruſalem Croſs.

The ſort with double flowers is a valuable plant, the flowers are very double, and of a beautiful ſcarlet colour. This hath a perennial root, from which ariſe two, three, or four ſtalks, according to the ſtrength of the roots; theſe in rich moiſt land, grow upwards of four feet high; the ſtalks are ſtrong, erect, and hairy. They are garniſhed the whole length with ſpear-ſhaped leaves ſitting cloſe to the ſtalks, placed oppoſite; and juſt above each pair of leaves, there are four ſmaller leaves ſtanding round the ſtalk. The flowers are produced in cloſe cluſters ſitting upon the top of the ſtalk; when the roots are ſtrong, the cluſters of flowers will be very large, ſo they make a fine appearance, the flowers being very double, and of a bright ſcarlet colour. They appear the latter end of June, and in moderate ſeaſons continue near a month in beauty. The ſtalks decay in autumn, and new ones ariſe in the ſpring. This was originally produced from the ſeeds of the ſingle ſort, and is propagated by ſlips taken from the roots in autumn; but as this is a ſlow method of increaſing the plants, the beſt way to have them in plenty, is to cut off the flower-ſtalks in June before the flowers appear, which may be cut into ſmall lengths, each of which ſhould have three or four joints, which ſhould be planted on an eaſt border of ſoft loamy earth, putting three of the joints into the ground, leaving one eye juſt level with the ſurface; theſe muſt be watered, and then covered cloſe with bell or hand-glaſſes, ſo as to exclude the outward air, and ſhaded with mats when the ſun ſhines hot upon them. The cuttings ſo managed will put out roots in five or ſix weeks, when they muſt be expoſed to the open air, and in very dry weather they ſhould be now and then refreſhed with water, but it muſt not be repeated too often, nor given in large quantities, for too much moiſture will cauſe them to rot. Theſe will make good plants by the following autumn, when they may be tranſplanted into the borders of the pleaſure-garden, where they will flower the following ſummer.

Some people who are covetous to have their plants flower, ſuffer the ſtalks to remain till the flowers are decayed, and then cut them off to plant; but by that time the ſtalks are grown hard, ſo but few of them ſucceed, and thoſe which do, will not be near ſo good plants as thoſe which are planted earlier; therefore it will be better to ſacrifice the flowers of ſome roots for this purpoſe. Theſe plants delight in a ſoft, rich, loamy ſoil, not too moiſt or ſtiff, in which they will thrive and flower very ſtrong, but they do not care for much dung, which very often cauſes the roots to canker and rot, ſo that in the rich dunged lands about London, they do not thrive well. As theſe plants grow tall, they ſhould be planted in the middle of large borders, and not crowded with other plants, for their roots extend to a large diſtance; ſo if they are incommoded by other roots, it will ſtint their growth.

I have not ſeen any double flowers of the two other varieties, but have been informed that there are of both the white and the fleſh-colour with double flowers in ſome of the French gardens. Theſe make a variety, but are not ſo beautiful as the ſcarlet, ſo are not much eſteemed.

The ſecond ſort is commonly called Red German Catchfly. This hath been found growing naturally upon the rocks in Edinburgh Park, and in ſome places in Wales. It was formerly cultivated in flower-gardens for ornament, but ſince this ſort with double flowers hath been produced, the ſingle has been almoſt baniſhed out of the gardens. This hath long, narrow, Graſs-like leaves, which come out from the root without order, ſitting cloſe to the ground; between theſe come up ſtrait ſingle ſtalks, which in good ground riſe a foot and half high; at each joint of the ſtalk come out two leaves oppoſite, of the ſame form as the lower, but decreaſe in their ſize upward; under each pair of leaves, for an inch in length, there ſweats out of the ſtalk a glutinous liquor, which is almoſt as clammy as birdlime, ſo that the flies which happen to light upon theſe places, are faſtened to the ſtalk, where they die, from whence it had the title of Catchfly. The ſtalk is terminated by a cluſter of purple flowers, and from the two upper joints come out on each ſide of the ſtalk a cluſter of the ſame flowers, ſo that the whole form a ſort of looſe ſpike. Theſe appear in the beginning of May, and the ſingle flowers are ſucceeded by roundiſh ſeed-veſſels, which are full of ſmall angular ſeeds ripening in July.

It may be propagated in plenty by parting of the roots in autumn, at which time every ſlip will grow; or if the ſeeds are ſown in the ſame manner as is directed for the firſt ſort, the plants with ſingle flowers may be raiſed in plenty. This delights in a light moiſt ſoil and a ſhady ſituation.

The double flowering of this ſort was accidentally obtained from the ſeeds of the ſingle. This hath not been known forty years in the Engliſh gardens, but it is now ſo common as to have excluded that with ſingle flowers; it differs only from that in the doubleneſs of the flowers. As this never produces ſeeds, ſo it can only be propagated by parting and ſlipping of the roots; the beſt time for this is in autumn, at which time every ſlip will grow. If this is performed in September, the ſlips will have taken good root before the froſt, and will flower well the following ſummer; but if they are expected to flower ſtrong, the roots muſt not be divided into ſmall ſlips, though for multiplying the plants, it matters not how ſmall the ſlips are. Theſe ſhould be planted on a border expoſed to the morning ſun, and ſhaded when the ſun is warm till they have taken root. If the ſlips are planted in the beginning of September, they will be rooted ſtrong enough to plant in the borders of the flower-garden by the middle or latter end of October. The roots of this ſort multiply ſo faſt, as to make it neceſſary to tranſplant and part them every year; for when they are let remain longer, they are very apt to rot. This ſort requires the ſame ſoil and ſituation as the former.

The third ſort grows naturally by the ſide of ditches and in moiſt paſtures in many parts of England, ſo is ſeldom admitted into gardens; it hath a perennial root, from which ariſe many branching diffuſed ſtalks from two to three feet high, garniſhed with oval acute-pointed leaves, placed by pairs at each joint, and are terminated by cluſters of purple flowers, which appear in April and May. The male flowers grow upon ſeparate plants from the female. The latter produces ſeeds which ripen in July; the ſtalks decay in autumn, but the roots continue ſeveral years.

There is a variety of this with double flowers, which is cultivated in gardens, by the title of Red Bachelor's Button. This is an ornamental plant, and continues long in flower. It is propagated by ſlips, which ſhould be planted the beginning of Auguſt in a ſhady border of loamy earth, where they will take root in about ſix weeks or two months, and may then be tranſplanted into the borders of the flower-garden. Theſe roots ſhould be annually tranſplanted, otherwiſe they frequently rot; and young plants muſt be propagated by ſlips to ſupply the decay of the old roots, which are not of very long duration. This ſort thrives beſt in a ſoft loamy ſoil, and in a ſhady ſituation, where they have only the morning ſun.

The fourth ſort is very common upon dry banks on the ſide of roads in moſt parts of England, ſo is not admitted into gardens; there is a variety of this with purple flowers, which I find is by ſome ſuppoſed to be the ſame as the third, but is very different, for the ſtalks of this are branched out much more; the leaves are longer and more veined, and the flowers of this ſtand ſingly upon pretty long foot-ſtalks, ſo are not produced in cluſters like thoſe of the third. This is alſo very hairy, and the empalement of the flowers is ſwollen like inflated bladders. This flowers near a month after the other, but the male and female flowers grow upon different plants, as in the former.

There is a variety of this with double flowers, which is propagated in gardens by the title of Double white Bachelor's Button, and is an ornamental plant in the flower-garden; though being white it doth not make ſo good an appearance as the other, however it adds to the variety. This is propagated in the ſame way as the double ſort before-mentioned, but the plants will thrive in a drier ſoil, and a more open expoſure than that.

The fifth ſort grows very common in moiſt meadows, and by the ſide of rivers in moſt parts of England, where it is intermixed with the Graſs. This riſes with upright unbranched ſtalks near a foot and a half high, garniſhed with narrow ſpear-ſhaped leaves, placed by pairs oppoſite at each joint. The ſtalks are ſlender, channelled, and are terminated by ſix or ſeven purple flowers upon pretty long foot-ſtalks, which branch out. The empalement of the flower is ſtriped with purple, and the petals of the flowers are deeply jagged in four narrow ſegments, which appear as if torn; from whence the country people have given it the appellation of Ragged Robin. It flowers in May, and the ſeeds ripen in July. This ſort is never kept in gardens, but there is a variety of it with very double flowers, which is propagated by the gardeners for ornament. It only differs from the ſingle in the multiplicity of the petals, and produces no ſeeds, ſo is propagated by ſlips in the ſame manner as the ſecond ſort. It is commonly known by the title of Double Ragged Robin.

The ſixth ſort grows naturally on the Alps, in Lapland, and the other cold parts of Europe. This is a perennial plant which delights in a moiſt ſoil. The ſtalks of this are erect, half a foot high, garniſhed with narrow ſpear-ſhaped leaves placed by pairs oppoſite, like the former ſort, but are a little ſhorter and broader; the bottom leaves are broader than thoſe upon the ſtalks, and ſit cloſe to the ground; they are ſmooth, and of a deep green: the flowers are produced in a corymbus on the top of the ſtalk, ſitting cloſe together; they are of a purple colour, and the petals are cut in the middle. This flowers the beginning of June, and the ſeeds ripen in Auguſt. It is propagated by ſeeds, and alſo by parting of the roots; it muſt have a moiſt ſoil and a ſhady ſituation, otherwiſe the plants will not thrive. The time for tranſplanting the plants, and parting the roots, is the ſame as for the ſecond ſort, and the ſeeds may be ſown upon a ſhady border in March. In dry weather the ground muſt be kept moiſt, otherwiſe the ſeeds will not grow. When the plants come up, and are fit to remove, they ſhould be tranſplanted into a ſhady border, where they may remain to flower.

The ſeventh ſort grows naturally in Siberia: this hath a perennial root, from which ariſe many narrow leaves ſitting cloſe to the ground. The ſtalks riſe a foot high, dividing into branches by pairs. The flowers grow out from the diviſion of the branches, as alſo at the top of the ſtalks. They are compoſed of five white petals, which are divided in the middle; theſe appear in June, and are ſucceeded by roundiſh capſules filled with ſmall angular ſeeds, which ripen in Auguſt. This requires the ſame treatment as the former ſort.

The eighth ſort was brought from Portugal to England, and is probably a variety of one with ſingle flowers, which grows naturally in that country, but is different from any we have in England. This approaches neareſt to the Double Ragged Robin, but is different from that. It hath a perennial root, from which ariſe many oblong narrow leaves ſitting cloſe to the ground. It divides into ſeparate heads like the ſecond ſort, and from each of theſe come out an upright ſtalk about nine inches high, which divides upwards by pairs, and from the middle of each diviſion comes out a ſlender foot-ſtalk two inches long, ſuſtaining one double purple flower at the top, whoſe petals are very much jagged at their points; the empalements of the flowers are marked with deep purple ſtripes. From the ſide of the ſtalks there are alſo foot-ſtalks come out at the wings, which for the moſt part ſuſtain but one flower, though ſometimes they have two; theſe flowers being very double, are never ſucceeded by ſeeds. The uſual time of this plant flowering is in June, but ſometimes it ſends out freſh ſtalks, which have flowers in the autumn. It is propagated by ſlips in the ſame manner as the third and fourth ſorts, but coming from a warm country, it is impatient of much cold, and requires a particular treatment, for it does not thrive well in pots; nor will it live through the winter in open borders, ſo that the only ſituation in which I have ſeen it thrive, was where it was planted as cloſe as poſſible to a ſouth wall in dry undunged earth; for in rich or moiſt ground the roots preſently rot, as they alſo do when they are watered. If they are planted in brick rubbiſh, they will ſtill do better. I was favoured with this plant by John Browning, Eſq; of Lincoln's-inn, who received it from Portugal.

The ninth ſort grows naturally in the northern parts of Europe. It is like the fourth ſort, but the petals of the flowers do not extend beyond the empalement, and the empalements are much larger and more ſwollen.

The other Species of Lychnis are now ranged under the following genera, viz. Agrostemma, Cucubalus, Saponaria, and Silene, to which articles the reader is deſired to turn for thoſe which are not here enumerated.

LYCIUM. Lin. Gen. Plant. 232. Jaſminoides. Niſſol. Act. R. Par. 1711. Rhamnus. C. B. P. 477. Boxthorn.

The Characters are,

The flower hath a ſmall, obtuſe, permanent empalement, which is erect, and divided into five parts at the top; the flower is funnel-ſhaped, of one petal, with an incurved tube, whoſe brim is cut into five obtuſe ſegments, which ſpread open. It has five awl-ſhaped ſtamina, which are a little inclined and ſhorter than the tube, terminated by erect ſummits. In the center is ſituated a roundiſh germen ſupporting a ſingle ſtyle, which is longer than the ſtamina, crowned by a thick bifid ſtigma; the germen afterwards becomes a roundiſh berry with two cells, incloſing kidney-ſhaped ſeeds faſtened to the middle partition.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

The Species are,

1. Lycium (*Afrum*) foliis lineari-longioribus, tubo florum longiori, ſegmentis obtuſis. *Boxthorn with longer linear leaves, a longer tube to the flower, and obtuſe ſegments.* Lycium foliis linearibus. Hort. Cliff. 57. *Boxthorn with linear leaves.*
2. Lycium (*Italicum*) foliis lineari-brevioribus, tubo florum breviori, ſegmentis ovalibus patentiſſimis. *Boxthorn with ſhorter linear leaves, a ſhorter tube to the flower, and oval ſegments ſpreading open.*
3. Lycium (*Salicifolium*) foliis cuneiformibus. Vir. Cliff. 14. *Boxthorn with wedge-ſhaped leaves.* Jaſminoides aculeatum, ſalicis folio, flore parvo ex albo purpuraſcente. Mitchel. Gen. 224. *Prickly Baſtard Jaſmine with a Willow leaf, and a ſmall purpliſh white flower.*
4. Lycium (*Barbarum*) foliis lanceolatis craſſiuſculis, calycibus trifidis. Lin. Sp. Plant. 192. *Boxthorn with ſpear-ſhaped thick leaves, and trifid empalements.* Jaſminoides aculeatum, polygoni folio, floribus parvis albidis. Shaw. Afr. 349. f. 349. *Prickly Baſtard Jaſmine, with a Knot-graſs leaf, and ſmall whitiſh flowers.*
5. Lycium (*Chinenſe*) foliis ovato-lanceolatis, ramis diffuſis, floribus ſolitariis patentibus alaribus, ſtylo longiori. *Boxthorn with oval ſpear-ſhaped leaves, diffuſed branches, and ſingle ſpreading flowers proceeding from the ſides of the branches, with a longer ſtyle.*
6. Lycium (*Halimifolium*) foliis lanceolatis acutis. *Boxthorn with ſpear-ſhaped acute leaves.* Jaſminoides Sinenſe halimi folio longiore & anguſtiore. Du Ham. 306. *China Baſtard Jaſmine with a narrower and longer leaf.*
7. Lycium (*Capenſe*) foliis oblongo-ovatis, craſſiuſculis, confertis, ſpinis robuſtioribus. *Boxthorn with oblong, oval, thick leaves growing in cluſters, and ſtronger ſpines.*
8. Lycium (*Anguſtifolium*) foliis lineari-lanceolatis confertis, calycibus brevibus acutis. *Boxthorn with linear ſpear-ſhaped leaves growing in cluſters, and ſhort acute empalements.*
9. Lycium (*Inerme*) inermis, foliis lanceolatis, alternis, perennantibus. *Smooth Boxthorn, with ſpear-ſhaped ever-green leaves placed alternate.*
10. Lycium (*Cordatum*) foliis cordato-ovatis, ſeſſilibus, oppoſitis perennantibus, ſpinis craſſis bigeminis, floribus confertis. *Lycium with oval heart-ſhaped leaves placed oppoſite, which are ever-green, and ſit cloſe to the ſtalks, with thick double ſpines, and flowers growing in cluſters.* Arbor Africana ſpinoſa, foliis craſſis cordatis & conjugatis, ſpinis craſſis bigeminis. Herm. Cat. 4. *Prickly African-tree with thick heart-ſhaped leaves growing by pairs, and thick double ſpines.*

The firſt ſort grows naturally in Spain, Portugal, and at the Cape of Good Hope. This riſes with irregular ſhrubby ſtalks ten or twelve feet high, ſending out ſeveral crooked knotty branches, covered with a whitiſh bark, and armed with long ſharp ſpines, upon which grow many cluſters of narrow leaves; theſe thorns often put out one or two ſmaller on their ſides, which have ſome cluſters of ſmaller leaves upon them; the branches are garniſhed with very narrow leaves an inch and a half long, and at the baſe of theſe come out cluſters of ſhorter and narrower leaves. The flowers come out from the ſide of the branches, ſtanding upon ſhort foot-ſtalks; they have a ſhort permanent empalement of one leaf, which is tubulous, and cut into five ſegments at the brim; it is funnel-ſhaped, of one petal, with a long incurved tube, cut into five obtuſe ſegments at the brim; they are of a dull purple colour, and have five ſtamina almoſt as long as the tube, with erect ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſtyle which is longer than the ſtamina, crowned by a bifid ſtigma. The germen afterward turns to a roundiſh fleſhy berry, of a yellowiſh colour when ripe, incloſing ſeveral hard ſeeds. This uſually flowers in June and July, and the ſeeds ripen in the autumn; but there is frequently a few flowers come out in all the ſummer months.

It may be propagated either by ſeeds, cuttings, or layers. If by ſeeds, they ſhould be ſown in the autumn ſoon after they are ripe; for if they are kept out of the ground till ſpring, they ſeldom come up the firſt year. If the ſeeds are ſown in pots, the pots ſhould be plunged into ſome old tan in the winter, and in very ſevere froſt covered with Peas-haulm or ſtraw, but in mild weather ſhould be open to receive the wet; in the ſpring the pots ſhould be plunged into a moderate hot-bed, which will ſoon bring up the plants; theſe muſt be inured to bear the open air as ſoon as the danger of froſt is over, and when they are three inches high, they may be ſhaken out of the pots, and each planted in a ſmall ſeparate pot, filled with loamy earth, and placed in the ſhade till they have taken new root, when they may be removed to a ſheltered ſituation, where they may remain till the autumn; then they ſhould be either removed into the green-houſe, or placed under a hot-bed frame to ſhelter them from hard froſt; for theſe plants are too tender to live in the open air in England, ſo they muſt be kept in pots and treated in the ſame way as Myrtles, and other hardy green-houſe plants; but when the plants are grown ſtrong, there may be a few of them planted in the full ground in a warm ſituation, where they will live in moderate winters, but in hard froſts they are commonly deſtroyed. If the cuttings of theſe plants are planted in a ſhady border in July, and duly watered, they will take root, and may then be treated in the ſame way as the ſeedling plants.

The ſecond ſort was raiſed in the Chelſea garden from ſeeds which came from the Cape of Good Hope. This hath an irregular ſhrubby ſtalk like the former, but ſeldom riſe more than four or five feet high; the large leaves are ſhorter and a little broader than thoſe of the firſt, but the tufts of ſmall leaves are narrower; the tube of the flower is ſhorter, the brim is deeper cut into oval ſegments which ſpread open; the empalement is ſhorter, and cut into acute ſegments; the flowers and fruit are alſo ſmaller. Theſe differences are permanent, in all the plants which I have two or three times raiſed from ſeeds. It flowers about the ſame time as the firſt, and may be propagated in the ſame way; the plants alſo require the ſame culture.

The third ſort grows naturally in the hedges in the ſouth of France, in Spain and Italy. This hath many irregular ſhrubby ſtalks, which riſe eight or nine feet high, ſending out ſeveral irregular branches, covered with a white bark, and armed with pretty ſtrong thorns; the leaves are narrow at bottom, growing broader upward, and are of a pale green colour. The flowers come out from the ſide of the branches; they are of a purpliſh white colour and ſmall, ſo make no great appearance. This ſort flowers in June and July, but rarely produces any ſeeds in this country. The leaves of this remain till winter, when they fall off.

It may be propagated by cuttings or layers, in the ſame manner as the firſt ſort. The plants will live abroad in a ſheltered warm ſituation, but in very hard froſt they ſhould be covered with ſtraw or litter, otherwiſe the branches will be killed, and ſometimes the roots are deſtroyed where they have not ſome cover.

The fourth ſort was brought from Africa by the late Dr. Shaw, where it grows naturally. This hath a ſhrubby ſtalk which riſes ſeven or eight feet high, ſending out ſeveral irregular branches, which are armed with ſtrong ſpines, and garniſhed with ſhort, thick, ſpear-ſhaped, oval leaves, which ſtand without order. The flowers come out from the ſide of the branches; they are ſmall and white, ſo make little appearance. This flowers in July and Auguſt, but does not produce ſeeds in England. It may be propagated by cuttings in the ſame way as the firſt ſort, but is too tender to live in the open air in winter in this country, ſo the plants muſt be kept in pots, and removed into the green-houſe in autumn, and treated in the ſame way as other hardy kinds of green-houſe plants.

The fifth ſort grows naturally in China, from whence the ſeeds were brought to England a few years paſt, and the plants were raiſed in ſeveral gardens, and by ſome were thought to be the Thea. This riſes with weak, irregular, diffuſed branches to a great height, but require ſupport, otherwiſe they will trail upon the ground: I have meaſured ſome of theſe branches, which in one year has been upward of twelve feet long: the lower leaves are more than four inches long, and three broad in the middle: they are of a light green and a thin conſiſtence, placed without order on every ſide the branches; as the ſhoots advance in length, ſo the ſize of the leaves diminiſh, and toward the upper part they are not more than an inch long, and a quarter of an inch broad; they ſit cloſe to the ſtalks on every ſide. The flowers come out ſingly at every joint toward the upper part of the branches, ſtanding upon ſhort ſlender foot-ſtalks; they are of a pale colour, with ſhort tubes; the brims are ſpread open broader than either of the former ſorts, and the ſtyle is conſiderably longer than the tube of the flower. This ſort flowers in Auguſt, September, and October; the plant is very hardy, and retains its leaves till November before they decay. It propagates faſt enough by its creeping roots, which ſend out ſuckers at a great diſtance, and the cuttings thruſt into the ground will take root as freely as Willows.

The ſixth ſort grows naturally in China, from whence the ſeeds were brought to the Royal Garden at Paris, and the ſeeds were ſent me by Dr. Bernard de Juſſieu, demonſtrator of the plants in that garden. This riſes with a ſhrubby ſtalk to the height of four or five feet, ſending out many irregular branches, covered with a very white bark, and armed with a few ſhort ſpines; the leaves are about three inches long, and one broad in the middle; they are placed alternately on the branches, and are of a pale green colour. The flowers of this ſort appear in June and July, which are ſucceeded by ſmall round berries that ripen in the autumn, when they are as red as coral. This ſort is propagated by cuttings, which ſhould be planted in the ſpring before they begin to ſhoot, in a border expoſed to the morning ſun, where they will take root very freely; but theſe ſhould not be removed till the autumn, when they may be planted to cover walls, for the branches are too weak to ſupport themſelves; and as the leaves continue green as long as any of the deciduous plants, ſo they are proper plants for ſuch purpoſes.

The ſeventh ſort was raiſed in the Chelſea garden from ſeeds, which were brought me from the Cape of Good Hope. This riſes with ſhrubby branching ſtalks ſeven or eight feet high, which are armed with long ſtrong thorns, that have ſeveral cluſters of leaves upon them; the branches are garniſhed with ſmall, oblong, oval leaves, which are placed without order; ſometimes they come out in ſmall cluſters from one point, at others they are ſingle, ſtanding on every ſide the ſtalk; theſe are of a light green, and a pretty thick conſiſtence, continuing green all the year. Theſe plants have not as yet flowered here, ſo I can give no account of them; but by the fruit which I received entire, I make no doubt of its belonging to this genus.

This ſort is pretty hardy, for it has lived abroad four winters, where it was planted againſt a ſouth-eaſt wall. It may be propagated either by layers or cuttings, in the ſame manner as the firſt; and when the plants have obtained ſtrength, they may be planted in a warm ſituation, where they will live with very little ſhelter in ſevere froſt. The branches of this ſort are ſtronger than thoſe of the former, ſo will not require the ſame ſupport. It will be proper to keep a plant of this in ſhelter to preſerve the kind, leſt thoſe in the open air ſhould be deſtroyed.

The eighth ſort has much the appearance of the firſt, but the branches are not ſo ſtrongly armed with thorns; they have alſo a whiter bark, the leaves are broader and of a lighter green, ſtanding in cluſters at every joint. The flowers are ſmaller, of a deeper purple colour, and have much ſhorter empalements, which are cut into acute ſegments. It flowers at the ſame time with the firſt ſort, but does not produce any ſeeds in this country; it is not ſo hardy as the former ſort, ſo requires protection from very hard froſt; therefore the plants ſhould be kept in pots and houſed in the winter, treating them in the ſame way as other hardy green-houſe plants. It may be propagated by cuttings or layers, in the ſame way as the firſt ſort.

The ninth ſort has been long an inhabitant of the Chelſea garden; it was raiſed from ſeeds which came from China, and was for many years taken for the Tea-tree, till it produced ſome flowers, which diſcovered its true genus. This riſes with a ſtrong woody ſtalk ſix or ſeven feet high, ſending out many ſmooth branches, which are covered with a brown bark having no thorns; they are garniſhed with ſpear-ſhaped leaves about three inches long, and near three quarters of inch broad, placed alternately on the branches, ſtanding upon ſhort foot-ſtalks; they are of a deep green, and continue all the year. The flowers are white, and of the ſame ſhape with the others of this genus, but there has not been any ſeeds of this ſort as yet produced in England.

This plant will live in the open air, if it is planted in a warm ſituation and a dry ſoil; but it is of ſlow growth, ſeldom ſhooting more than three or four inches in a ſeaſon; it is alſo difficult to propagate, for the branches which are laid down will not take root in leſs than two years, and the cuttings are with difficulty made to grow. The beſt time to plant them is in May, in pots filled with light loamy earth, plunging them into an old bed of tanners bark, covering the pots cloſe with bell or hand-glaſſes, to exclude the external air; theſe ſhould be ſhaded every day from the ſun; theſe cuttings ſhould be refreſhed with water once a week, but it muſt not be given to them in too great plenty. Thoſe cuttings which ſucceed, will have put out roots by the beginning of Auguſt, when they may be taken up and planted in ſmall pots, placing them in the ſhade till they have taken new root; and then they may be placed with other hardy exotic plants in a ſheltered ſituation, till the end of October, when they may be put under a common frame to ſhelter them in winter. When the plants have acquired ſtrength, they may be ſhaken out of the pots, and planted in the full ground in a warm ſituation, where, if they are ſheltered in ſevere froſts, they will thrive better than in pots.

The tenth ſort grows naturally at the Cape of Good Hope, from whence the ſeeds were ſent to Holland a few years paſt, where the plants were raiſed. This is a low ſhrubby plant, which ſends out branches from the ground upward, which are covered with a dark green bark, and are armed with ſhort ſtrong thorns, which come out by pairs, and ſometimes there are double pairs upon the ſame foot-ſtalk; theſe are ſituated juſt below the leaves, and where there are four, two of them point upward, and the other two downward. The leaves are heart-ſhaped, not much larger than thoſe of the Box-tree, of the ſame conſiſtence and colour, terminating in acute points; they are placed by pairs oppoſite, upon very ſhort foot-ſtalks, ſtanding pretty cloſe together; theſe continue green all the year. The flowers come out from the ſide of the branches upon ſhort ſlender foot-ſtalks, each ſupporting five or ſix ſmall white flowers, which grow in a cluſter at the top; theſe have very ſhort empalements, and pretty long tubes, divided at the brim into five acute ſegments. Theſe flowers have an agreeable odour; they appear in July and Auguſt, but are ſeldom ſucceeded by ſeeds in England.

This ſort may be propagated by cuttings in the ſame manner as the firſt ſort, which, if planted in July, and ſhaded from the ſun, will take root very freely; then they ſhould be planted into ſeparate ſmall pots, and placed in the ſhade till they have taken new root, after which they may be treated in the ſame manner as the former ſort. This plant has not as yet been planted in the full ground in England, but it lives through the winter under a common frame.

The other ſpecies which were included in this genus, are now removed to Celastrus.

LYCOPERSICON. Tourn. Inſt. R. H. 150. tab. 63. Solanum. Lin. Gen. Plant. 224. [of Λύκος, a wolf, and Perſica, *Lat.* a Peach.] Love Apples, or Wolf's Peach.

The Characters are,

The flower has a permanent empalement of one leaf, which is cut into five acute ſegments at the top, and is permanent. The flower has one petal, which is wheel-ſhaped, with a very ſhort tube, and a large five-cornered brim, which ſpreads open and is plaited. It hath five ſmall awl-ſhaped ſtamina, terminated by oblong ſummits which cloſe together. It hath a roundiſh germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an obtuſe ſtigma. The germen afterward becomes a roundiſh fleſhy fruit or berry, divided into ſeveral cells, incloſing many flat ſeeds.

This genus of plants is ranged in the ſeventh ſection of Tournefort's ſecond claſs, which includes the herbs with a wheel-ſhaped flower of one leaf, whoſe pointal becomes a ſoft fruit. Dr. Linnæus has joined this genus, and alſo the Melongena of Tournefort, to the Solanum, which he places in the firſt ſection of his fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle; but as there are numerous ſpecies of Solani, ſo it is much better to keep theſe ſeparate, to avoid confuſion, which if we allow the fruit as a characteriſtic note, ſhould be done; for as the fruit of the Solanum has but two cells, and the fruit of this many, ſo that diſtinction may be allowed to ſeparate the genera.

The Species are,

1. Lycopersicon (*Galeni*) caule inermi herbaceo, foliis pinnatis inciſis, fructu rotundo glabro. *Love Apple with an herbaceous unarmed ſtalk, pinnated cut leaves, and a ſmooth round fruit.* Lycoperſicon Galeni. Ang. 217. *The Wolf Peach of Galen.*
2. Lycopersicon (*Eſculentum*) caule herbaceo hirſutiſſimo, foliis pinnatis, inciſis, fructu compreſſo ſulcato. *Love Apple with a very hairy herbaceous ſtalk, winged cut leaves, and a compreſſed furrowed fruit.* Solanum pomiferum, fructu rotundo ſtriato molli. C. B. P. 167. *Apple-bearing Nightſhade, with a ſoft, round, ſtriated fruit, commonly called Tomatas by the Spaniards.*
3. Lycopersicon (*Æthiopicum*) caule inermi herbaceo, erecto, foliis ovatis dentato angulatis, ſubſpinoſis fructu ſubrotundo ſulcato. *Love Apple with an herbaceous, erect, unarmed ſtalk, oval angular leaves indented, having a few ſpines, with a roundiſh furrowed fruit.* Lycoperſicon fructu ſtriato duro. Tourn. Inſt. R. H. 150. *Wolf's Peach with a hard ſtriated fruit.*
4. Lycopersicon (*Pimpinellifolium*) caule inermi herbaceo, foliis inæqualiter pinnatis, foliolis obtuſe-dentatis, racemis ſimplicibus. *Love Apple with an herbaceous unarmed ſtalk, leaves unequally winged, whoſe lobes are bluntly indented, and ſimple branches of flowers.* Licoperſicon inodorum. Juſſ. *Wolf's Peach having no ſcent.*
5. Lycopersicon (*Peruvianum*) caule inermi herbaceo, foliis pinnatis tomentoſis inciſis, racemis bipartitis folioſis. *Love Apple with an unarmed herbaceous ſtalk, winged cut leaves, which are downy, and a leafy double ſpike of flowers.* Lycoperſicon pimpinellæ ſanguiſorbæ foliis. Feuill. Obſ. 3. p. 37. *Wolf's Peach with leaves like Burnet.*
6. Lycopersicon (*Procumbens*) caule herbaceo, procumbente, foliis pinnatifidis, glabris, floribus ſolitariis alaribus. *Love Apple with an herbaceous trailing ſtalk, wing-pointed ſmooth leaves, and flowers growing ſingly from the wings of the ſtalk.*
7. Lycopersicon (*Tuberoſum*) caule inermo herbaceo, foliis pinnatis integerrimis. *Love Apple with an unarmed herbaceous ſtalk, and winged leaves which are entire.* Solanum tuberoſum eſculentum. C. B. P. 167. *Eſculent tuberous Nightſhade, commonly called Potatoe, by the Indians Batatas.*

The firſt ſort here mentioned is ſuppoſed to be the Lycoperſicon of Galen. This is an annual plant, with an herbaceous, branching, hairy ſtalk, which will riſe to the height of ſix or eight feet, if ſupported, otherwiſe the branches will fall to the ground; theſe are garniſhed with winged leaves of a very rank diſagreeable odour, compoſed of four or five pair of lobes terminated by an odd one; theſe are cut on their edges, and end in acute points. The flowers come out from the ſide of the branches upon pretty long foot-ſtalks, each ſuſtaining ſeveral yellow flowers, ranged in a ſingle long bunch or thyrſe, and are ſucceeded by round, ſmooth, pulpy fruit, about the ſize of a large Cherry. There are two varieties of this, one with yellow, and the other with red fruit. The plants flower from June till the froſt ſtops them, and the fruit ripens in ſucceſſion from the end of July, till the froſt kills the plants; this ſort is uſed in medicine.

The ſecond ſort is very like the firſt, excepting the fruit, which differ greatly; for thoſe of the ſecond ſort are very large, compreſſed at both ends, and deeply furrowed all over the ſides. This ſort never varies to the other, ſo that it is undoubtedly a diſtinct ſpecies. This is the ſort which is commonly cultivated to put into ſoups; and the Portugueze, Spaniards, and ſome others, uſe them in many of their ſauces, to which they give an agreeable acid flavour.

The third ſort is alſo annual; this riſes with an erect herbaceous ſtalk a foot and a half high, dividing into ſeveral branches, garniſhed with oval angular leaves, from three to four inches long, and almoſt three inches broad in the middle; they are placed alternately upon pretty long foot-ſtalks, which have one or two ſhort ſpines upon them, as there alſo is upon the midrib of the leaves. The flowers come out ſingly upon foot-ſtalks from the ſide of the branches; they are white, and are ſucceeded by red ſtriated fruit, which are firmer than thoſe of the other ſorts, and about the ſize of Cherries. This fruit ripens in the autumn, and the plants decay ſoon after.

The fourth ſort is ſomewhat like the firſt, but the leaves are unequally winged, having ſome ſmaller lobes placed between the large ones; the lobes of this are ſhorter, broader, and not cut like thoſe of the firſt, but have ſome obtuſe indentures toward their baſe. The leaves of this ſort have not that rank diſagreeable odour which the two firſt have; the fruit of it is not ſo large as thoſe of the firſt, but they are round and ſmooth, and are very late before they ripen here; ſo that unleſs the plants are raiſed early in the ſpring, they will not produce ripe fruit.

The fifth ſort is alſo annual; this hath a very branching herbaceous ſtalk, ſpreading out into many diviſions, and is not ſo hairy as the two firſt; the leaves are compoſed of a greater number of lobes, which are much ſhorter and more indented on their edges, where they are a little waved, and are downy. The flowers ſtand upon very long foot-ſtalks, which branch out and ſupport a large number of flowers at the top; theſe have a longer ſtyle than thoſe of the other ſpecies, which is permanent, remaining on the top of the fruit. This ſort is late in ripening the fruit, ſo that unleſs the plants are raiſed early in the ſpring, the fruit will not ripen in England.

The ſeeds of theſe two ſorts were ſent from Peru by Mr. Joſeph de Juſſieu to the Royal Garden at Paris, part of which was ſent me by his brother Dr. Bernard de Juſſieu, of the Royal Academy of Sciences.

The ſixth ſort was raiſed by Mr. James Gordon, gardener at Mile-end, who gave me ſome of the ſeeds, but from what country it came I could not learn. This hath very weak, trailing, ſmooth ſtalks, not more than a foot long, garniſhed with ſmooth leaves, ſtanding by pairs oppoſite; theſe are regularly cut on the ſides almoſt to the midrib, in form of a winged leaf; and theſe ſegments are alſo indented on their edges, and at their points. The flowers come out on the ſide of the ſtalks ſingly; they are of a whitiſh yellow colour, and have a pretty large ſpreading empalement, which is deeply cut at the brim into many acute ſegments which ſpread open. The flowers are ſucceeded by ſmall roundiſh berries a little compreſſed at the top, of an herbaceous yellow colour when ripe.

Theſe plants are all propagated by ſowing their ſeeds on a moderate hot-bed in March, and when the plants are come up two inches high, they ſhould be tranſplanted into another moderate hot-bed, at about four inches diſtance from each other, obſerving to ſhade them until they have taken root; after which they muſt have frequent waterings, and a large ſhare of freſh air; for if they are too much drawn while young, they ſeldom do well afterwards.

In May theſe plants ſhould be tranſplanted either into pots filled with rich light earth, or into borders near walls, pales, or Reed-hedges, to which their branches may be faſtened to ſupport them from trailing on the ground, which they otherwiſe will do, and then the fruit will not ripen; ſo that where theſe plants are cultivated for the ſake of their fruit, they ſhould be planted to a warm aſpect, and the branches regularly faſtened as they extend, that the fruit may have the advantage of the ſun's warmth to forward them, otherwiſe it will be late in the ſeaſon before they are ripe, and they are unfit for uſe before; but when the plants are brought forward in the ſpring, and thus regularly trained to the ſouth ſun, the fruit will ripen by the latter end of July, and there will be a ſucceſſion of it till the froſt kills the plants.

Some perſons cultivate theſe plants for ornament, but their leaves emit ſo ſtrong offenſive an odour on being touched, which renders them very improper for the pleaſure-garden, and their branches extend ſo wide and irregular, as to render them very unſightly in ſuch places; for as their branches cannot be kept within bounds, eſpecially when they are planted in good ground, ſo they will appear very unſightly in ſuch places; therefore the borders in the kitchen-garden, where theſe plants are placed for their fruit, muſt not be too rich, for in a moderate ſoil they will not be ſo luxuriant and more fruitful.

The Italians and Spaniards eat theſe Apples, as we do Cucumbers, with pepper, oil, and ſalt; and ſome eat them ſtewed in ſauces, &c. and in ſoups they are now much uſed in England, eſpecially the ſecond ſort, which is preferred to all the other. This fruit gives an agreeable acid to the ſoup, though there are ſome perſons who think them not wholeſome, from their great moiſture and coldneſs, and that the nouriſhment they afford muſt be bad.

The third ſort is never uſed either in the kitchen or for medicine, but the plants are preſerved for the ſake of variety, eſpecially by thoſe perſons who are lovers of botany. This ſort is propagated by ſeeds, which ſhould be ſown upon a hot-bed in the ſpring, and the plants afterward treated in the ſame manner as hath been directed for the Capſicum, with which this plant will thrive and produce plenty of fruit annually.

The ſeventh ſort is the common Potatoe, which is a plant ſo well known now, as to need no deſcription. Of this there are two varieties, one with a red and the other with a white root; that whoſe roots are red, have purpliſh flowers, but the white root has white flowers; theſe are ſuppoſed to be only accidental variations, and not diſtinct ſpecies.

The common name of Potatoe, ſeem to be only a corruption of the Indian name Batatas. This plant has been much propagated in England within thirty or forty years paſt, for although it was introduced from America about the year 1623, yet it was but little cultivated in England till of late; theſe roots being deſpiſed by the rich, and deemed only proper food for the meaner ſort of perſons; however, they are now generally eſteemed by moſt people, and the quantity of them which are cultivated near London, I believe, exceeds that of any other part of Europe.

This plant was always ranged in the genus of Solanum, or Nightſhade, and is now brought under that title again by Dr. Linnæus; but as Lycoperſicon has been eſtabliſhed as a diſtinct genus, on account of the fruit being divided into ſeveral cells, by intermediate partitions; and as the fruit of this plant exactly agrees with the characters of the other ſpecies of this genus, I have inſerted it here.

This is generally propagated by its roots, which multiply greatly if planted in a proper ſoil. The common way is, either to plant the ſmall roots or offſets entire, or to cut the larger roots into pieces, preſerving a bud or eye to each; but neither of theſe methods is what I would recommend, for when the ſmaller offſets are planted, they generally produce a greater number of roots, but theſe are always ſmall; and the cuttings of the larger roots are apt to rot, eſpecially if wet weather happens ſoon after they are planted; therefore what I would recommend is, to make choice of the faireſt roots for this purpoſe, and to allow them a larger ſpace of ground, both between the rows, as alſo in the rows, plant from plant; by which method I have obſerved, the roots have been in general large the following autumn.

The ſoil in which this plant thrives beſt, is a light ſandy loam, not too dry or over moiſt; this ground ſhould be well ploughed two or three times, in order to break and divide the parts; and the deeper it is ploughed, the better the roots will thrive. In the ſpring, juſt before the laſt ploughing, there ſhould be a good quantity of rotten dung ſpread on the ground, which ſhould be ploughed into the ground the beginning of March, if the ſeaſon proves mild, otherwiſe it had better be deferred till the middle or latter end of that month; for if it ſhould prove hard froſt after the roots are planted, they may be greatly injured, if not deſtroyed thereby: but the ſooner they are planted in the ſpring, after the danger of froſt is over, the better it will be, eſpecially in dry land. In the laſt ploughing, the ground ſhould be laid even, and then the furrows ſhould be drawn at three feet diſtance from each other, about ſeven or eight inches deep. In the bottom of this furrow the roots ſhould be laid at about one foot and a half aſunder; then the furrow ſhould be filled with the earth which came out, and the ſame continued through the whole field or parcel of land, intended to be planted.

After all is finiſhed, the land may remain in the ſame ſtate till near the time when the ſhoots are expected to appear above ground, when the ground ſhould be well harrowed over both ways, which will break the clods, and make the ſurface very ſmooth; and by doing of it ſo late, it will deſtroy the young weeds, which, by this time, will begin to make their appearance; and this will ſave the expence of the firſt hoeing, and will alſo ſtir the upper ſurface of the ground, which, if much wet has fallen after the planting, is often bound into a hard cruſt, and will retard the appearance of the ſhoots.

As I have allotted the rows of Potatoes at three feet diſtance, it was in order to introduce the hoe-plough between them, which will greatly improve theſe roots; for by twice ſtirring and breaking the ground between theſe plants, it will not only deſtroy the weeds, but alſo looſen the ground, whereby every ſhower of rain will penetrate to the roots, and greatly improve their growth; but theſe operations ſhould be performed early in the ſeaſon, before the ſtems or branches of the plants begin to fall and trail upon the ground, becauſe after that, it will be impoſſible to do it without injuring the ſhoots.

If theſe ploughings are carefully performed between the rows, and the ground between the plants in the rows hand-hoed, it will prevent the growth of weeds, till the haulm of the plants cover the ground; ſo that afterward there will be little danger of weeds growing ſo as to injure the crop; but as the plough can only go between the rows, it will be neceſſary to make uſe of a hoe to ſtir the ground, and deſtroy the weeds in the rows; and if this is carefully performed in dry weather, after the two ploughings, it will be ſufficient to keep the ground clean until the Potatoes are fit to take up.

In places where dung is ſcarce, many perſons ſcatter it only in the furrows, where the roots are planted; but this is a very poor method, becauſe when the Potatoes begin to puſh out their roots, they are ſoon extended beyond the width of theſe furrows, and the new roots are commonly formed at a diſtance from the old, ſo will be out of the reach of this dung, and conſequently will receive little benefit from it. And as moſt of the farmers covet to have a crop of Wheat after the Potatoes are taken off the ground, ſo the land will not be ſo thoroughly dreſſed in every part, nor ſo proper for this crop, as when the dung is equally ſpread, and ploughed in all over the land, nor will the crop of Potatoes be ſo good. I have always obſerved, where this method of planting the Potatoes has been practiſed, the land has produced a fine crop of Wheat afterward, and there has ſcarce one ſhoot of the Potatoe appeared among the Wheat the following ſeaſon, which I attribute to the farmers planting only the largeſt roots; for when they have forked them out of the ground the following autumn, there have been ſix, eight, or ten large roots produced from each, and often many more, and ſcarce any very ſmall roots among them; whereas, in ſuch places where the ſmall roots have been planted, there has been a vaſt number of very ſmall roots produced; many of which were ſo ſmall as not to be diſcovered when the roots were taken up, ſo have grown the following ſeaſon, and have greatly injured whatever crop was on the ground.

The haulm of theſe Potatoes is generally killed by the firſt froſt in the autumn, when the roots ſhould be taken up ſoon after, and may be laid up in ſand in any ſheltered place, where they may be kept dry, and ſecure from froſt. Indeed the people who cultivate theſe roots near London, do not wait for the decaying of the haulm, but begin to take up part of them as ſoon as their roots are grown to a proper ſize for the market, and ſo keep taking up from time to time, as they have vent for them. There are others likewiſe, who do not take them up ſo ſoon as the haulm decays, but let them remain much longer in the ground; in which there is no hurt done, provided they are taken up before hard froſt ſets in, which would deſtroy them, unleſs where the ground is wanted for other crops; in which caſe, the ſooner they are taken up the better, after the haulm is decayed. When theſe roots are laid up, they ſhould have a good quantity of ſand or dry earth laid between them, to prevent their heating; nor ſhould they be laid in too large heaps, for the ſame reaſon.

The kitchen-gardeners and farmers who live in the neighbourhood of Mancheſter, cultivate great quantities of this root, as the inhabitants of that populous town conſume abundance of them, and are much fonder of them than of any other eſculent plants; which has occaſioned an emulation among the cultivators, of endeavouring to outvie each other, in getting the roots of a proper ſize for the table early in the ſeaſon: in order to obtain this, they have made choice of thoſe roots which produced the firſt flowers, and have left them to ripen their ſeeds, which they have ſowed with great care; and the plants ſo raiſed, have generally been forwarder than the other; and by frequently repeating of this, they have ſo much improved the forwarding of the roots, as to have them fit for uſe in two months after planting; ſo that great improvements may be made by this practice, of many eſculent plants, by perſons who are curious and careful in trying the experiments.

LYCOPUS [Λυκόπους, of Λύκος, a wolf, and Ποῦς, a foot; q. d. Wolf's-foot; becauſe the ancients fancied, that the leaves of this plant reſembled the foot of a wolf,] it is commonly called Water Horehound.

This plant grows in great plenty on moiſt ſoils by the ſides of ditches and ponds in moſt parts of England, but is never cultivated in gardens, ſo that it would be needleſs to ſay any thing more of it in this place.

LYSIMACHIA. Tourn. Inſt. R. H. 141. tab. 59. Lin. Gen. Plant. 188. [this plant was ſo called of Lyſimachus, the ſon of a king of Sicily, who is ſaid to have firſt found the virtues of it.] Looſtrife; in French, *Corneille*.

The CHARACTERS are,

The empalement of the flower is permanent, and is cut into five acute ſegments, which are erect. The flower is of one petal, cut into five oblong oval ſegments to the bottom, which ſpread open. It hath five awl-ſhaped ſtamina about half the length of the petal, terminated by acute-pointed ſummits. In the center is ſituated a roundiſh germen, ſupporting a ſlender ſtyle the length of the ſtamina, crowned by an obtuſe ſtigma. The germen afterward turns to a globular capſule with one cell, opening with ten valves, and filled with ſmall angular ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which includes the plants whoſe flowers have five ſtamina and one ſtyle.

The SPECIES are,

1. LYSIMACHIA (*Vulgaris*) paniculata, racemis terminalibus. Lin. Sp. Plant. 209. *Paniculated Looſtrife, with bunches of flowers terminating the ſtalks.* Lyſimachia lutea, major, quæ Dioſcoridis. C. B. P. 245. *Greater yellow Looſtrife of Dioſcorides.*

2. LYSIMACHIA (*Thyrſiflora*) racemis lateralibus pedunculatis. Lin. Sp. Plant. 147. *Looſtrife with lateral ſpikes of flowers growing upon foot-ſtalks.* Lyſimachia bifolia flore globoſo, luteo. C. B. P. 242. *Two-leaved Looſtrife with a yellow globular flower.*

3. LYSIMACHIA (*Atropurpurea*) ſpicis terminalibus petalis, lanceolatis, ſtaminibus corollâ longioribus. Lin. Sp. Plant. 147. *Looſtrife with ſpear-ſhaped ſpreading ſpikes of flowers terminating the branches, and ſtamina longer than the petals.* Lyſimachia Orientalis anguſtifolia flore purpureo. Tourn. Cor. 7. *Narrow-leaved Eaſtern Looſtrife with a purple flower.*

4. LYSIMACHIA (*Ephemerum*) racemis ſimplicibus terminalibus, petalis obtuſis, ſtaminibus corollâ brevioribus. Lin. Sp. Plant. 146. *Looſtrife with ſpikes of flowers terminating the ſtalks, obtuſe petals to the flower, and ſtamina ſhorter than the petal.* Lyſimachia Orientalis minor, foliis glaucis, annuentibus, flore purpureo. Hort. Piſſ. *Smaller Eaſtern Looſtrife, with nodding grayiſh leaves and a purple ſpike of flowers.*

5. LYSIMACHIA (*Ciliata*) petiolis ciliatis, floribus cernuis. Lin. Sp. Plant. 147. *Looſtrife with hairy foot-ſtalks and nodding flowers.* Lyſimachia Canadenſis Jalappæ foliis. Sarr. Canad. *Canada Looſtrife with a Jalap leaf.*

6. LYSIMACHIA (*Salicifolia*) ſpicâ ſimplici erecto terminali, petalis ovatis, ſtaminibus corollâ longioribus. *Looſtrife with a ſingle erect ſpike terminating the ſtalk, oval petals, and ſtamina longer than the flower.* Lyſimachia ſpicata, flore albo, ſalicis folio. Tourn. Inſt. R. H. 141. *Looſtrife with a ſpike of white flowers and a Willow leaf.*

7. LYSIMACHIA (*Nummularia*) foliis ſubcordatis, floribus ſolitariis, caule repente. Vir. Cliff. 13. *Looſtriſe with leaves nearly heart-ſhaped, flowers growing ſingly, and a creeping ſtalk.* Nummularia lutea major. C. B. P. 309. *Greater yellow Moneywort.*

8. LYSIMACHIA (*Tenella*) foliis ovatis acutiuſculis, pedunculis folio longioribus, caule repente. Lin. Sp. Plant. 148. *Looſtrife with oval acute-pointed leaves, foot-ſtalks longer than the leaf, and a creeping ſtalk.* Nummularia minor, purpuraſcente flore. C. B. P. 310. *Smaller Moneywort with a purpliſh flower.*

9. LYSIMACHIA (*Nemorum*) foliis ovatis acutis, floribus ſolitariis, caule procumbente. Hort. Cliff. 52. *Looſtrife with oval acute-pointed leaves, flowers growing ſingly, and a trailing ſtalk.* Anagallis lutea nemorum. C. B. P. 252. *Yellow Pimpernel of the woods.*

10. Lysimachia (*Quadrifolia*) foliis ſubquaternis, pedunculis verticillatis unifloris. Lin. Sp. Plant. 147. *Looſtriſe with leaves generally placed by fours, and foot-ſtalks placed in whorls round the ſtalks, each ſuſtaining a ſingle flower.* Lyſimachia lutea minor, foliis nigris punctatis notatis. C. B. P. 245. *Smaller yellow Looſtriſe with leaves marked with black ſpots.*

The firſt ſort grows by the ſide of ditches and rivers in many parts of England, ſo is not often admitted into gardens, becauſe the roots creep far in the ground, and ſend up ſtalks at a great diſtance, whereby it becomes often a troubleſome plant; otherwiſe for the variety of its flowers, it might deſerve a place in large gardens, eſpecially in moiſt places, where better things will not thrive. It riſes with upright ſtalks from two to three feet high, garniſhed with ſmooth ſpear-ſhaped leaves placed ſometimes by pairs oppoſite; at others there are three, and frequently four of theſe leaves placed round the ſtalk at each joint. The upper part of the ſtalk divides into ſeveral foot-ſtalks, which ſuſtain yellow flowers growing in a panicle; theſe have one petal which is deeply cut into five ſegments, ſpreading open. They appear in June and July, and are ſucceeded by roundiſh ſeed-veſſels, filled with ſmall ſeeds which ripen in the autumn. This is placed in the liſt of medicinal plants, but is not often uſed. If the roots of this plant are taken up from the places where it grows naturally in the autumn, and planted in a moiſt ſoil, they will thrive faſt enough without care.

The ſecond ſort grows naturally in the northern parts of England; this hath a perennial creeping root, which ſends up ſeveral erect ſtalks near a foot and a half high, garniſhed at every joint by two pretty long narrow leaves placed oppoſite, whoſe baſe ſits cloſe to the ſtalk; they are about three inches long, and more than half an inch broad toward their baſe, leſſening gradually to the end, which terminates in acute points; the foot-ſtalks of the flowers come out oppoſite on each ſide of the ſtalks; they are an inch long, ſuſtaining at their top a globular or oval thyrſe of yellow flowers, whoſe ſtamina are much longer than the petals. This flowers at the ſame time with the former ſort, but ſeldom produces ſeeds, for the roots creep ſo much as to render it barren. It is but ſeldom kept in gardens, for the ſame reaſon as the former is rejected; but thoſe who are deſirous to have it, may procure the roots and plant them in a moiſt ſoil, where it will ſoon ſpread.

The third ſort is a biennial plant, which was diſcovered by Dr. Tournefort in the Levant, from whence he ſent the ſeeds to the Royal Garden at Paris, where they ſucceeded, and many of the European gardens have from thence been furniſhed with it. This riſes with an upright ſtalk about a foot high, garniſhed with ſpear-ſhaped leaves ending in acute points; theſe are placed by pairs oppoſite; they are ſmooth, and of a lucid green. The flowers grow in a looſe ſpike, terminating the ſtalks; the flowers ſtand horizontally, ſpreading out on each ſide the ſtalk; they have longer tubes than the other ſpecies, and are of a purple colour. Theſe appear in June, and the ſeeds ripen in September, ſoon after which the plants decay.

It is propagated by ſeeds, which ſhould be ſown on a moderate hot-bed in the ſpring, often watering the ground to bring up the plants; and if the ſeaſon ſhould prove warm, the glaſſes of the hot-bed ſhould be ſhaded in the heat of the day; when the plants are up, they ſhould have a large ſhare of freſh air admitted to them in warm weather, to prevent their drawing up weak, and ſhould be frequently refreſhed with water. When they are fit to remove, they ſhould be each planted in a ſeparate pot, plunging them into a moderate hot-bed to forward their taking new root: after which they ſhould be gradually inured to bear the open air, into which they ſhould be removed by the beginning of June, where they may remain till October, when they ſhould be removed into a common frame, where they may be ſheltered from froſt in winter, but ſhould always enjoy the free air in mild weather. The ſpring following ſome of the plants ſhould be ſhaken out of the pots, and planted in borders; but a few of them ſhould be put into larger pots, where they may flower and ſeed: this is called Ephemerum by Linnæus, but is not ſo.

When the plants come up, they muſt have plenty of air admitted to them in warm weather, to prevent their drawing up weak; then they may be planted into the borders of the pleaſure-garden, where they will flower and produce ripe ſeeds the following ſummer.

The fourth ſort is an annual plant, which is too tender to riſe in the open air in this country, therefore the ſeeds ſhould be ſown on a moderate hot-bed in the ſpring, and the plants afterward treated in the ſame manner as hath been directed for the third ſort.

The fifth ſort was firſt brought from Canada, where it grows naturally; this hath a perennial creeping root, ſending up many erect ſtalks about two feet high, garniſhed with oblong, oblique, ſmooth leaves, placed oppoſite; they are veined on their under ſide, and end in acute points. The flowers are produced from the wings of the ſtalks, each ſitting upon a long ſlender foot-ſtalk; there are three or four of theſe ariſing from the ſhort branches, which come out on each ſide the ſtalk, at all the upper joints. The flowers are like thoſe of the firſt ſort, but ſmaller, and hang downward; theſe appear in June and July, but are ſeldom ſucceeded by any ſeeds in England. This ſort ſpreads and propagates by roots, in as great plenty as the firſt, and is equally hardy, ſo requires no other culture.

The ſixth ſort grows naturally in Spain, and was formerly titled by John Bauhin and others, Ephemerum; this hath a perennial root, from which ariſe ſeveral upright ſtalks upward of three feet high, garniſhed with narrow, ſmooth, ſpear-ſhaped leaves, which ſtand oppoſite, and at the baſe of theſe come out ſhort ſide branches, garniſhed with ſmaller leaves of the ſame ſhape. The flowers are produced in a long, cloſe, upright ſpike, at the top of the ſtalk; they are cut into five oval ſegments, which are white, ſpreading open, and the ſtamina ſtand out longer than the petal. It flowers in June, and the ſeeds ripen in autumn.

This is the fineſt ſpecies of this genus, and as the roots of it do not ſpread like thoſe of the other, ſo deſerves a place in the pleaſure-garden, where it is a very ornamental plant for ſhady borders. It loves a moiſt ſoil and a ſhady ſituation, where it will continue long in beauty. It may be propagated by parting the roots in autumn, but by this method it increaſes ſlowly; ſo that the only way to have it in plenty, is by ſowing the ſeeds: theſe ſhould be ſown upon an eaſt-aſpected border in autumn, ſoon after they are ripe, then the plants will come up the following ſpring; but thoſe which are ſown in the ſpring will not grow the ſame year. When the plants come up they ſhould be kept clean from weeds, and if they are too cloſe, ſome of them may be drawn out and tranſplanted on a ſhady border, which will give the remaining plants room to grow till autumn, when they may be tranſplanted into the borders of the flower-garden where they are deſigned to flower; after which they will require no other culture but to keep them clean from weeds, and dig the ground between them every ſpring.

The ſeventh ſort is commonly called Moneywort, or Herb Two-pence; this is a perennial plant, which grows naturally in moiſt ſhady places in moſt parts of England, ſo is not cultivated in gardens. The ſtalks of this trail upon the ground, and put out roots, by which it ſoon ſpreads to a great diſtance. The leaves are almoſt heart-ſhaped, and placed by pairs. The flowers come out ſingly from the ſide of the ſtalks; they are yellow, appearing in June and July.

The eighth ſort is a ſmall trailing plant, which grows upon bogs in moſſy places in moſt parts of England, but cannot be cultivated on dry ground. The ſtalks ſeldom are more than three or four inches long, and are terminated by three or four ſmall flowers, of a bright purple colour, growing in a bunch. This flowers in June, but is rarely planted in gardens.

The ninth ſort is a perennial plant with trailing ſtalks, which grow naturally in moiſt woods in moſt parts of England, ſo is not cultivated in gardens. The leaves ſtand oppoſite at each joint; they are ſmooth, oval, and acute-pointed. The flowers come out ſingly from the ſide of the ſtalk, upon long foot-ſtalks; they are yellow, and ſpread open like the flowers of Chickweed. This flowers in May and June, and the ſeeds ripen in autumn.

The tenth ſort grows naturally among Ruſhes and Reeds, by the rivers ſides in Holland; this hath a perennial creeping root like the firſt. The ſtalks riſe a foot high; they are ſlender, and are garniſhed by ſpear-ſhaped leaves an inch and a half long, and a quarter of an inch broad in the middle, placed ſometimes by pairs, at others by threes, and often four at each joint, ſurrounding the ſtalk. The flowers alſo come out at each joint, four of them ſtanding round the ſtalk in whorls, each having a diſtinct ſlender foot-ſtalk an inch long. The flowers are ſmall and yellow; they appear in June, and are ſometimes ſucceeded by ſeeds which ripen in autumn; it may be treated in the ſame manner as the firſt ſort, and is equally hardy.

LYSIMACHIA GALERICULATA. See Scutellaria.

LYSIMACHIA NON PAPPOSA. See Œnothera.

LYSIMACHIA SILIQUOSA. See Epilobium.

LYTHRUM. Lin. Gen. Plant. 532. Salicaria. Tourn. Inſt. R. H. 253. tab. 129. *Willow Herb, or purple Looſtrife.*

The Characters are,

The flower hath a cylindrical ſtriated empalement of one leaf, indented at the brim in twelve parts, which are alternately ſmaller. It has ſix oblong blunt petals which ſpread open, whoſe tails are inſerted in the indentures of the empalement, and ten ſlender ſtamina the length of the empalement, the upper being ſhorter than the lower, terminated by ſingle riſing ſummits. In the center is ſituated an oblong germen, ſupporting an awl-ſhaped declining ſtyle, crowned by a riſing orbicular ſtigma. The germen afterward turns to an oblong acute capſule with two cells, filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's eleventh claſs, intitled Dodecandria Monogynia, which includes thoſe plants whoſe flowers have twelve ſtamina and one ſtyle.

The Species are,

1. Lythrum (*Salicaria*) foliis oppoſitis cordato-lanceolatis, floribus ſpicatis dodecandris. Lin. Sp. Plant. 446. *Lythrum with heart ſpear-ſhaped leaves placed oppoſite, and flowers growing in ſpikes, having twelve ſtamina.* Salicaria vulgaris, purpurea, folis oblongis. Tourn. Inſt. R. H.. 253. *Common purple Willow Herb with oblong leaves.*
2. Lythrum (*Tomentoſum*) foliis cordato-ovatis, floribus verticillato-ſpicatis tomentoſis. *Lythrum with oval heart-ſhaped leaves, and flowers growing in whorly ſpikes, which are woolly.* Salicaria purpurea, foliis ſubrotundis. Tourn. Inſt. R. H. 253. *Purple Willow Herb with roundiſh leaves.*
3. Lythrum (*Hyſſopifolia*) foliis alternis linearibus, floribus hexandris. Hort. Upſal. 118. *Lythrum with linear alternate leaves, and flowers having ſix ſtamina.* Salicaria hyſſopi folio anguſtiore. Tourn. Inſt. R. H. 253. *Willow Herb with a narrow Hyſſop leaf.*
4. Lythrum (*Luſitanicum*) foliis lanceolatis ternis glabris, floribus ſpicatis decandris. *Lythrum with ſmooth ſpear-ſhaped leaves placed by threes, and flowers growing in ſpikes, which have ten ſtamina.* Salicaria Luſitanica, anguſtiore folio. Tourn. Inſt. R. H. 253. *Portugal Willow Herb with a narrower leaf.*
5. Lythrum (*Hiſpanicum*) foliis oblongo-ovatis infernè oppoſitis ſupernè alternis floribus hexandris. *Lythrum with oblong oval leaves placed oppoſite below, but above alternate, and flowers having ſix ſtamina.* Salicaria Hiſpanica, hyſſopifolia, floribus oblongis ſaturatè cæruleis. Tourn. Inſt. 253. *Spaniſh Willow Herb with a Hyſſop leaf, and oblong, deep, blue flowers.*
6. Lythrum (*Verticillatum*) foliis oppoſitis, ſubtus tomentoſis ſubpetiolatis, floribus verticillatis lateralibus. Lin. Sp. Plant. 446. *Willow Herb with oppoſite leaves, which are woolly on their under ſide, and flowers growing in whorls round the ſtalks.*
7. Lythrum (*Petiolatum*) foliis oppoſitis linearibus petiolatis, floribus dodecandris. Lin. Sp. Plant. 446. *Willow Herb with linear leaves placed oppoſite, having foot-ſtalks, and flowers with twelve ſtamina.*
8. Lythrum (*Lineare*) foliis oppoſitis linearibus, floribus oppoſitis hexandris. Lin. Sp. Plant. 447. *Willow Herb with linear oppoſite leaves, and flowers having ſix ſtamina, which are placed oppoſite.*
9. Lythrum (*Americanum*) foliis oblongo-ovatis infernè oppoſitis ſupernè alternis, floribus hexandris, caule erecto. *Willow Herb with oblong leaves placed oppoſite below, and above alternate, with flowers having ſix ſtamina and an erect ſtalk.* Salicaria Americana, hyſſopi folio latiore, floribus minimis. Houſt. MSS. *American Willow Herb with a broader Hyſſop leaf, and very ſmall flowers.*

The firſt ſort grows naturally by the ſide of rivers and ditches in moſt parts of England. It has a perennial root, from which come forth ſeveral upright angular ſtalks, which riſe from three to four feet high; they are of a purple colour, and are garniſhed with oblong leaves, placed ſometimes by pairs oppoſite, at others there are three leaves at each joint, ſtanding round the ſtalk. The flowers are produced in a long ſpike at the top of the ſtalk; they are of a fine purple colour, and make a fine appearance. This flowers in July, and the ſeeds ripen in autumn: although this plant is deſpiſed, becauſe it grows common, yet it merits a place in gardens better than many other which are propagated with care, becauſe they are more rare. It is eaſily cultivated by parting the roots in autumn, and ſhould be planted in a moiſt ſoil, where it will thrive and flower without any other care than the keeping it clean from weeds.

There is a variety of this with an hexangular ſtalk, and generally with three leaves at each joint; but this is only accidental, for the roots of this, when removed into a garden, come to the common ſort.

The ſecond ſort hath perennial roots like the firſt, from which come out upright branching ſtalks three feet high, garniſhed with oval heart-ſhaped leaves about one inch long, and three quarters of an inch broad; they are downy, and placed by threes round the ſtalk. The flowers are produced in long ſpikes at the top of the ſtalks, but they are diſpoſed in thick whorls, with ſpaces between each; they are of a fine purple colour, and appear at the ſame time with the former. This may be propagated in the ſame way as the firſt ſort, and is equally hardy.

The third ſort grows naturally in moiſt bogs in many parts of England, ſo is ſeldom admitted into gardens; this hath a perennial root, ſending up two or three branching ſtalks about a foot high, garniſhed with narrow leaves, placed alternate. The upper part of the ſtalk is garniſhed with flowers, which come out from the ſide ſingly at each joint, ſtanding cloſe to the baſe of the leaves; they are ſmall, and of a light purple colour, appearing in June, and the ſeeds ripen in autumn.

The fourth ſort grows naturally in Spain and Portugal, in moiſt places by the ſide of waters; this has a perennial root and ſtalks like the firſt, which ſeldom grow more than one foot high, garniſhed with narrower and ſhorter leaves than the firſt, which are ſmooth, and placed by threes round the ſtalk. The flowers grow in ſpikes at the top of the ſtalks; they are of a light purple colour, and appear in July. The ſeeds ripen in autumn. This ſort is hardy, and may be propagated in the ſame way as the firſt.

The fifth ſort grows naturally in Spain and Portugal, from both which countries I have received the ſeeds.

The root of this is perennial. The ſtalks are ſlender, not more than nine or ten inches long, ſpreading out on every ſide. The lower part of the ſtalks are garniſhed with oblong oval leaves, placed oppoſite. On the upper part of the ſtalks the leaves are narrower, and placed alternate. The flowers come out ſingly from the ſide of the ſtalks at each joint; they are larger than thoſe of the common ſort, and of a deeper purple colour, ſo make a fine appearance in July, when they are in beauty.

This ſort has never produced any ſeeds in England, and the ſevere froſt in 1740, killed all the plants here, ſince which time I have not ſeen any of them in the Engliſh gardens.

The ſixth ſort grows naturally in the northern parts of America; this riſes with a ſtiff branching ſtalk a foot and a half high, garniſhed with oblong leaves, which are downy, and placed oppoſite, ſtanding upon very ſhort foot-ſtalks. The flowers are produced in whorls round the ſtalks; they are of a pale purple colour, and appear in July; theſe are ſucceeded by capſules with two cells, filled with ſeeds which ripen in autumn.

The ſeventh ſort grows naturally in Virginia, from whence I received the ſeeds; this riſes with an upright woolly ſtalk near two feet high, garniſhed with linear leaves placed oppoſite, upon ſhort foot-ſtalks. The flowers come out from the wings of the ſtalks ſingly; they are ſmall, tubulous, and of a pale purple colour, ſo make no great appearance; theſe appear in July, and in warm ſeaſons only will perfect ſeeds; but the roots of this ſort will increaſe ſo faſt, as to render the propagating the plants by ſeeds unneceſſary, when once obtained.

The eighth ſort grows naturally in North America. It has a perennial root. The ſtalks are ſlender, about a foot high, garniſhed with linear leaves placed oppoſite, which are entire. The flowers come out ſingly from the wings of the leaves, on the upper part of the ſtalks; they are ſmall, white, and have ſix petals. The empalement is ſtreaked, and cut at the top into ſix parts, and the flower has ſix ſtamina. This flowers in June, and the ſeeds ripen in autumn.

The ninth ſort was diſcovered by the late Dr. Houſtoun at La Vera Cruz, growing in ſwamps, where the water had ſtagnated. This hath a ligneous root, from which ariſe two or three ſlender ſtalks upward of two feet high, garniſhed with oblong, oval, ſmooth leaves, which, on the lower part of the ſtalks are oppoſite, but thoſe on the upper part are narrow and alternate. The flowers come out from the wings of the leaves, on the upper part of the ſtalk ſingly; they are ſmall and white, having ſix petals and ſix ſtamina; theſe do not appear till the ſecond year from ſeed, and have not produced any good ſeeds in England.

This ſort is tender, ſo will not live in the open air in England. It is propagated by ſeeds, which ſhould be ſown in pots, and plunged into an old hot-bed the firſt ſeaſon; for the ſeeds never riſe the firſt year, unleſs they are ſown in autumn; the pots ſhould be ſheltered in winter, and the ſpring following placed on a hot-bed to bring up the plants; theſe muſt be treated in the ſame way as other tender plants from the ſame country.

All the other ſorts, when raiſed from ſeeds, ſhould be ſown in autumn, otherwiſe the ſeeds will remain a year in the ground, ſo that thoſe ſeeds which are brought from America, never grow the ſame year they are ſown; for which reaſon the ground ſhould not be diſturbed in which the ſeeds are ſown, but left till the following ſpring, when the plants will come up if the ſeeds were good.

M.

MACALEB. See Cerasus.

MADDER. See Rubia Tinctorum.

MAGNOLIA. Plum. Nov. Gen. 38. tab. 7. Lin. Gen. Plant. 610. The Laurel-leaved Tulip-tree, vulgò.

The Characters are,

The empalement is compoſed of three oval concave leaves like petals, which ſoon fall away. The flower is compoſed of nine oblong blunt petals, which are concave. It hath a great number of ſhort ſtamina which are compreſſed, and inſerted into the germen, terminated by linear ſummits, adhering to every ſide of the ſtamina. It hath many oblong oval germina faſtened to the receptacle, ſupporting recurved, contorted, ſhort ſtyles, with longitudinal hairy ſtigmas. The germen afterward become oval cones, with roundiſh compreſſed capſules almoſt imbricated, having one cell, opening with two valves, incloſing one kidney-ſhaped ſeed, hanging by a ſlender thread from the ſcale of the cone.

This genus of plants is ranged in the ſeventh ſection of Linnæus's thirteenth claſs, intitled Polyandria Polygynia, which includes thoſe plants whoſe flowers have many ſtamina and ſtyles. If Father Plumier's figure of the ſection of his fruit is exact, his muſt be a different genus from this; for the ſeeds of his are repreſented within the fruit, lying round a column.

The Species are,

1. Magnolia (*Glauca*) foliis ovato-lanceolatis ſubtus glaucis. Lin. Sp. 755. *Magnolia with oval ſpear-ſhaped leaves, which are gray on their under ſide.* Magnolia lauri folio ſubtus albicante. Cateſb. Hiſt. Car. 1. p. 39. *Magnolia with a Bay leaf, which is whitiſh on the under ſide, commonly called Small Magnolia, or Laurel-leaved Tulip-tree.*
2. Magnolia (*Grandiflora*) foliis lanceolatis perſiſtentibus, caule erecto arboreo. Fig. Plant. tab. 172. *Magnolia with ſpear-ſhaped leaves which are evergreen, and an erect tree-like ſtalk.* Magnolia altiſſima, flore ingenti candido. Cateſb. Carol. 2. p. 61. *Talleſt Magnolia, with a very large white flower, commonly called Greater Magnolia, or Tulip-tree, with a Laurel leaf.*
3. Magnolia (*Tripetala*) foliis lanceolatis ampliſſimis annuis, petalis exterioribus dependentibus. *Magnolia with very large ſpear-ſhaped leaves which are annual, and the outer petals of the flower declining.* Magnolia ampliſſimo flore albo, fructu coccineo. Cateſb. Car. 2. p. 80. *Magnolia with a very large white flower and a ſcarlet fruit, commonly called Umbrella-tree.*
4. Magnolia (*Acuminata*) foliis ovato-lanceolatis acuminatis annuis, petalis obtuſis. *Magnolia with oval, ſpear-ſhaped, pointed leaves, which are annual, and obtuſe petals to the flower.* Magnolia flore albo, folio majore acuminato, haud albicante. Cateſb. Car. 3. p. 15. *Magnolia with a white flower, and a larger acute-pointed leaf, not whitiſh.*

The firſt ſort grows pretty common in Virginia, Carolina, and in moſt other parts of North America, where it is found in moiſt places, near brooks; this uſually grows about fifteen or ſixteen feet high, with a ſlender ſtem. The wood is white and ſpongy, the bark is ſmooth and white, the branches are garniſhed with thick ſmooth leaves, reſembling thoſe of the Bay, but are of an oval ſhape, and ſmooth on their edges, being white underneath. The flowers are produced in May and June at the extremity of the branches, which are white, compoſed of ſix petals which are concave, and have an agreeable ſweet ſcent. After theſe are paſt, the fruit increaſes in ſize to be as large as a Walnut with its cover, but of a conical ſhape, having many cells round the outſide, in each of which is lodged a flat ſeed, about the ſize of a Kidney-bean. This fruit is at firſt green, afterward red, and, when ripe, of a brown colour. The ſeeds, when ripe, are diſcharged from their cells, and hang by a ſlender thread.

In the natural places of its growth, there is a ſucceſſion of the flowers on the trees for two months or more, during which time the woods are perfumed with them; but all thoſe trees which have produced flowers in England, ſeldom have more than twelve or fourteen flowers upon each, which are of ſhort duration, and are not ſucceeded by others; the leaves of this ſort fall off in winter.

The young plants of this ſort frequently retain their leaves through the greateſt part of winter, and often do not fall off till the young ſhoots thruſt them off, which has occaſioned ſome perſons to believe the plants were evergreen; but when they are three or four years old, they conſtantly caſt their leaves by the beginning of November.

When theſe trees are tranſplanted from the places of their growth into dry ground, they make handſomer trees, and produce a greater number of flowers; this is to be underſtood of America, for in Europe they do not thrive ſo well in a dry ſoil as in a moiſt loamy land. The greateſt number of theſe trees, which are now growing in England, are at his Grace the Duke of Norfolk's, at Workſop Manor, in Nottinghamſhire.

The ſecond ſort grows in Florida and South Carolina, where it riſes to the height of eighty feet or more, with a ſtrait trunk upward of two feet diameter, having a large regular head: the leaves of this tree reſemble thoſe of the common Laurel, but are much larger, and of a ſhining green on their upper ſide, and, in ſome trees, they are of a ruſſet, or buff colour, on their under ſide; theſe leaves continue all the year, ſo that this is one of the moſt beautiful evergreen trees yet known. The flowers are produced at the end of the branches; they are compoſed of eight or ten petals, which are narrow at their baſe, but broad at their extremity, where they are rounded, and a little waved; theſe ſpread open wide, and are of a pure white colour. In the center is ſituated a great number of ſtamina and ſtyles, faſtened to one common receptaculum; theſe flowers are ſucceeded by oblong ſcaly cones in the places where it grows naturally, but the ſummers are not warm enough in England to produce any fruit to perfection, though ſome old plants do often form cones. Theſe trees in their native places of growth begin to produce their flowers in May, and continue a long time in flower, ſo that the woods are perfumed with their odour the greateſt part of ſummer; but thoſe which have flowered in England, ſeldom begin till the middle or latter end of June, and do not continue long in beauty. The largeſt tree of this kind, which I have met with in England, is in the garden of Sir John Colliton, of Exmouth, in Devonſhire, which has produced flowers for ſeveral years; there are alſo many pretty large plants of this ſort in the gardens of his Grace the Duke of Richmond, at Goodwood, in Suſſex, one of which has has produced flowers ſeveral years; and in the nurſery of Mr. Chriſtopher Gray, near Fulham, there is one very handſome plant, which has alſo produced many flowers ſeveral years.

As this ſort is a native of a warm country, it is a little impatient of cold, eſpecially while young, therefore the plants ſhould be kept in pots, and ſheltered in winter for ſome years, until they have acquired ſtrength, when they may be ſhaken out of the pots, and planted in the full ground, but they muſt be planted in a warm ſituation, where they may be defended from the ſtrong winds, and ſcreened from the north and eaſt, otherwiſe they will not live abroad.

There were a great number of young plants in England before the year 1739; but a great part of them were deſtroyed by that ſevere winter, and ſince then, there have been few good ſeeds ſent to England, ſo that there are not many of the plants at preſent to be ſold in the nurſeries; and as almoſt every perſon who is curious in gardening, is deſirous to have ſome of theſe beautiful trees in their gardens, the demand for them of late has greatly increaſed their value. If this tree can be ſo far naturalized as to endure the cold of our ſevereſt winters abroad, it will be one of the greateſt ornaments to our gardens; and this we may hope, will, in time, be effected, by diligent obſervation and care; for the time when theſe plants ſuffer moſt, is in autumn, by the early froſts; for the extremity of the ſhoots being then tender, as they are then generally growing freely, a ſmall froſt will pinch them, and afterward the whole ſhoot frequently decays; ſo that the plants ſhould be guarded againſt theſe early froſts, by covering their tops with mats until the ſhoots are hardened, after which time they will not be in ſo much danger of ſuffering; for I have conſtantly obſerved, that if theſe plants eſcape the early froſts of the autumn, they are ſeldom injured afterward: in the ſevere winter in the year 1739-40, I had a pretty large plant growing in the open air, which was killed down by the froſt, and I ſuppoſed was entirely deſtroyed, as there was not the leaſt appearance of life in the ſtem; ſo that after Midſummer I cut it down to the ground, but left the root remaining, which, to my great ſurprize, ſhot up again the year after. This I mention, to caution people from being too haſty in deſtroying plants after hard froſt, but to have them wait until there can be no hopes of their recovery.

The third ſort grows in Carolina pretty frequent, but in Virginia it is pretty rare; this uſually grows from ſixteen to twenty feet high, with a ſlender trunk; the wood is ſoft and ſpongy; the leaves of this tree are remarkably large, and are produced in horizontal circles, ſomewhat reſembling an umbrella, from whence the inhabitants of thoſe countries have given it the title of Umbrella-tree. The flowers are compoſed of ten or eleven white petals, which hang down without any order; the fruit is very like that of the former ſort; the leaves of this ſort drop off at the beginning of winter.

This tree is as yet very rare in Europe, but as it is propagated from ſeeds, we may hope to have it in greater plenty ſoon, if we can obtain good ſeeds from Carolina, for it is rarely met with in Virginia.

The fourth ſort is alſo very rare in England; there are but few of the plants at preſent here, nor is it very common in any of the habitable parts of America: ſome of theſe trees have been diſcovered by Mr. John Bartram, growing on the north branch of Suſquehannah river. The leaves of this tree are near eight inches long and five broad, ending in a point. The flowers come out early in the ſpring, which are compoſed of twelve white petals, ſhaped like thoſe of the ſecond ſort; the fruit of this tree is longer than thoſe of the other ſpecies, but in other reſpects agrees with them. The wood of this tree is of a fine grain, and an Orange colour.

All theſe ſorts are propagated by ſeeds, which muſt be procured from the places of their natural growth; theſe ſhould be put up in ſand, and ſent over to England as ſoon as poſſible; for if they are kept long out of the ground, they very rarely grow, therefore the ſeeds ſhould be ſown as ſoon as poſſible, when they arrive here.

Some years paſt I received a good quantity of theſe ſeeds from Carolina, which I ſowed in pots as ſoon as I received them, and plunged the pots into an old hot bed of tanners bark; and with this management

I raiſed a great number of plants, but from the ſeeds which have been lately brought over, there have been but few plants produced; whether the ſeeds were not perfectly ripe when they were gathered, or from what other cauſe this has happened, I cannot ſay, but it is certain the fault muſt be in the ſeeds, becauſe thoſe before-mentioned were differently ſown and managed by the ſeveral perſons who received them, and the ſucceſs was nearly alike every where.

There have been ſeveral plants of the firſt and ſecond ſort raiſed from layers, and ſome from cuttings; but theſe do not thrive ſo well as thoſe which come from ſeeds, nor will they grow to near the ſize of thoſe, ſo that it is much the beſt way to procure their ſeeds from America, and propagate them that way.

The firſt ſort frequently comes up well from ſeeds, but the young plants are very difficult to keep the two firſt years; for if they are expoſed much to the ſun, their leaves change yellow and the plants decay; ſo the beſt way is to keep the pots plunged in a moderate hot-bed, and ſhade them every day from the ſun with mats, giving them air in plenty when the weather is warm, and frequently refreſh them with water; during the winter ſeaſon they muſt be ſcreened from froſt, and in mild weather they muſt enjoy the free air, to prevent their growing mouldy, and they ſhould have but little wet in winter. With this management the plants may be trained up, and when they have acquired ſtrength, they may be planted in the open air, where they will thrive and flower, if they have a warm ſheltered ſituation.

The ſecond ſort is not ſo difficult to train up as the firſt, but in order to get them forward, it will be proper when they are removed out of the ſeed-pots, to plant them each into a ſeparate ſmall pot, filled with ſoft loamy earth, and plunge them into a gentle hot-bed of tanners bark, obſerving to ſhade them from the ſun, and admit proper air to them; but at Midſummer, if they are well rooted, they ſhould be inured to the open air gradually, and then placed in a ſheltered ſituation, where they may remain till autumn; but on the firſt approach of froſt, they ſhould be removed under ſhelter, otherwiſe the early froſts will pinch their tender ſhoots, which often occaſions their dying downward after. When the plants have got ſtrength, ſome of them may be turned out of the pots, and planted in the full ground in a warm ſheltered ſituation, but part of them ſhould be kept in pots, and ſheltered in the winter, to preſerve them, leſt, by ſevere froſt, the other ſhould be killed.

If the plants make good progreſs, they will be ſtrong enough to plant in the full ground in abour ſix or ſeven years from ſeeds. The time for removing or ſhifting theſe plants is in March, before they begin to ſhoot, which may ſometimes happen to be too ſoon to turn them out of the pots into the full ground, eſpecially if the ſeaſon proves late; but as there will be no danger in removing them out of the pots, the ball of earth being preſerved to their roots, ſo it is beſt to defer this till the month of April; but it will be neceſſary to harden thoſe plants which are intended to be planted out, by expoſing them to the air as much as poſſible before, which will keep the plants backward, and prevent their ſhooting; for if they make ſhoots in the green-houſe, thoſe will be too tender to bear the ſun, until they are by degrees hardened to it, and the leaſt froſt will greatly pinch them, and ſuch froſts frequently happen very late in the ſpring.

The two or three winters after theſe are planted out, it will be neceſſary to lay ſome mulch on the ſurface of the ground about their roots, as alſo to throw ſome mats over their heads, eſpecially at the beginning of the morning froſts in autumn, for the reaſons before given; but in doing this, the heads of the plant ſhould never be too cloſely covered up, leſt thereby the ſhoots ſhould grow mouldy, for that will certainly kill the leading buds of every ſhoot, and prove to the full as injurious to them as the froſt.

As the plants get ſtrength, they will be better able to endure the cold of our climate, though it will be proper to lay ſome mulch about their roots every winter; and, in very ſevere froſt, to cover their heads and ſtems.

It is the firſt ſort which requires the moſt care, being much tenderer than any of the other, for they will endure the cold very well, without much care, after they have acquired ſtrength; for as theſe loſe their leaves in the winter, the froſt will not have ſo much force upon them as of the firſt ſort, whoſe leaves are frequently tender toward the end of the ſhoots, eſpecially when they grow freely, or ſhoot late in the autumn.

MAHALEB. See Cerasus.

MAJORANA. See Origanum.

MALABAR NUT. See Justicia.

MALA ÆTHIOPICA. See Lycopersicon.

MALA ARMENIACA. See Armeniaca.

MALACOIDES. See Malope.

MALA COTONEA. See Cydonia.

MALA INSANA. See Melongena.

MALLOW. See Malva.

MALLOW-TREE. See Lavatera.

MALOPE. Baſtard Mallow.

The Characters are,

The flower, which is ſhaped like that of the Mallow, hath a double empalement, the outer being compoſed of three heart-ſhaped leaves, and the inner is of one leaf cut into five ſegments; the flower is of one petal, divided into five parts at the bottom, where they are joined, but ſo near the bottom as to have the appearance of five petals. In the center ariſes the pointal, having a great number of ſtamina ſurrounding it, which are joined cloſely, and form a ſort of column. The pointal afterward becomes a fruit compoſed of many cells, which are collected into a head, in each of which is lodged a ſingle ſeed.

We have but one Species of this plant, viz.

Malope (*Malacoides*) foliis ovatis crenatis glabris. Lin. Hort. Cliff. 347. *Baſtard Mallow, with oval ſmooth leaves, which are notched.*

This plant was by Dr. Tournefort ſeparated from the Mallow, and made a diſtinct genus, by the title of Malacoides; but Dr. Linnæus has altered the title of this for Malope, being an enemy to all names which are compounded of oides.

The whole plant has greatly the appearance of the Mallow, but differs from it, in having the cells collected into a button, ſomewhat like a Blackberry; the branches ſpread, and lie almoſt flat upon the ground, extending themſelves a foot or more each way. The flowers are produced ſingly upon long foot-ſtalks, which ariſe from the wings of the leaves, which are in ſhape and colour like thoſe of the Mallow.

This is propagated by ſeeds, which ſhould be ſown in the place where they are deſigned to remain, for they do not bear tranſplanting well. If theſe ſeeds are ſown upon a warm border in Auguſt, the plants will frequently ſtand through the winter, and flower early the following ſeaſon, ſo that good ſeeds may be obtained; for thoſe which are ſown in the ſpring, rarely ripen ſeeds the ſame year in England; and theſe plants being large, are often deſtroyed in winter, unleſs they are ſheltered under a frame; it ſeldom continues longer than two or three years, ſo that young plants ſhould be annually raiſed.

MALPIGHIA. Plum. Nov. Gen. 46. tab. 36. Lin. Gen. Plant. 38. Barbadoes Cherry, vulgò.

The Characters are,

The flower hath a ſmall permanent empalement of five leaves, which are cloſed together. It hath two oval mellous glands, adhering to the ſmall leaves within and without. It has five kidney-ſhaped petals, which are concave, and ſpread open, having long narrow tails, and ten broad awl-ſhaped ſtamina, which are erect, terminated by heart-ſhaped ſummits. It has a ſmall roundiſh germen, ſupporting three ſlender ſtyles, crowned by obtuſe ſtigmas. The germen afterward turns to a large furrowed globular berry with one cell, incloſing three rough ſtony ſeeds, which are angular.

This genus of plants is ranged in the third ſection of Linnæus's tenth claſs, intitled Decandria Trigynia, which includes the plants whoſe flowers have ten ſtamina and three ſtyles.

The Species are,

1. Malpighia (*Glabra*) foliis ovatis integerrimis glabris, pedunculis umbellatis. Hort. Cliff. 169. *Malpighia with ſmooth, oval, entire leaves, and umbellated foot-ſtalks.* Ceraſus Jamaicenſis, fructu tetrapyreno. Hort. Amſt. 1. p. 145. *Jamaica Cherry with a fruit having four ſeeds, commonly called Barbadoes Cherry.*
2. Malpighia (*Punicifolia*) foliis ovato-lanceolatis, acuminatis, glabris, pedunculis umbellatis. *Malpighia with oval, ſpear-ſhaped, ſmooth leaves, ending in acute points, and umbellated foot-ſtalks.* Malpighia mali punici facie. Plum. Nov. Gen. 46. *Malpighia with the appearance of Pomegranate.*
3. Malpighia (*Incana*) foliis lanceolatis ſubtus incanis, pedunculis umbellatis alaribus. *Malpighia with ſpear-ſhaped leaves, hoary on their under ſide, and umbellated foot-ſtalks, proceeding from the wings of the ſtalk.*
4. Malpighia (*Urens*) foliis cordato-lanceolatis, ſetis decumbentibus rigidis, racemis lateralibus. *Malpighia with ſpear heart-ſhaped leaves, having rigid declining briſtles, and bunches of flowers proceeding from the ſides of the ſtalks.* Malpighia latifolia, folio ſubtus ſpinoſo. Plum. Nov. Gen. 46. *Broad-leaved Malpigha, with ſpines growing on the under ſide of the leaf.*
5. Malpighia (*Nitida*) foliis ovatis acutis glabris, pedunculis umbellatis alaribus terminalibuſque. *Malpighia with oval, ſmooth, acute-pointed leaves, and umbellated foot-ſtalks, proceeding from the ſides and at the ends of the branches.*
6. Malpighia (*Paniculata*) foliis oblongo-cordatis acuminatis glabris, pedunculis paniculatis, alaribus terminalibuſque. *Malpighia with oblong, heart-ſhaped, ſmooth leaves, ending in acute points, and paniculated foot-ſtalks proceeding from the ſides and ends of the branches.* Apocynum fruticoſum, folio oblongo acuminato, floribus racemoſis. Sloan. Cat. 89. *Shrubby Dogſbane with an oblong acute-pointed leaf, and flowers growing in cluſters.*
7. Malpighia (*Anguſtifolia*) foliis lineari-lanceolatis, ſetis decumbentibus rigidis, pedunculis unbellatis alaribus. *Malpighia with linear ſpear-ſhaped leaves, rigid declining briſtles, and foot-ſtalks having umbels of flowers proceeding from the ſides of the branches.* Malpighia anguſtifolia, folio ſubtus ſpinoſo. Plum. Nov. Gen. 46. *Narrow-leaved Malpighia with ſpines under the leaves.*
8. Malpighia (*Illicifolia*) foliis lanceolatis dentato-ſpinoſis ſubtus hiſpidis. Lin. Sp. Plant. 426. *Malpighia with ſpear-ſhaped leaves, indented and prickly, whoſe under ſides are ſet with ſpiny hairs.* Malpighia anguſtis & acuminatis aquifolii foliis. Plum. Nov. Gen. 46. *Malpighia with narrow and acute-pointed Holly leaves.*
9. Malpighia (*Lucida*) foliis oblongo-ovatis obtuſis glabris, pedunculis racemoſis alaribus. *Malpighia with oblong oval leaves, which are obtuſe and ſmooth, and branching foot-ſtalks of flowers proceeding from the ſides of the branches.*
10. Malpighia (*Coccigrya*) foliis ſubovatis dentato-ſpinoſis, pedunculis unifloris. *Malpighia with leaves nearly oval, indented, and prickly, and foot-ſtalks with one flower.* Malpighia humilis, ilicis cocci-glandiferæ foliis. Plum. Nov. Gen. 46. *Low Malpighia with leaves like the Kermes Oak.*

The firſt ſort is commonly cultivated in the Weſt-Indies for the ſake of its fruit; this tree uſually grows to the height of ſixteen or eighteen feet, having a ſlender ſtem, covered with a light brown bark. The leaves are produced oppoſite; they are oval, ſmooth, ending in acute poins, and continue all the year. The flowers are produced in bunches upon pretty long foot-ſtalks, which come out from the ſide and at the end of the branches; theſe are compoſed of five roundiſh petals, which are of a Roſe colour, joined at their baſe. The flowers are ſucceeded by red fruit, ſhaped like thoſe of the ſmall wild Cherry, and of the ſame ſize, having ſeveral furrows, each incloſing four angular furrowed ſtones, ſurrounded by a thin pulp, which has an agreeable acid flavour; the fruit of this often ripens in England.

The ſecond ſort grows naturally in Jamaica; this riſes with a ſhrubby ſtalk ten or twelve feet high, dividing into ſeveral ſlender ſpreading branches, covered with a light brown bark, garniſhed with oval, ſpear-ſhaped, ſmooth leaves placed oppoſite, ending in acute points. The flowers are produced in ſmall umbels at the end of the branches, upon ſhort foot-ſtalks; they are of a pale Roſe colour, and compoſed of five obtuſe concave petals which are indented, having long narrow tails, by which they are joined; theſe ſpread open, and in the center is ſituated the roundiſh germen, ſupporting three ſtyles, attended by ten ſtamina which ſpread aſunder. The germen afterward turns to a roundiſh pulpy berry with many furrows, red when ripe, incloſing three or four hard angular ſeeds. The fruit of this ſort is eaten by the inhabitants of the iſles in America.

The third ſort grows naturally at Campeachy, from whence it was ſent me by the late Mr. Robert Millar. This riſes with a ſtrong woody ſtalk eighteen or twenty feet high, dividing into many branches, covered with a brown ſpotted bark, garniſhed with ſpear-ſhaped leaves placed oppoſite, which are hoary on their under ſide. The flowers come out in umbels from the ſide of the branches; they are of a Roſe colour, and are ſucceeded by oval channelled fruit, like thoſe of the former ſort.

The fourth ſort grows naturally in Jamaica, from whence the late Dr. Houſtoun ſent me the ſeeds. This riſes with a woody ſtalk from fifteen to eighteen feet high, dividing into many pretty ſtrong branches, which are furrowed, and covered with a brown bark. The leaves are from three to four inches long, and one broad at their baſe, where they are rounded in form of a heart, leſſening gradually to the point; they are covered on their under ſides with ſtinging briſtly hairs ſo cloſely, as to render it very troubleſome to handle them, for theſe hairs faſten themſelves into the fleſh, and are difficult to get out again. The flowers are produced in umbels from the ſide of the branches; they are of a light purple colour, and ſhaped like thoſe of the other ſpecies; they are ſucceeded by oval furrowed fruit like that of the former ſort. This is called in the Weſt-Indies, Couhage, or Cowitch Cherry.

The fifth ſort grows naturally at Carthagena in New Spain, from whence the late Dr. Houſtoun ſent me the ſeeds. This riſes with a ſhrubby ſtalk about ten feet high, covered with a light brown ſpotted bark, branching out regularly at the top on every ſide; the leaves are oval, ſmooth, and end in acute points, ſtanding oppoſite, of a light green on the upper ſide, but paler on the under. The flowers come out from the ſide of the ſtalks in ſmall umbels, ſtanding erect; the foot-ſtalks of the umbels are ſcarce an inch long. They are of a pale bluſh colour, ſhaped like thoſe of the former ſorts; theſe are ſucceeded by roundiſh furrowed berries with a red ſkin, covering three hard angular ſeeds.

The ſixth ſort grows naturally in Jamaica, from whence the late Dr. Houſtoun ſent the ſeeds to England. This riſes with ſeveral ſlender ſhrubby ſtalks from five to ſix feet high, garniſhed with oblong heart-ſhaped leaves, four inches long and one inch and a quarter broad at the baſe, where they are rounded in two heart-ſhaped lobes, gradually diminiſhing to the point; they are ſmooth, and of a pale yellowiſh green, placed oppoſite. The flowers are produced in looſe panicles from the ſide and at the end of the branches; they are of a light purple colour, ſhaped like thoſe of the other ſpecies, but ſmaller; the fruit is more pointed, and not ſo much furrowed.

The ſeventh ſort was ſent me from the iſland Barbuda: this riſes with a ſhrubby ſtalk ſeven or eight feet high, covered with a bright purpliſh bark which is ſpotted and furrowed, dividing toward the top into ſeveral ſmaller branches, garniſhed with narrow ſpear-ſhaped leaves, about two inches long and a quarter of an inch broad, of a lucid green on their upper ſide, but of a ruſſet brown on their under, where they are cloſely armed with ſtinging briſtles, which faſten themſelves into the fleſh or clothes of thoſe who touch them; theſe leaves are placed oppoſite. The flowers are produced from the ſide and at the end of the branches in ſmall umbels; they are of a pale purple colour, of the ſame form of the other ſpecies, but ſmaller; and are ſucceeded by ſmall, oval, furrowed fruit, of a dark purple colour when ripe.

The eighth ſort was ſent me from the iſland Berbuda in the Weſt-Indies, where it grows naturally. This riſes with a ſtrong woody ſtem from fifteen to twenty feet high, dividing into many ſpreading branches, covered with a gray bark, garniſhed with oblong oval leaves of a firm conſiſtence; they are about an inch long, and half an inch broad, rounded at their ends, of a lucid green, and placed oppoſite. The flowers come out from the ſide, and alſo at the end of the branches, upon pretty long foot-ſtalks, which branch in form of a racemus, or long bunch. They are of the ſame form with thoſe of the other ſpecies, but vary in their colour, ſome of them being of a bright red, and others of an Orange colour in the ſame bunch; theſe are ſucceeded by ſmall oval berries, which are leſs furrowed than thoſe of the other ſpecies, and, when ripe, change to a dark purple colour.

The ninth ſort grows naturally in the iſland of Cuba, where the late Dr. Houſtoun found it in plenty. This riſes with a ſhrubby ſtalk to the height of ſeven or eight feet, ſending out branches the whole length, which are covered with a gray bark, garniſhed with narrow prickly leaves like thoſe of the Holly, which have many ſtinging briſtles on their under ſide. The flowers are produced in ſmall cluſters from the ſide of the branches, they are of a pale bluſh colour, and ſhaped like thoſe of the other ſpecies, but ſmaller; the fruit is more pointed than thoſe of the common ſort, and turns to a dark purple colour when ripe.

The tenth ſort grows naturally near the Havanna, from whence the late Dr. Houſtoun ſent the ſeeds. This is a very low ſhrub, ſeldom riſing more than two or three feet high; the ſtalk is thick and woody, as are alſo the branches, which come out on every ſide from the root upward; they are covered with a rough gray bark, garniſhed with lucid leaves half an inch long, and almoſt as much broad; they appear as if cut at their ends, where they are hollowed in, and the two corners riſe like horns ending in a ſharp thorn, as do alſo the indentures on the ſides. The flowers come out from the ſide of the branches, upon foot-ſtalks an inch long, each ſuſtaining one ſmall pale bluſh flower, of the ſame form with thoſe of the other ſpecies; the fruit is ſmall, conical, and furrowed, changing to a purple red colour when ripe.

There are two other ſpecies of this genus, which have been lately introduced from America, but as neither of them have yet flowered here, ſo I have not enumerated them; and if thoſe warm parts of America were ſearched by perſons of ſkill, there might be many more ſpecies diſcovered; for from a large number of imperfect ſpecimens which were ſent me from the Spaniſh Weſt-Indies, I have ſelected many which have the appearance of the other ſpecies of this genus, but as they are without flowers or fruit, they cannot be aſcertained.

The fruit of ſeveral of the ſpecies here mentioned, are promiſcuouſly gathered and eaten by the inhabitants of the countries where they naturally grow; but the firſt ſort is cultivated in ſome of the iſlands for its fruit, though that is but indifferent: the pulp which ſurrounds the ſtones is very thin, but has a pleaſant acid flavour, which renders it agreeable to the inhabitants of thoſe warm countries, where, to ſupply the want of thoſe Cherries which are cultivated in Europe, they are obliged to eat the fruit of theſe ſhrubs.

Theſe plants are preſerved in the gardens of thoſe perſons who are ſo curious in botanical ſtudies, as to erect hot-houſes for maintaining foreign plants: and where there are ſuch conveniencies, theſe plants deſerve a place; becauſe they retain their leaves all the year, and commonly continue flowering from December to the end of March, when they make a fine appearance at a ſeaſon, when there is a ſcarcity of other flowers, and many times they produce ripe fruit here. Thoſe ſorts whoſe leaves are armed with ſtinging briſtles, like the Cowitch, are the leaſt worthy of a place in ſtoves, becauſe they are ſo troubleſome to handle, nor do their flowers make ſo good an appearance as many of the other ſorts. The tenth ſort is the moſt valuable for its flowers, which are produced in larger bunches than thoſe of any of the other, and there being flowers of different colours in the ſame bunches, they make a fine variety; and this ſort grows more like a tree than the others, the leaves are alſo of a ſtronger conſiſtence and of a lucid green.

As theſe plants are natives of the warmeſt parts of America, they will not live through the winter in England, unleſs they are preſerved in a warm ſtove; but when the plants have obtained ſtrength, they may be expoſed in the open air in a warm ſituation, from the middle or latter end of June, till the beginning of October, provided the weather continues ſo long mild; and the plants ſo treated, will flower much better than thoſe which are conſtantly kept in a ſtove.

They are all propagated by ſeeds, which muſt be ſown upon a good hot-bed in the ſpring; and when the plants are fit to tranſplant, they muſt be each put into a ſeparate ſmall pot filled with rich earth, and plunged into a hot-bed of tanners bark, and muſt be treated in the ſame manner as hath been directed for other tender plants of the ſame country; and for the two firſt winters, it will be proper to keep them in the bark-bed in the ſtove; but afterward they may be placed upon ſtands in the dry ſtove in winter, where they may be kept in a temperate warmth, in which they will thrive much better than in a greater heat; theſe muſt be watered two or three times a week, when they are placed in the dry ſtove, but it muſt not be given to them in large quantities.

MALT-DUST is accounted a great enricher of barren ground; it contains in it a natural heat and ſweetneſs, which gives the earth whereon it is laid a proper fermentation, as thoſe who live in malting countries have found by experience.

Some are of opinion, that there is not a greater ſweetener than Malt-duſt, where the grounds are natural clay, and have contracted a ſourneſs and auſterity, whether by reaſon of its having lain long untilled and unexpoſed to the air, or by reaſon of water having ſtood long thereon.

MALVA. Tourn. Inſt. R. H. 94. tab. 23. Lin. Gen. Plant. 751. [ſo called of μαλακίζω, or μαλάσσω, to ſoften, becauſe it is good to ſoften the belly.] Mallows; in French, *Mauve*.

The CHARACTERS are,

The flower has a double empalement; the outer is compoſed of three ſpear-ſhaped leaves, and is permanent; the inner is of one leaf, cut into five broad ſegments at the brim. The flower is, according to Tournefort, Ray, &c. of one petal; but according to Linnæus, it has five; they are joined at the baſe, and ſpread open, and fall off joined. It has a great number of ſtamina which coaleſce at bottom in a cylinder, but ſpread open above, and are inſerted in the petal, terminated by kidney-ſhaped ſummits. In the center is ſituated an orbicular germen ſupporting a ſhort cylindrical ſtyle, with many briſtly ſtigmas the length of the ſtyle. The empalement afterward turns to ſeveral capſules, which are joined in an orbicular depreſſed head faſtened to the column, opening on their inſide, each containing one kidney-ſhaped ſeed.

This genus of plants is ranged in the fifth ſection of Linnæus's ſixteenth claſs, intitled Monodelphia Polyandria, which contains thoſe plants whoſe flowers have many ſtamina joined with the ſtyle in one body.

The Species are,

1. Malva (*Sylveſtris*) caule erecto herbaceo, foliis ſeptem lobatis acutis pedunculis petioliſque piloſis. Lin. Sp. Plant. 969. *Mallow with an erect herbaceous ſtalk, with ſeven acute lobes to the leaves, and hairy foot-ſtalks both to the leaves and flowers.* Malva ſylveſtris, folio ſinuato. C. B. P. 314. *Wild Mallow with a ſinuated leaf.*
2. Malva (*Rotundifolia*) caule proſtrato, foliis cordato-orbiculatis obſoletè quinquelobis, pedunculis fructiferis declinatis. Lin. Sp. 969. *Mallow with proſtrate ſtalks, roundiſh heart-ſhaped leaves with five obſolete lobes, and the foot-ſtalks of the fruit declining.* Malva vulgaris, flore minore, folio rotundo. J. B. 2. p. 949. *Common Mallow with a ſmall flower and a round leaf.*
3. Malva (*Orientalis*) annua, caule erecto herbaceo, foliis lobatis obtuſis & crenatis. *Annual Mallow with an erect herbaceous ſtalk, and obtuſe lobed leaves which are crenated.* Malva orientalis erectior, flore magno ſuavè rubente. Tourn. Cor. 3. *Eaſtern Mallow with a more upright ſtalk, and a large, ſoft, red flower.*
4. Malva (*Criſpa*) caule erecto, foliis angulatis criſpis, floribus axillaribus glomeratis. Lin. Sp. 970. *Mallow with an erect ſtalk, angular curled leaves, and flowers in cluſters on the ſide of the ſtalks.* Malva foliis criſpis. C. B. P. 315. *Furbelowed Mallow.*
5. Malva (*Verticillata*) caule erecto, foliis angulatis, floribus axillaribus glomeratis ſeſſilibus, calycibus ſcabris. Vir. Cliff. 356. *Mallow with an erect ſtalk, angular leaves, and flowers growing in whorls at the wings of the ſtalks.*
6. Malva (*Chinenſis*) annua, caule erecto herbaceo, foliis ſuborbiculatis obſoletè quinquelobatis, floribus confertis alaribus ſeſſilibus. *Annual Mallow with an erect, herbaceous, ſingle ſtalk, leaves almoſt round, with five indented lobes, and flowers growing in cluſters, which ſit cloſe to the ſtalks.* Malva Sinenſis erecta, floſculis albis minimis. Boerh. Ind. alt. *Upright annual China Mallow, with very ſmall white flowers.*
7. Malva (*Cretica*) caule erecto ramoſo hirſuto, foliis angulatis, floribus alaribus pedunculis brevioribus. *Mallow with an erect, branching, hairy ſtalk, angular leaves, and flowers proceeding from the wings of the ſtalks, which grow upon ſhorter foot-ſtalks.* Malva Cretica annua altiſſima, flore parvo ad alas umbellato. Tourn. Cor. 2. *Talleſt annual Mallow of Crete, with ſmall flowers growing in umbels on the ſides of the ſtalk.*
8. Malva (*Peruviana*) caule erecto herbaceo, foliis lobatis, ſpicis ſecundis axillaribus ſeminibus denticulatis. Lin. Sp. Plant. 968. *Mallow with an erect herbaceous ſtalk, leaves having lobes, and ſpikes of flowers in fruitful cluſters proceeding from the ſides of the ſtalks, and indented ſeeds.*
9. Malva (*Alcea*) caule erecto, foliis multipartitis ſcabriuſculis. Hort. Cliff. 347. *Mallow with an erect ſtalk, and rough leaves divided into many parts.* Alcea tenuifolia criſpa. J. B. 2. 953. *Narrow-leaved curled Vervain Mallow.*
10. Malva (*Moſchata*) foliis radicalibus reniformibus inciſis, caulinis quinque partitis pinnato-multifidis. Hort. Upſal. 202. *Mallow with kidney-ſhaped lower leaves which are cut, and thoſe on the ſtalks divided into five parts, ending in winged points.* Alcea folio rotundo laciniato. C. B. P. 316. *Round cut-leaved Vervain Mallow.*
11. Malva (*Ægyptia*) foliis palmatis dentatis, corollis calyce minoribus. Lin. Sp. Plant. 690. *Mallow with hand-ſhaped indented leaves, and petals leſs than the empalement.* Alcea Ægyptia, geranii folio. Juſſ. *Egyptian Vervain Mallow with a Crane's-bill leaf.*
12. Malva (*Bryonifolia*) foliis palmatis ſcabris, caule tomentoſo fruticoſo, pedunculis multifloris. Prod. Leyd. 356. *Mallow with rough hand-ſhaped leaves, a ſhrubby woolly ſtalk, and foot-ſtalks with many flowers.* Althæa fruteſcens bryoniæ folio. C. B. P. 316. *Shrubby Vervain Mallow with a Briony leaf.*
13. Malva (*Tournefortia*) foliis radicalibus quinque partitis, trilobis linearibus, pedunculis folio caulino longioribus, caule procumbente. Amœn. Acad. 4. p. 283. *Mallow with cut leaves having three lobes, which are linear, and a declining ſtalk.* Alcea maritima Galloprovincialis, geranii folio. Tourn. Inſt. 98. *Maritime Vervain Mallow of Provence, with a Crane's-bill leaf.*
14. Malva (*Capenſis*) foliis ſubcordatis laciniatis hirſutis, caule arboreſcente. *Mallow with hairy cut leaves, almoſt heart-ſhaped, and a tree-like ſtalk.* Malva Africana fruteſcens, flore rubro. Hort. Amſt. 2. p. 171. *African ſhrubby Mallow with a red flower.*
15. Malva (*Americana*) foliis cordatis crenatis, floribus lateralibus ſolitariis, terminalibus ſpicatis. Prod. Leyd. 359. *Mallow with heart-ſhaped crenated leaves, and flowers growing ſingly from the ſides of the ſtalks, and in ſpikes at the top.* Althæa Americana, pumila, flore luteo ſpicato. Breyn. Cent. 124. *Low American Marſhmallow, with a yellow ſpiked flower.*

The two firſt ſorts are found wild in moſt parts of England, ſo are rarely cultivated in gardens. The firſt is the ſort commonly uſed in medicine, with which the markets are ſupplied by the herbfolks, who gather it in the fields. Theſe are both ſo well known, as to need no deſcription. There is a variety of the firſt with white flowers, which continues the ſame from ſeeds; but as it only differs in the colour of the flower, ſo it cannot be reckoned a diſtinct ſpecies.

The third ſort was diſcovered by Dr. Tournefort in the Levant, this is an annual plant with an erect ſtalk; the flowers are larger than thoſe of the common ſort, and are of a ſoft red colour. This is preſerved in ſome curious gardens for the ſake of variety.

The fourth ſort is annual; this riſes with an upright ſtalk four or five feet high; the leaves are curled on their edges, for which variety it is preſerved in gardens.

The fifth ſort was diſcovered firſt by Dr. Tournefort, and afterward by Dr. Sherard, in the Levant, who ſent the ſeeds to ſeveral gardens, where the plants have produced flowers and ſeeds; which having ſcattered in thoſe gardens ſo plentifully, as to become as common as our native ſorts.

The ſixth ſort was formerly ſent from China as a pot-herb, and hath been cultivated in ſome curious gardens in England; though it is not likely to obtain here as an eſculent plant, ſince we have many others which are preferable to it for that purpoſe. This is an annual plant, which will propagate itſelf faſt enough, provided it be permitted to ſcatter its ſeeds, when they ſeldom fail to grow, and are often very troubleſome when they have gotten poſſeſſion of the ground.

The ſeventh ſort grows naturally in Crete; this plant is annual, the ſtalks riſes rather higher than that of our common Mallow, and the branches extend farther, and are in greater plenty; the leaves are angular, and the flowers ſtand on ſhort foot-ſtalks. This will be very common, provided the ſeeds are permitted to ſcatter.

The eighth ſort grows naturally in Peru, from whence the ſeeds were ſent to the Royal Garden at Paris, by Mr. Joſeph de Juſſieu. This is an annual plant, riſing with an upright branching ſtalk near two feet high, garniſhed with broad hairy leaves, having three lobes. The flowers grow in ſpikes from the wings of the ſtalks; they are ſmall, of a pale blue, and ſet very cloſely on the ſpikes. Theſe appear in June, and are ſucceeded by ſeeds, which, if permitted to ſcatter, will come up plentifully the following ſpring without care.

The ninth ſort is the common Vervain Mallow, which is found growing naturally near London. It is a biennial plant; the ſtalks riſe higher than thoſe of the former, the leaves are cut into obtuſe lobes which are indented. The flowers are large, appearing in June and July, and the ſeeds ripen in autumn.

The tenth ſort differs from the ninth, in having taller hairy ſtalks, and the leaves being kidney-ſhaped, and finely cut into narrow ſegments. This grows naturally in the middle counties of England, and about Paris.

The eleventh ſort was ſent from Egypt to the Royal Garden at Paris, and hath ſince been communicated to many other gardens. This is an annual plant, whoſe ſtalks are about a foot long; they are ſmooth, and decline toward the ground. The leaves ſtand upon pretty long foot-ſtalks, they are ſhaped like a hand, having five diviſions which join at their baſe to the foot-ſtalk, and are indented on their ſides. The flowers come out ſingle from the wings of the ſtalk, and at the top in cluſters; they have pretty large acute empalements; the flowers are ſmall, and of a pale blue colour. Theſe appear in June, and the ſeeds ripen in autumn.

The twelfth ſort grows naturally in Spain; this riſes with a ſhrubby woolly ſtalk four or five feet high, ſending out branches on every ſide, garniſhed with angular woolly rough leaves; the foot-ſtalks ariſe from the wings of the leaves, each ſupporting four or five flowers of a bright purple colour, ſhaped like thoſe of the common Mallow, which appear in July, and the ſeeds ripen in autumn. This ſort ſeldom continues more than two or three years, but if the ſeeds are permitted to ſcatter, young plants will come up the following ſpring.

The thirteenth ſort grows naturally in the ſouth of France; this is an annual plant, which has ſome reſemblance of the former, but the ſtalks are longer and more branched; the leaves are cut into five obtuſe lobes almoſt to the bottom, and theſe are deeply cut on their ſide. The flowers ſtand upon very long foot-ſtalks; the empalement of the flower is large, prickly and acute-pointed; the flowers are blue, and larger than thoſe of the other ſort. It flowers and ripens its ſeeds about the ſame time.

The fourteenth ſort grows naturally at the Cape of Good Hope; this riſes with a woody ſtalk ten or twelve feet high, ſending out branches from the ſide the whole length; the ſtalks and branches are cloſely covered with hairs, and are garniſhed with hairy leaves, which are indented on the ſides, ſo as to have the appearance of a trilobate leaf; theſe on the young plants are three inches long and two broad at their baſe, but as the plants grow older, they are ſcarce half that ſize. The flowers come out from the ſide of the branches, upon foot-ſtalks an inch long; they are of a deep red colour, and ſhaped like thoſe of the common Mallow, but are ſmaller. This plant continues flowering great part of the year, which renders it valuable.

There are two other varieties of this plant, which have been mentioned by ſome authors as diſtinct ſpecies. The firſt is, Alcea Africana fruteſcens, groſſulariæ folio ampliore, unguibus florum atro-rubentibus. Act. Phil. 1729. *Shrubby African Vervain Mallow, with a larger Gooſeberry leaf, and the bottoms of the flower of a dark red.* The other is, Alcea Africana fruteſcens, folio groſſulariæ flore parvo rubro. Boerh. Ind. alt. 1. 271. *Shrubby African Vervain Mallow, with a Gooſeberry leaf, and a ſmall red flower.* The leaves of the laſt appear very different from either of the other, being deeply divided into three lobes, which are alſo deeply indented, ſo that any perſon upon ſeeing it would ſuppoſe it to be a different ſpecies; but I have frequently raiſed all theſe, with ſome other intermediate varieties, from the ſeeds of one plant.

This plant is eaſily propagated by ſeeds, which, if ſown in a common border in the ſpring, the plants will come up; but as it is too tender to live abroad in the winter, ſo when the plants are three or four inches high, they ſhould be each planted into a ſeparate pot of light freſh earth, placing them in the ſhade till they have taken freſh root; then they may be removed to a ſheltered ſituation, intermixing them with other hardy exotic plants, where they may remain till autumn; when the froſt comes on they ſhould be removed into the green-houſe, and afterward treated in the ſame way as the hardy plants from the ſame country, always allowing them plenty of free air in mild weather.

The fifteenth ſort grows naturally in moſt of the iſlands in the Weſt-Indies. This is an annual plant, which riſes about a foot high, ſending out a few ſhort branches from the ſide, which are woolly, and garniſhed with heart-ſhaped woolly leaves which are crenated on their edges, and are placed alternately upon pretty long foot-ſtalks. The flowers are produced ſingly from the ſide of the ſtalk, and in a cloſe ſpike at the top; they are ſmall, and of a pale yellow colour. They appear in July, and the ſeeds ripen in autumn.

This is propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring; and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot filled with light freſh earth, and plunged into a new hot-bed, ſhading them until they have taken freſh root; then they muſt have free air admitted to them in proportion to the warmth of the ſeaſon, and the latter end of June they may be placed in the open air in a ſheltered ſituation, where they will flower and produce ripe ſeeds.

The ſeeds of the other ſpecies ſhould be ſown the end of March, upon a bed of freſh light earth, and when the plants are up three or four inches high, they ſhould be tranſplanted where they are deſigned to be continued, allowing them a good diſtance; for if they are planted too cloſe, they do not appear ſo well; but they are beſt when intermixed with other flowers of the ſame growth, where they afford an agreeable variety.

Theſe ſeeds may alſo be ſown in Auguſt, for the plants will endure the greateſt cold of our climate, if placed on a dry ſoil, and will grow larger, and flower ſooner than thoſe ſown in the ſpring; or if the ſeeds are permitted to ſcatter, they will come up as the former ſorts, and thrive equally well.

MALVA ARBOREA. See LAVATERA.

MALVA ROSEA. See ALCEA.

MALUS. The Apple-tree.

The CHARACTERS are,

The empalement of the flower is of one leaf, cut into five ſegments. The flower conſiſts of five leaves, which expand in form of a Roſe, whoſe tails are inſerted into the empalement. The fruit is hollowed about the foot-ſtalk, is for the moſt part roundiſh, and umbellated at the top; it is fleſhy, and divided into five cells or partitions, in each of which is lodged one oblong ſeed.

Dr. Linnæus has joined the Pear, Apple, and Quince together, making them all of the ſame genus, and has reduced all the varieties of each to one ſpecies. The Apple he diſtinguiſhes by the title of Pyrus foliis ſerratis, pomis baſi concavis. Hort. Cliff. i. e. *Pear with ſawed leaves, and the Apple hollow at the baſe.* But where the fruit is admitted as a diſtinguiſhing character of the genus, the Apple ſhould be ſeparated from the Pear, this diſtinction being founded in nature; for theſe fruits will not take by budding or grafting upon each other, though it be performed with the utmoſt care. Indeed I have ſometimes ſucceeded ſo far, as to have the bud or graft of an Apple ſhoot when grafted on a Pear, but they ſoon decayed, notwithſtanding all poſſible care was taken of them; therefore I ſhall beg leave to continue the ſeparation of the Apple from the Pear, as hath been always practiſed by the botaniſts before his time.

The SPECIES are,

1. MALUS (*Sylveſtris*) foliis ovatis ſerratis, caule arboreo. *Apple with oval ſawed leaves, and a tree-like ſtalk.* Malus ſylveſtris, fructu valde acerbo. Tourn. Inſt. R. H. 635. *Wild Apple with a very ſour fruit, commonly called Crab.*
2. MALUS (*Coronaria*) foliis ſerrato-anguloſis. *Apple with angular ſawed leaves.* Malus ſylveſtris Virginiana, floribus odoratis, Cat. Hort. *Wild Crab of Virginia, with a ſweet-ſcented flower.*
3. MALUS (*Pumila*) foliis ovatis ſerratis, caule fruticoſo. *Apple with oval ſawed leaves and a ſhrubby ſtalk.* Malus

pumila quæ potiùs frutex quam arbor. C. B. P. 433. *Dwarf Apple, which is rather a ſhrub than a tree, commonly called Paradiſe Apple.*

Of the firſt ſort there are two varieties of fruit, one is white, and the other purple toward the ſun, but theſe are accidental variations. There is alſo a variety of this with variegated leaves, which has been propagated in ſome of the nurſeries near London; but when the trees grow vigorous, their leaves ſoon become plain.

The ſecond ſort grows naturally in moſt parts of North America, where the inhabitants plant them for ſtocks to graft other ſorts of Apples upon; the leaves of this are longer and narrower than any of the other ſorts, and are cut into two acute angles on their ſides. The flowers of this have a fragrant odour, which perfumes the American woods at the time they appear.

The third ſort is undoubtedly a diſtinct ſpecies from all the others, for it never riſes to any height; the branches are weak, ſcarce able to ſupport themſelves, and this difference is permanent when raiſed from ſeeds.

I have not diſtinguiſhed the Apples from the Crab, as diſtinct ſpecies, though I have never ſeen any Apples produced from the ſeeds of Crabs. I ſhall next mention a few of thoſe ſorts of Apples which have been introduced from France, which were moſt of them grafted on Paradiſe ſtocks, ſo were for ſome time much eſteemed, and ſhall mention thoſe of our own growth afterward.

There is alſo a ſort of Apple, called the Fig Apple, which is common to England and North America, but the fruit is not greatly eſteemed; however, as ſome perſons are fond of variety, ſo I have mentioned it.

Pomme de Rambour. The Rambour is a very large fruit, of a fine red next the ſun, and ſtriped with a pale or yellowiſh green. This ripens very early, commonly about the end of Auguſt, and ſoon grows mealy, therefore is not eſteemed in England.

Pomme de Courpendu, the hanging body. This is a very large Apple, of an oblong figure, having ſome irregular riſing or angles, which run from the baſe to the crown; it is of a red caſt on the ſide toward the ſun, but pale on the other ſide; the foot-ſtalk is long and ſlender, ſo that the fruit is always hanging downward, which occaſioned the French gardeners to give it this name.

The Rennette-blanche, or White Renette, or French Rennette. This is a large fine fruit, of a roundiſh figure, and of a pale green, changing a little yellowiſh when ripe, having ſome ſmall gray ſpots; the juice is ſugary, and it is good for eating or baking; it will keep till after Chriſtmas ſound.

The Rennette-griſe. This is a middle ſized fruit, ſhaped like the Golden Rennette, but is of a deep gray colour on the ſide next the ſun, but on the other ſide intermixed with yellow; it is a very juicy good Apple, of a quick flavour. It ripens in October, and will not keep long.

Pomme d'Api. This is a ſmall hard fruit, of a bright purple colour on the ſide next the ſun, and of a yellowiſh green on the other ſide; it is a very firm fruit, but hath not much flavour, ſo is only preſerved by ſome perſons by way of curioſity. It keeps a long time ſound, and makes a variety in a diſh of fruit.

Le Calville d'Automne, the Autumn Calville. This is a large fruit of an oblong figure, of a fine red colour toward the ſun. The juice is vinous, and much eſteemed by the French.

Fenouillat ou Pomme d'Anis, the Fennel, or Aniſe Apple. This is a middle ſized fruit, a little longer than a Golden Pippin, of a grayiſh colour. The pulp is tender, and has a ſpicy taſte like Aniſe-ſeed; the wood and the leaves are whitiſh.

Pomme Violette, the Violet Apple. This is a pretty large fruit, of a pale green, ſtriped with deep red to the ſun. The juice is ſugary, and has a flavour of Violets, which occaſioned the name.

The Crab, which is the firſt ſort here mentioned, has been generally eſteemed as the beſt ſtock for grafting Apples upon, being very hardy, and of long duration; but of late years there have been few perſons who have been curious enough to raiſe theſe ſtocks, having commonly ſown the kernels of all ſorts of cyder Apples for ſtocks without diſtinction, as theſe are much eaſier to procure than the other; ſo the gardeners generally call all thoſe Crabs, which are produced from the kernels of any ſort of Apple which has not been grafted; but were the kernels of the Crabs ſown, I ſhould prefer thoſe for ſtocks, becauſe they are never ſo luxuriant in their growth as thoſe from Apple kernels, and they will continue longer ſound; beſide, theſe will preſerve ſome of the beſt ſort of Apples in their true ſize, colour, and flavour; whereas the other free ſtocks produce larger fruit, which are not ſo well taſted, nor will they keep ſo long.

The Paradiſe Apple for ſome years paſt was greatly eſteemed for ſtocks, to graft or bud the other ſorts upon; but theſe are not of long duration, nor will the trees grafted upon them ever grow to any ſize, unleſs they are planted ſo low as that the cion may ſtrike root into the ground, when it will be equal to no ſtock; for as the graft will draw its nouriſhment from the ground, ſo the ſtocks will become uſeleſs after; therefore it is only by way of curioſity, or for very ſmall gardens, that theſe ſtocks are proper, ſince there can never be expected any conſiderable quantity of fruit from ſuch trees.

Theſe trees have been much more eſteemed in France, where they were frequently brought to the table in the pots, growing with their fruit upon them; but this being only a curioſity, it never obtained much in England, ſo that the gardeners do not propagate many of them here at preſent.

There is another Apple, which is called the Dutch Paradiſe Apple, much cultivated in the nurſeries for grafting Apples upon, in order to have them dwarfs; and theſe will not decay or canker as the other, nor do they ſtint the grafts near ſo much, ſo are generally preferred for planting eſpaliers or dwarfs, being eaſily kept within the compaſs uſually allotted to theſe trees.

Some perſons have alſo made uſe of the Codlin ſtocks to graft Apples upon, in order to make them dwarf; but the fruit which are produced on ſuch trees are not ſo firm, nor do they laſt near ſo long as thoſe upon Crab ſtocks; therefore the winter fruits ſhould never be grafted upon them.

The Virginian Crab-tree with ſweet flowers, is often preſerved by ſuch perſons as are curious in collecting great variety of trees; it may be propagated by budding or grafting it upon the common Crab or Apple-tree, but it is ſomewhat tender while young; wherefore it ſhould be planted in a warm ſituation, otherwiſe it will be ſubject to ſuffer by an extreme hard winter. The flowers of this tree are ſaid to be exceeding ſweet in Virginia, where it grows in the woods in great plenty; but I could not obſerve much ſcent in ſome of them which have flowered in England, ſo that I am in doubt whether the ſort at preſent in the gardens is the very ſame with that of Virginia; or perhaps it may have degenerated by ſowing the ſeeds, which is the way it was firſt obtained in England.

The Fig Apple is ſuppoſed by many perſons to be produced without a previous flower. But this opinion is rejected by more curious obſervers, who affirm, there is a ſmall flower precedes the fruit, which is very fugacious, ſeldom continuing above a day or two. Now, which of theſe opinions is the right, I have not, as yet, had an opportunity to determine, not having a tree in my own poſſeſſion which is arrived at maturity to produce fruit; though it might reaſonably be expected, that ſuch who have had trees of this kind ſeveral years, might have determined this point long before this time.

I remember an account of a tree of this kind, mentioned in a letter from New England, written by Paul Dudley, Eſq; to the Royal Society, and publiſhed in the Philoſophical Tranſactions, N° 385. which was exceeding large, and produced great quantities of fruit, without any previous flowers; but it grew at ſome diſtance from his habitation, and he having no other opportunity to obſerve it ſtrictly himſelf, but by viſiting the place two or three times about the ſeaſon of flowering, and not being apprized of the ſudden decay of the flowers, they might eaſily be ſuppoſed to have appeared and dropped off, between the times of his viſiting the place.

The other ſorts which are above-mentioned, are what have been introduced from France, but there are not above two or three of them, which are much eſteemed in England, viz. the French Rennette, the Rennette-griſe, and the Violet Apple; the other being early fruit, which do not keep long, and their fleſh is generally meally, ſo they do not deſerve to be propagated, as we have many better fruits in England: but as there may be ſome perſons who are willing to have all the ſorts, I have mentioned them here for their inſtruction; but I ſhall next put down thoſe ſorts of Apples which are beſt eſteemed in England, placing them in the order according to their time of ripening.

The firſt Apple which is brought to the markets, is the Codlin. This fruit is ſo well known in England, that it is needleſs to deſcribe it.

The next is the Margaret Apple: this fruit is not ſo long as the Codlin, of a middling ſize; the ſide next the ſun changes to a faint red, when ripe; the other ſide is of a pale green; the fruit is firm, of a quick pleaſant taſte, but doth not keep long.

The Summer Pearmain is an oblong fruit, ſtriped with red next the ſun; the fleſh is ſoft, and in a ſhort time is meally, ſo that it is not greatly eſteemed.

The Kentiſh Fill Baſket is a ſpecies of Codlin, of a large ſize, and ſomewhat longer ſhaped than the Codlin; this ripens a little later in the ſeaſon, and is generally uſed for baking, &c.

The Tranſparent Apple: this was brought to England a few years ſince, and was eſteemed a curioſity; it came from Peterſburgh, where it is affirmed to be ſo tranſparent, as that the kernels may be perfectly ſeen, when the Apple is held to the light; but, in this country, it is a meally inſipid fruit, ſo not worth propagating.

Loan's Pearmain: this is a beautiful fruit, being of a middling ſize; the ſide next the ſun is of a beautiful red, and ſtriped with the ſame colour on the other; the fleſh is vinous, but as it ſoon grows meally, it is not greatly eſteemed.

The Quince Apple: this is a ſmall fruit, ſeldom larger than the Golden Pippin, but is in ſhape like the Quince, eſpecially toward the ſtalk; the ſide next the ſun is of a ruſſet colour, on the other ſide inclining to yellow: this is an excellent Apple for about three weeks in September, but will not keep much longer.

The Golden Renette is a fruit ſo well known in England, as to need no deſcription; this ripens about Michaelmas, and for about a month is a very good fruit, either for eating raw or baking.

The Aromatic Pippin is alſo a very good Apple: it is about the ſize of a Nonpareil, but not ſo flat, it is a little longer; the ſide next the ſun is of a bright ruſſet colour; the fleſh is breaking, and hath an aromatic flavour. It ripens in October.

The Hertfordſhire Pearmain, by ſome called the Winter Pearmain: this is a good ſized fruit, rather long than round, of a fine red next the ſun, and ſtriped with the ſame colour on the other ſide; the fleſh is juicy, and ſtews well, but is not eſteemed for eating by any nice palates. This is fit for uſe in November and December.

The Kentiſh Pippin is a large handſome fruit, of an oblong figure; the ſkin is of a pale green colour; the fleſh is breaking, and full of juice, which is of a quick acid flavour. This is a very good kitchen fruit, and will keep till February.

The Holland Pippin is larger than the former; the fruit is ſomewhat longer, the ſkin of a darker green, and the fleſh firm and juicy. This is a very good kitchen fruit, and will keep late in the ſeaſon.

The Monſtrous Renette is a very large Apple, of an oblong ſhape, turning red toward the ſun, but of a dark green on the other ſide; the fleſh is apt to be meally, ſo it is not much valued by thoſe who are curious, and only preſerved for the magnitude of the fruit.

The Embroidered Apple is a pretty large fruit, ſomewhat ſhaped like the Pearmain, but the ſtripes of red are very broad, from whence the gardeners have given it this title: it is a middling fruit, and is commonly uſed as a kitchen Apple, though there are many better.

The Royal Ruſſet, by ſome called the Leather Coat Ruſſet, on account of the deep ruſſet colour of the ſkin; this is a large fair fruit, of an oblong figure, broad toward the baſe; the fleſh is inclinable to yellow. This is one of the beſt kitchen Apples we have, and is a very great bearer: the trees grow large and handſome, and the fruit is in uſe from October till April, and is alſo a pleaſant fruit to eat.

Wheeler's Ruſſet is an Apple of a middling ſize, flat, and round; the ſtalk is ſlender, the ſide next the ſun of a light ruſſet colour, and the other ſide inclining to a pale yellow, when ripe; the fleſh is firm, and the juice has a very quick acid flavour, but is an excellent kitchen fruit, and will keep a long time.

Pile's Ruſſet is not quite ſo large as the former, but is of an oval figure, of a ruſſet colour to the ſun, and of a dark green on the other ſide; it is a very firm fruit, of a ſharp acid flavour, but is much eſteemed for baking, and will keep ſound till April, or later, if they are well preſerved.

The Nonpareil is a fruit pretty generally known in England, though there is another Apple which is frequently ſold in the markets for it, which is what the French call Haute-bonne; this is a larger fairer fruit than the Nonpariel, more inclining to the yellow; the ruſſet colour brighter, and it is earlier ripe, and ſooner gone; this is not ſo flat as the true Nonpareil, nor is the juice ſo ſharp, though it is a good Apple in its ſeaſon; but the Nonpareil is ſeldom ripe before Chriſtmas, and where they are well preſerved they will keep till May perfectly ſound; this is juſtly eſteemed one of the beſt Apples that have been yet known.

The Golden Pippin is a fruit almoſt peculiar to England; there are few countries abroad where this ſucceeds well, nor do they produce ſo good fruit in many parts of England as were to be wiſhed; which, in ſome meaſure, is owing to their being grafted on free ſtocks, which enlarges the fruit, but renders it leſs valuable, becauſe the fleſh is not ſo firm, nor the flavour ſo quick, ſo is apt to be dry and meally; therefore this ſhould always be grafted upon the Crab ſtock, which will not canker like the others, and though the fruit will not be ſo fair to the ſight, yet it will be better flavoured and keep longer.

There are yet a great variety of Apples, which, being inferior to thoſe here mentioned, I have omitted, as thoſe which are here enumerated will be ſufficient to furniſh the table and the kitchen, during the whole ſeaſon of theſe fruits; ſo that where theſe ſorts can be had, no perſon of taſte will eat the other.

I ſhall here mention ſome of the Apples which are chiefly preferred for the making of cyder, tho' there are in every cyder country, new ſorts frequently obtained from the kernels; but thoſe hereafter mentioned, have, for ſome years, been in the greateſt eſteem.

The Red-ſtreak.
Devonſhire Royal Wilding.
The Whitſour.
Herefordſhire Under Leaf.
John Apple, or Deux-annes.
Everlaſting Hanger.
Gennet Moyle.

All the ſorts of Apples are propagated by grafting or budding upon the ſtocks of the ſame kind, for they will not take upon any other ſort of fruit tree. In the nurſeries there are three ſort of ſtocks generally uſed to graft Apples upon; the firſt are called free ſtocks; theſe are raiſed from the kernels of all ſorts of Apples indifferently, and ſometimes they are alſo termed Crab ſtocks; for all thoſe trees which are produced from the ſeeds before they are grafted, are termed Crabs without any diſtinction; but, as I have before obſerved, I ſhould always prefer ſuch ſtocks as are raiſed from the kernels of Crabs, where they are preſſed for verjuice; and I find ſeveral of the old writers on this ſubject of the ſame mind. Mr. Auſten, who wrote above a hundred years ago, ſays, "The "ſtock which he accounts beſt for Apple grafts is "the Crab, which is better than ſweeter Apple-trees "to graft on, becauſe they are uſually free from "canker, and will become very large trees; and, I "conceive, will laſt longer than ſtocks of ſweeter "Apples, and will make fruits more ſtrong and hardy "to endure froſt;" and it is very certain, that by frequently grafting ſome ſorts of Apples upon free ſtocks, the fruits have been rendered leſs firm and poignant, and of ſhorter duration.

The ſecond ſort of ſtock is the Dutch Creeper, before-mentioned; theſe are deſigned to ſtint the growth of the trees, and keep them within compaſs for dwarfs or eſpaliers.

The third ſort is the Paradiſe Apple, which is a very low ſhrub, ſo only proper for trees which are kept in pots, by way of curioſity, for theſe do not continue long.

Some perſons have made uſe of Codlin ſtocks for grafting of Apples, in order to ſtint their growth; but as theſe are commonly propagated by ſuckers, I would by no means adviſe the uſing of them; nor would I chuſe to raiſe the Codlin-trees from ſuckers, but rather graft them upon Crab ſtocks, which will cauſe the fruit to be firmer, laſt longer, and have a ſharper flavour; and theſe trees will laſt much longer ſound, and never put out ſuckers, as the Codlins always do, which, if not conſtantly taken off, will weaken the trees, and cauſe them to canker: and it is not only from the roots, but from the knots of their ſtems, there are generally a great number of ſtrong ſhoots produced, which fill the trees with uſeleſs ſhoots, and render them unſightly, and the fruit ſmall and crumpled.

The method of raiſing ſtocks from the kernels of Crabs, or Apples, is, to procure them where they are preſſed for verjuice or cyder, and after they are cleared of the pulp, they may be ſown upon a bed of light earth, covering them over about half an inch thick with the ſame light earth; theſe may be ſown in November or December, where the ground is dry, but in wet ground, it will be better to defer it till February; but then the ſeeds ſhould be preſerved in dry ſand, and kept out of the reach of vermin, for if mice or rats can get at them, they will devour the ſeeds; there ſhould alſo be care taken of the ſeeds, when they are ſown, to protect them from theſe vermin, by ſetting traps to take them, &c. In the ſpring, when the plants begin to appear, they muſt be carefully weeded, and if the ſeaſon ſhould prove dry, it will be of great ſervice to water them two or three times a week; and, during the ſummer, they muſt be kept clean from weeds, which, if ſuffered to grow, will ſoon over-top the plants, and ſpoil their growth; if theſe thrive well, they will be fit to tranſplant into the nurſery the October following, at which time the ground ſhould be carefully digged, and cleanſed from the roots of all bad weeds; then the ſtocks ſhould be planted in rows three feet aſunder, and the plants one foot diſtance in the rows, cloſing the earth pretty faſt to their roots; when the ſtocks are tranſplanted out of the ſeed-bed, the firſt autumn after ſowing, they need not be headed, but where they are inclined to ſhoot downward, the tap root muſt be ſhortened, in order to force out horizontal roots; if the ground is pretty good in which theſe ſtocks are planted, and the weeds conſtantly cleared away, the ſtocks will make great progreſs, ſo that thoſe which are intended for dwarfs, may be grafted the ſpring twelve months after they are planted out of the ſeed-bed; but thoſe which are deſigned for ſtandards will require two or three years more growth, before they will be fit to graft, by which time they will be upward of ſix feet high. The other neceſſary work to be obſerved in the culture of theſe trees, while they remain in the nurſery, being exhibited under the article of NURSERY, I ſhall not repeat in this place.

I ſhall next treat of the manner of planting ſuch of theſe trees, as are deſigned for eſpaliers in the kitchen-garden, where, if there is an extent of ground, it will be proper to plant, not only ſuch ſorts as are for the uſe of the table, but alſo a quantity of trees to ſupply the kitchen; but where the kitchen-garden is ſmall, the latter muſt be ſupplied from ſtandard-trees, either from the orchard, or wherever they are planted; but as many of theſe kitchen Apples are large, and hang late in the autumn upon the trees, they will be much more expoſed to the ſtrong winds on ſtandard trees than in eſpaliers, whereby many of the fruit will be blown down before they are ripe, and others bruiſed, ſo as to prevent their keeping; therefore where it can be done, I ſhould always prefer the planting them in eſpaliers.

The diſtance which I ſhould chuſe to allow theſe trees, ſhould not be leſs than thirty feet, for ſuch ſorts as are of moderate growth (if upon Crab or free ſtocks:) but the larger growing ſorts ſhould not be allowed leſs room than thirty-five or forty feet, which will be found full near enough, if the ground is good, and the trees properly trained; for as the branches of theſe trees ſhould not be ſhortened, but trained at their full length, ſo in a few years they will be found to meet. Indeed, at the firſt planting, the diſtance will appear ſo great to thoſe perſons who have not obſerved the vigorous growth of theſe trees, that they will ſuppoſe they never can extend their branches ſo far, as to cover the eſpalier; but if theſe perſons will but obſerve the growth of ſtandard-trees of the ſame kinds, and ſee how wide their branches are extended on every ſide, they may be ſoon convinced, that as theſe eſpalier-trees are allowed to ſpread but on two ſides, they will of courſe make more progreſs, as the whole nouriſhment of the root will be employed in theſe ſide branches, than where there is a greater number of branches on every ſide of the tree, which are to be ſupplied with the ſame nouriſhment.

The next thing to be obſerved is the making choice of ſuch ſorts of fruits as grow nearly alike, to plant in the ſame eſpalier. This is of great conſequence, becauſe of the diſtance they are to be placed, otherwiſe thoſe ſorts which make the largeſt ſhoots, may be allowed leſs room to ſpread than thoſe of ſmaller growth; beſide, when all the trees in one eſpalier are nearly equal in growth, they will have a better appearance than when ſome are tall, and others ſhort; but for the better inſtruction of thoſe perſons who are not converſant in theſe things, I ſhall divide the ſorts of Apples into three claſſes according to their different growths.

Largeſt growing tree.	Middle growing tree.	Smalleſt growing tree.
All the ſorts of Pearmains.	Margaret Apple.	Quince Apple.
Kentiſh Pippin.	Golden Renette.	Tranſparent Apple.
Holland Pippin.	Aromatic Pippin.	Golden Pippin.
Monſtrous Renette.	Embroidered Apple.	Pomme d'Api.
Royal Ruſſet.	Renette Griſe.	Fenouillet, or Anis Apple.
Wheeler's Ruſſet.	White Renette.	
Pile's Ruſſet.	Codlin.	
Nonpareil.		
Violet Apple.		

N. B. Theſe are all ſuppoſed to be grafted on the ſame ſort of ſtocks.

If theſe Apples are grafted upon Crab ſtocks, I would willingly place them at the following diſtance from each other, eſpecially where the ſoil is good, viz. the largeſt growing trees at forty feet, the middle growing at thirty feet, and the ſmall growing at twenty-five feet, which, from conſtant experience, I find to be full near enough; for in many places, where I have planted theſe trees at twenty-four feet diſtance, they have ſhot ſo ſtrong, as that in ſeven years their branches have met; and in ſome places where every other tree hath been taken up, the branches have almoſt joined in ſeven years after; therefore it will be much the better way to plant theſe trees at a proper diſtance at firſt, and between theſe to plant ſome Dwarf Cherries, Currants, or other ſorts of fruit, to bear for a few years, which may be cut away when the Apple-trees have extended their branches to them; for when the Apple-trees are planted nearer together, few perſons care to cut down the trees, when they are fruitful, ſo that they are obliged to uſe the knife, ſaw, and chiſel, more than is proper for the future good of the trees; and many times, where perſons are inclinable to take away part of their trees, the diſtances will be often ſo irregular (where there was not this conſideration in their firſt planting,) as to render the eſpalier unſightly.

When the trees are upon the Dutch Dwarf ſtock, the diſtance ſhould be for the larger growing trees thirty feet, for thoſe of middle growth twenty-five, and the ſmalleſt twenty feet, which will be found full near where the trees thrive well.

The next is the choice of the trees, which ſhould not be more than two years growth from the graft, but thoſe of one year ſhould be preferred; you ſhould alſo be careful, that their ſtocks are young, ſound, and ſmooth, free from canker, and which have not been cut down once or twice in the nurſery; when they are taken up, all the ſmall fibres ſhould be entirely cut off from their roots, which, if left on, will turn mouldy and decay, ſo will obſtruct the new fibres, which will ſoon puſh out, in their growth; the extreme part of the roots muſt alſo be ſhortened, and all bruiſed roots cut off; and if there are any miſplaced roots which croſs each other, they ſhould alſo be cut away. As to the pruning of the head of theſe trees, there need be nothing more done than to cut off any branches which are ſo ſituated, as that they cannot be trained to the line of the eſpalier: in the planting, there muſt be care taken not to place their roots too deep in the ground, eſpecially if the ſoil is moiſt, but rather raiſe them on a little hill, which will be neceſſary to allow for the raiſing of the borders afterward. The beſt ſeaſon for planting theſe trees (in all ſoils which are not very moiſt) is, from October, to the middle or latter end of November, according as the ſeaſon continues mild; but ſo ſoon as the leaves fall, they may be removed with great ſafety. After the trees are planted, it will be proper to place down a ſtake to each tree, to which the branches ſhould be faſtened, to prevent the winds from ſhaking or looſening their roots, which will deſtroy the young fibres; for when theſe trees are planted pretty early in autumn, they will very ſoon puſh out a great number of new fibres, which, being very tender, are ſoon broken, by the wind ſhaking of the trees, whereby they are greatly injured. If the winter ſhould prove ſevere, it will be proper to lay ſome rotten dung, tanners bark, or ſome other ſort of mulch about their roots, to prevent the froſt from penetrating of the ground, which might damage theſe tender fibres; but I would not adviſe the laying of this mulch before the froſt begins, for if it is laid over the ſurface of the ground about their roots, ſoon after the trees are planted (as is often practiſed,) it will prevent the moiſture entering the ground, and do much more harm than good to the trees.

The following ſpring, before the trees begin to puſh, there ſhould be two or three ſhort ſtakes put down on each ſide every tree, to which the branches ſhould be faſtened down as horizontally as poſſible, never cutting them down, as is by ſome practiſed, for there will be no danger of their putting out branches enough to furniſh the eſpalier, if the trees are once well eſtabliſhed in their new quarters.

In the pruning of theſe trees, the chief point is, never to ſhorten any of the branches, unleſs there is an abſolute want of ſhoots to fill the ſpaces of the eſpalier; for where the knife is much uſed, it only multiplies uſeleſs ſhoots, and prevents their fruiting; ſo that the beſt method to manage theſe trees is, to go over them three or four times in the growing ſeaſon, and rub off all ſuch ſhoots as are irregularly produced, and train the others down to the ſtakes in the poſition they are to remain: if this is carefully performed in ſummer, there will be little left to be done in the winter, and by bending of their ſhoots from time to time, as they are produced, there will be no occaſion to uſe force to bring them down, nor any danger of breaking the branches. The diſtance which theſe branches ſhould be trained from each other, for the largeſt ſorts of fruits ſhould be about ſeven or eight inches, and for the ſmaller four or five. If theſe plain inſtructions are followed, it will ſave much unneceſſary labour of pruning, and the trees will, at all times, make a handſome appearance; whereas when they are ſuffered to grow rude in ſummer, there will be much greater difficulty to bring down their ſhoots, eſpecially if they are grown ſtubborn, when it may become neceſſary to ſlit the branches to make them pliable. All the ſorts of Apples produce their fruit upon curſons, or ſpurs, ſo that theſe ſhould never be cut off, for they will continue fruitful a great number of years.

The method of making the eſpaliers having been already exhibited under that article, I need not repeat it here, but only obſerve, that it will be beſt to defer making the eſpalier till the trees have had three or four years growth; for before that time, the branches may be ſupported by a few upright ſtakes, ſo that there will be no neceſſity to make the eſpalier, until there are ſufficient branches to furniſh all the lower part.

I ſhall now treat of the method to plant orchards, ſo as to have them produce the greateſt profit. And firſt, in the choice of the ſoil and ſituation for an orchard: the beſt ſituation for an orchard is, on the aſcent of the gentle hills, facing the ſouth, or ſouth-eaſt; but this aſcent muſt not be too ſteep, leſt the earth ſhould be waſhed down by haſty rains. There are many perſons who prefer low ſituations at the foot of hills, but I am thoroughly convinced from experience, that all bottoms where there are hills on each ſide, are very improper for this purpoſe; for the air is drawn down into theſe vallies in ſtrong currents, which, being pent in renders theſe bottoms much colder than the open ſituations; and during the winter and ſpring, theſe bottoms are very damp and unhealthy to all vegetables; therefore the gentle riſe of a hill, fully expoſed to the ſun and air, is by much the beſt ſituation. As to the ſoil, a gentle hazel loam, which is eaſy to work, and that doth not detain the wet, is the beſt; if this happens to be three feet deep, it will be better for the growth of the trees, for although theſe trees will grow upon very ſtrong land, yet they are ſeldom ſo thriving, nor are their fruit ſo well flavoured, as thoſe which grow on a gentle ſoil; and on the other hand, theſe trees will not do well upon a very dry gravel or ſand, therefore thoſe ſoils ſhould never be made choice of for orchards.

The ground intended to be planted ſhould be well prepared the year before, by ploughing it thoroughly, and if ſome dung is laid upon it the year before, it will be of great ſervice to the trees; if in the preceding ſpring a crop of Peas or Beans is planted on the ground (provided they are ſown or planted in rows, at a proper diſtance, ſo as that the ground between them is horſe-hoed,) it will deſtroy the weeds, and looſen the ground, ſo that it will be a good preparation for the trees, for the earth cannot be too much wrought, or pulveriſed for this purpoſe: theſe crops will be taken off the ground long before the ſeaſon for planting of theſe trees, which ſhould be as ſoon as poſſible performed when the trees begin to ſhed their leaves.

In chuſing of the trees, I would adviſe the taking ſuch as are but of two years growth from the graft, and never to plant old trees, or ſuch as are grafted upon old ſtocks, for it is loſing of time to plant theſe; young trees being always more certain to grow, and make a much greater progreſs than thoſe which are old. As to pruning of the roots, it muſt be done in the ſame manner as hath been already directed for the eſpalier-trees; and in pruning their heads, little more is neceſſary than to cut out ſuch branches as are ill placed, or that croſs each other; for I do not approve the heading of them down, as is by ſome often practiſed to the loſs of many of their trees.

The diſtance which theſe trees ſhould be planted, where the ſoil is good, muſt be fifty or ſixty feet; and where the ſoil is not ſo good, forty feet may be ſufficient; but nothing can be of worſe conſequence, than the crowding trees too cloſe together in orchards. And although there may be ſome who may imagine this diſtance too great, yet I am ſure, when they have thoroughly conſidered the advantages attending this practice, they will agree with me. Nor is it my own opinion in this affair, for in many of the old writers on this ſubject, there is often mention made of the neceſſity for allowing a proper diſtance to the fruit-trees in orchards, particularly Auſten, upon planting before quoted, who ſays, "He ſhould chuſe to preſcribe the planting theſe trees fourteen or ſixteen yards aſunder; for both trees and fruits have many great advantages, if planted a good diſtance one from another." One advantage he mentions is, "The ſun refreſhes every tree, the roots, body, and branches, with the bloſſoms and fruits; whereby trees bring forth more fruit, and thoſe fairer and better." Another advantage he mentions is, "That when trees are planted at a large diſtance, much profit may be made of the ground under and about theſe trees, by cultivating garden-ſtuff, commodious as well for ſale as houſekeeping; as alſo Gooſeberries, Raſpberries, Currants, and Strawberries, may be there planted." Again he ſays, "When trees have room to ſpread, they will grow very large and great; and the conſequences of that will be, not only multitudes of fruits, but alſo long laſting, and theſe two are no ſmall advantages." For, ſays he, "Men are miſtaken, when they ſay, the more trees in an orchard, the more fruits; for one or two large trees which have room to ſpread, will bear more fruits than ſix or ten (it may be) of thoſe that grow near together, and crowd one another." Again he ſays, "Let men but obſerve, and take notice of ſome Apple-trees, that grow a great diſtance from other trees, and have room enough to ſpread both their roots and branches, and they ſhall ſee, that one of thoſe trees (being come to full growth) hath a larger head, and more boughs and branches, than (it may be) four, or ſix, or more, of thoſe which grow near together, although of the ſame age."

And Mr. Lawſon, an ancient planter, adviſes to plant Apple-trees twenty yards aſunder. As the two authors above quoted have written the beſt upon this ſubject, and ſeem to have had more experience than any of the writers I have yet ſeen, I have made uſe of them as authorities to confirm what I have advanced; though the fact is ſo obvious to every perſon who will make the leaſt reflection, that there needs no other proof.

When the trees are planted, they ſhould be ſtaked, to prevent their being ſhaken, or blown out of the ground by ſtrong winds; but in doing of this, there ſhould be particular care taken, to put either ſtraw, haybands, or woollen cloth, between the trees and the ſtakes, to prevent the trees from being rubbed and bruiſed, by the ſhaking againſt the ſtakes, for if their bark ſhould be rubbed off, it will occaſion ſuch great wounds, as not to be healed over in ſeveral years, if they ever recover it.

If the winter ſhould prove very ſevere, it will be proper to cover the ſurface of the ground about their roots with ſome mulch, to prevent the froſt from penetrating the ground, which will deſtroy the young fibres; but this mulch ſhould not be laid on too ſoon, as hath been before mentioned, leſt the moiſture ſhould be prevented from ſoaking down to the roots of the trees, nor ſhould it lie on too long in the ſpring for the ſame reaſon; therefore where perſons will be at the trouble to lay it on in froſty weather, and remove it again after the froſt is over, that the wet in February may have free acceſs to the roots of the trees; and if March ſhould prove dry, with ſharp north or eaſt winds, which often happens, it will be proper to cover the ground again with the mulch, to prevent the winds from penetrating and drying the ground, and will be of ſingular ſervice to the trees. But I am aware, that this will be objected to by many, on account of the trouble, which may appear to be great; but when it is conſidered, how much of this buſineſs may be done by a ſingle perſon in a ſhort time, it can have little force, and the benefit which the trees will receive by this management, will greatly recompenſe the trouble and expence.

As theſe trees muſt be conſtantly fenced from cattle, it will be the beſt way to keep the land in tillage for ſome years, that by conſtant ploughing or digging of the ground, the roots of the trees will be more encouraged, and they will make the more progreſs in their growth; but where this is done, whatever crops are ſown or planted, ſhould not be too near the trees, leſt the nouriſhment ſhould be drawn away from the trees; and as in the ploughing of the ground where it is ſo tilled, there muſt be care taken not to go too near the ſtem of the trees, whereby their roots would be injured, or the bark of their ſtems rubbed off, ſo it will be of great ſervice to dig the ground about the trees where the plough doth not come, every autumn, for five or ſix years after planting, by which time their roots will have extended themſelves to a greater diſtance.

It is a common practice in many parts of England, to lay the ground down for paſture, after the trees are grown pretty large in their orchards; but this is by no means adviſeable, for I have frequently ſeen trees of above twenty years growth, almoſt deſtroyed by horſes, in the compaſs of one week; and if ſheep are put into orchards, they will conſtantly rub their bodies againſt the ſtems of the trees, and their greaſe ſticking to the bark, will ſtint their growth, and in time will ſpoil them; therefore wherever orchards are planted, it will be much the better method to keep the ground ploughed or dug annually, and ſuch crops put on the ground as will not draw too much nouriſhment from the trees.

In pruning of orchard-trees, nothing more ſhould be done, but to cut out all thoſe branches which croſs each other, and, if left, would rub and tear off the bark, as alſo decayed branches, but never ſhorten any of their ſhoots. If ſuckers, or ſhoots from their ſtems, ſhould come out, they muſt be entirely taken off annually; and when any branches are broken by the wind, they ſhould be cut off, either down to the diviſion of the branch, or cloſe to the ſtem from whence it was produced; the beſt time for this work is in November, for it ſhould not be done in froſty weather, nor in the ſpring, when the ſap begins to be in motion.

The beſt method to keep Apples for winter uſe is, to let them hang upon the trees until there is danger of froſt, and to gather them in dry weather, laying them in large heaps to ſweat for three weeks or a month; afterward look them over carefully, taking out all ſuch as have appearance of decay, wiping all the ſound fruit dry, and pack them up in large oil-jars, which have been thoroughly ſcalded and dry, ſtopping them down cloſe to exclude the external air: if this is duly obſerved, the fruit will keep ſound a long time, and their fleſh will be plump; for when they are expoſed to the air, their ſkins will ſhrink, and their pulp will be ſoft.

MALUS ARMENIACA. See ARMENIACA.

MALUS AURANTIA. See AURANTIA.

MALUS LIMONIA. See LIMONIA.

MALUS MEDICA. See CITREUM.

MALUS PERSICA. See PERSICA.

MALUS PUNICA. See PUNICA.

MAMMEA. Plum. Nov. Gen. 44. tab. 4. Lin. Gen. Plant. 583. The Mammee-tree.

The CHARACTERS are,

The empalement of the flower is compoſed of two ſmall, oval, concave leaves, which fall off. The flower has four large concave petals, which ſpread open. It hath many awl-ſhaped ſtamina, terminated by roundiſh ſummits, and in the center a roundiſh germen, with a conical ſtyle the length of the ſtamina, crowned by a ſingle permanent ſtigma. The germen afterward turns to a large fleſhy fruit, of a ſpherical figure, incloſing one, two, or three large almoſt oval ſtones.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, intitled Polyandria Monogynia, which includes the plants whoſe flowers have many ſtamina and one ſtyle.

There is but one SPECIES of this tree known in the Engliſh gardens, viz.

MAMMEA ſtaminibus flore brevioribus. *Mammee with the ſtamina ſhorter than the flower.* Mammea magno fructu, perſicæ ſapore. Plum. Nov. Gen. 44. *Mammee with a large fruit, having the taſte of a Peach.*

This tree, in the Weſt-Indies, grows to the height of ſixty or ſeventy feet; the leaves are large and ſtiff, and continue green all the year; the fruit is as large as a man's fiſt; when ripe, it is of a yellowiſh green colour, and is very grateful to the taſte. It grows in great plenty in the Spaniſh Weſt-Indies, where the fruit is generally ſold in their markets, and is eſteemed one of the beſt fruits in the country. It alſo grows on the hills of Jamaica, and has been tranſplanted into moſt of the Caribbee Iſlands, where it thrives exceeding well.

In England there are ſome few of theſe plants, which are preſerved with great care by ſuch as are curious in cultivating exotic plants; but there are none of any conſiderable ſize, ſo that we cannot expect to ſee either fruit or flowers for ſome years. Theſe plants may be propagated by planting the ſtones, which are often brought from the Weſt-Indies, (which ſhould be very freſh, otherwiſe they will not grow,) into pots filled with freſh light earth, and plunged into a hot-bed of tanners bark, obſerving to water the earth whenever it appears dry. In about a month or ſix weeks the plants will appear above ground, after which they muſt be frequently refreſhed with water, and in hot weather the glaſſes of the hot-bed ſhould be raiſed to let in freſh air. In two months the roots of the plants will have filled the pots, when you ſhould provide ſome pots of a little larger ſize, into which you ſhould tranſplant the plants, being careful to preſerve as much earth to their roots as poſſible; then you ſhould fill up the pots with freſh light earth, and plunge them into the bark-bed again, obſerving to water and ſhade them until they have taken root, after which they ſhould be conſtantly refreſhed with water as you ſhall find they want it, and muſt have air in hot weather. In this bed they may remain till Michaelmas, when they muſt be removed into the bark-ſtove, where they muſt be conſtantly kept, obſerving to refreſh them with water, but it muſt be given to them ſparingly at this ſeaſon, as alſo to clean their leaves from the filth they are apt to contract in the ſtove; the ſpring following they ſhould be ſhifted into freſh earth, and if they require it, into larger pots, but by no means over-pot them, for they do not produce many roots, therefore if the pots are too large the plants will not thrive; they muſt be conſtantly kept in the bark-ſtove, and may be treated after the manner directed for the Coffee-tree.

If, when the ſtones of this fruit are brought over, they are put into the tan-bed, under the bottom of any of the pots, they will ſprout ſooner than thoſe which are planted in the earth.

MANCANILLA. See HIPPOMANE.

MANDRAGORA. Tourn. Inſt. R. H. 76. tab. 12. Lin. Sp. Plant. 221. Mandrake; in French, *Mandragore.*

The CHARACTERS are,

The empalement of the flower is large, bell-ſhaped, erect, and permanet; it is of one leaf, cut at the top into five acute ſegments. The flower hath one erect bell-ſhaped petal which ſpreads open, and is a little larger than the empalement. It has five awl-ſhaped ſtamina, which are arched and hairy at their baſe. In the center is ſituated a roundiſh germen, ſupporting an awl-ſhaped ſtyle, crowned by a headed ſtigma. The germen afterward turns to a large round berry with two cells, having a fleſhy receptacle convex on each ſide, filled with kidney-ſhaped ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, which contains thoſe plants whoſe flowers have five ſtamina and one ſtyle.

We have but one SPECIES of this genus in the Engliſh gardens, viz.

MANDRAGORA (*Officinarum.*) Hort. Cliff. 51. *The Mandrake.* Mandragora fructu rotundo. C. B. P. 169. *Mandrake with a round fruit.*

This plant grows naturally in Spain, Portugal, Italy, and the Levant, but is preſerved here in the gardens of the curious. It hath a long taper root ſhaped like Parſnep, which runs three or four feet deep in the ground; it is ſometimes ſingle, and at others divided into two or three branches, almoſt of the colour of Parſnep, but a little darker; from this ariſes a circle of leaves, which at firſt ſtand erect, but, when grown to their full ſize, ſpread open, and lie upon the ground; they are more than a foot in length, and four or five inches broad in the middle, growing narrow toward both ends, of a dark green colour, and a fœtid ſcent. Theſe riſe immediately from the crown of the root, without any foot-ſtalk; between them come out the flowers, each ſtanding upon a ſeparate foot-ſtalk about three inches long, which alſo ariſe immediately from the root; they are five-cornered, of an herbaceous white colour, ſpreading open at the top like a Primroſe, having five hairy ſtamina, with a globular germen in the center, ſupporting an awl-ſhaped ſtyle. The germen afterward turns to a globular ſoft berry lying upon the leaves, which, when fully grown, is as large as a Nutmeg, of a yellowiſh green colour when ripe, full of pulp, in which the kidney-ſhaped ſeeds are lodged. It flowers in March, and the ſeeds are ripe in July.

This plant is propagated by ſeeds, which ſhould be ſown upon a bed of light earth ſoon after they are ripe, for if they are kept until the ſpring, they ſeldom ſucceed well; but thoſe which are ſown in autumn will come up in the ſpring, when they ſhould be carefully cleared from weeds; and in very dry weather they muſt be refreſhed with water, which will greatly promote their growth. In this bed they ſhould remain till the latter end of Auguſt, (obſerving always to keep them clear from weeds) at which time they ſhould be taken up very carefully, and tranſplanted into the places where they are to remain; the ſoil ſhould be light and deep, for their roots always run very deep, ſo that if the ſoil is wet, they are often rotted in winter; and if it be too near the gravel or chalk, they will make but little progreſs; but if the ſoil be good and they are not diſturbed, the plants will grow to a large ſize in a few years, and will produce great quantities of flowers and fruit; the roots will abide a great many years.

I have been informed by ſome perſons of credit, that one of theſe roots will remain ſound above fifty years, and be as vigorous as a young plant. I have known ſome plants myſelf near that age, which are now in great vigour, and may continue ſo many years longer, as there are no ſigns of their decay; but they ſhould never be removed after their roots have arrived to any conſiderable ſize, which would break their lower fibres, and ſo ſtint the plants, as that if they live they will not recover their former ſtrength in two or three years. Theſe plants ſhould have a warm ſituation, otherwiſe in ſevere winters they will be deſtroyed.

As to the feigned reſemblance of a human form, which the roots of this plant are ſaid to carry, it is all impoſture, owing to the cunning of quacks and mountebanks, who deceive the populace and the ignorant with fictitious images, ſhaped from the freſh roots of Briony and other plants: and what is reported as to the manner of rooting of this plant, by tying a dog thereto, to prevent the certain death of the perſon who ſhould care to attempt it, and the groans it emits upon the force offered, &c. is all a ridiculous fable; for I have taken up ſeveral large roots of this plant, ſome of which have been tranſplanted into other places, but could never obſerve any particular difference in this from any other deep rooting plant.

MANGIFERA. Lin. Gen. Plant. 278. The Mango-tree.

The CHARACTERS are,

The empalement of the flower is cut into five ſpear-ſhaped ſegments; the flower hath five ſpear-ſhaped petals longer than the empalement, and five awl-ſhaped ſtamina the length of the corolla, crowned with heart-ſhaped ſummits. It hath a roundiſh germen, ſupporting a ſlender ſtyle the length of the empalement, terminated by a ſingle ſtigma; the germen afterward becomes an oblong kidney-ſhaped Plumb ſomewhat compreſſed, incloſing an oblong woolly nut of the ſame form.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

We have but one SPECIES of this genus, viz.

MANGIFERA (*Indica.*) Lin. Sp. 290. *The Mango-tree.* Manga Indica fructu magno reniforma. Raii Hiſt. 1550.

This tree grows naturally in moſt parts of India, as alſo in the Brazils, and ſome other parts of the world, where it becomes a large tree; the wood is brittle, and the bark becomes rough by age; the leaves are ſeven or eight inches long, and two or more broad, terminating in points, having ſeveral tranſverſe veins from the middle rib to the ſides, which are oppoſite. The flowers are produced in looſe panicles toward the end of the branches, each conſiſting of five ſpear-ſhaped petals which ſpread open, having five awl-ſhaped ſtamina the length of the petals, which are ſituated between them; the germen at the bottom of the flower afterward becomes a large oblong kidney-ſhaped Plumb, incloſing a rough nut of the ſame form.

This fruit, when fully ripe, is greatly eſteemed by the inhabitants of thoſe countries where they grow naturally, or have been tranſplanted; but in Europe we have only the unripe fruit brought over in pickle, which is little better than ſeveral other fruit when pickled in the ſame way: however, from the account given of the ripe fruit, by moſt people who have eaten it in the country; it has excited the curioſity of many perſons in Europe to endeavour to procure young plants in their gardens, for which purpoſe great quantities of the nuts have been brought to ſeveral parts of Europe, but without effect; for I have not heard of one plant which has been produced in Europe from the nuts. All thoſe which have fallen into my hands have been rotten when received, ſo that I am apt to think the vegetative quality of them cannot be long preſerved; therefore the only method to obtain the plants in England, is to plant a good quantity of the nuts in a tub of earth in the country where they grow naturally; and when the plants are grown a foot high, to ſhip them for England, placing a covering over them to defend them from ſalt water and the ſpray of the ſea, being very careful not to let them have much wet in their paſſage; as alſo when the ſhip arrives in a cold climate, to ſcreen the plants from cold, eſpecially if it is toward the approach of winter. By carefully obſerving theſe rules, the plants may be brought very ſafely over, as has been experienced by a plant of this ſort, with ſeveral other ſorts of plants, which were brought over by Capt. Quick, and are now in good health in the Chelſea garden.

There have been ſome plants brought to England before this, which were deſtroyed by having too much heat, for this plant will not thrive in a hot-bed of tanners bark; ſo that the only way to have them ſucceed, is to plant them in pots filled with light kitchen-garden earth, and place them in a dry ſtove, where in warm weather they ſhould have freſh air daily, and in the winter the air kept up to temperate, as is marked upon the thermometers.

MANIHOT. See JATROPHA.

MANURE.

There are various kinds of Manure, which are now commonly uſed in different parts of England, for enriching of the ſeveral ſoils. Some of theſe have been already mentioned under the article of DUNG, ſo I ſhall not repeat them here, but proceed to take notice of ſome other kinds of Manure, which are at preſent neglected by many people, though they might be uſed with equal ſucceſs, if not better on many lands, as moſt of thoſe now commonly in uſe.

Oak bark, after the tanners have uſed it for tanning of leather, when laid in a heap and rotted, is an excellent Manure, eſpecially for ſtiff cold land; in which one load of this Manure will improve the ground more, and laſt longer, than two loads of the richeſt dungs; and yet it is very common to ſee large heaps of this remaining in the tanners yards for many years, in ſeveral parts of England, where Manure of other kinds is very ſcarce, and often carried to a great diſtance. Of late years this tan has been much uſed for hot-beds in ſeveral parts of England, and is found greatly to exceed horſe dung for that purpoſe, the fermentation being moderate and of long continuance; ſo that a bed of tan, when rightly made, will continue in a moderate temperature of heat for three or four months; and when the heat begins to decay, if it be ſtirred up with a dung fork, and ſome freſh tan added to it, the heat will renew again, and laſt for ſome months, ſo that theſe beds are by far the moſt kindly for exotic plants; and whatever plants are plunged into theſe beds, if they are permitted to root through the bottom of the pots, they will thrive more in one month after, than they did in four months while they are confined to the pots. I have frequently obſerved many kinds of plants, which were rooted through the pot into the tan, and have ſent forth roots upward of twelve feet each way, in leſs than three months, and the plants have advanced in proportion; which is a plain indication, that plants are greatly nouriſhed by the rotten tan. After the tan hath been uſed for a hot-bed, I have ſpread it on the ground for Manure, and found it has greatly enriched the ground; but it is much better for cold ſtrong land, than for light hot ground, becauſe it is of a warm nature, and will looſen and ſeparate the earth; ſo that where this Manure hath been uſed three or four times, it hath made the land very looſe which before was ſtrong, and not eaſy to be wrought. When this Manure is laid upon Graſs, it ſhould be done ſoon after Michaelmas, that the winter rains may waſh it into the ground; for if it is laid on in the ſpring, it will burn the Graſs, and inſtead of improving it, will greatly injure it for that ſeaſon. Where it is uſed in Corn land, it ſhould be ſpread on the ſurface before the laſt ploughing, that it may be turned down for the fibres of the Corn to reach it in the ſpring; for if it lies too near the ſurface, it will forward the growth of the Corn in winter: but in the ſpring, when the nouriſhment is chiefly wanted to encourage the ſtems, it will be nearly conſumed, and the Corn will receive little advantage from it. Nor will it be proper to have this Manure lie too near the roots of any plants, for when this has happened, I have frequently obſerved it prejudicial to moſt plants, but eſpecially to bulbous and tuberoſe-rooted flowers, which are very ſubject to rot where it lies near their roots; yet when it is buried juſt deep enough for the fibres of their roots to reach it in the ſpring, the flowers have been exceedingly improved by it. And in ſome places, where this Manure hath been uſed in kitchen-gardens, it hath greatly improved the vegetables; ſo that it is to be wondered, that this ſhould not be employed on the land in every country where it can be obtained.

Rotten vegetables of moſt ſorts alſo will enrich land, ſo that where other Manure is ſcarce, theſe may be uſed with ſucceſs. The weeds of ponds, lakes, or ditches, being dragged out before they ſeed, and laid in heaps to rot, will make good Manure, as will moſt other ſorts of weeds; but wherever any of theſe are employed, they ſhould be cut down as ſoon as they begin to flower, for if they are ſuffered to ſtand until their ſeeds are ripe, the land will be ſtored with weeds, which cannot be eaſily deſtroyed; nay, ſome kinds of weeds, if they are permitted to ſtand ſo long as to form their ſeed, will perfect them after they are cut down, which may be equally prejudicial to the land: therefore the ſureſt method is, to cut them down juſt as they begin to flower; at which time moſt ſorts of vegetables are in their greateſt vigour, being then ſtronger and fuller of juice, than when their ſeeds are farther advanced; ſo that at that time they abound moſt with ſalts, and therefore are more proper for the intended purpoſe. In rotting of theſe vegetables, it will be proper to mix ſome earth, mud, or any other ſuch like ſubſtance with them, to prevent their taking fire in their fermentation; which they are very ſubject to, where they are laid in large heaps without any other mixture to prevent it; and it will be alſo proper to cover the heaps over with earth, mud, or dung, to detain the ſalts, otherwiſe many of the finer particles will evaporate in fermenting. When theſe vegetables are thoroughly rotted, they will form a ſolid maſs, which will cut like butter, and be very full of oil, which will greatly improve land.

In ſuch places where there are neither ponds, lakes, or ditches, to ſupply theſe weeds, and the ſituation being far from the ſea (from whence alſo may be obtained many ſorts of weeds for this purpoſe) there may be many ſorts of vegetables ſown, in order to plough them into the grounds when they are full grown, to enrich the land; at preſent thoſe chiefly uſed for this purpoſe are Buck Wheat, Vetches, and Spurry. And in ſome countries abroad they commonly ſow Lupines upon ſuch land as they want to improve, and when they are full grown they mow them down, and plough them into the ground, which they eſteem to be good Manure. This is chiefly uſed in the ſouth of France and in Italy, where ſome of the ſorts of Lupines grow naturally; but theſe are not proper for this climate, becauſe, if the ſeaſon ſhould prove cold or wet after the Lupines are ſown, they will rot in the ground, ſo that it is very hazardous to ſow them in this country; and there being many other ſorts of plants which are hardy, and grow to a much larger ſize with us than Lupines, they ſhould be preferred to them for this purpoſe. I have known ſome land ſown pretty thick with Horſe-beans which have been mowed down when they were in bloſſom, and ploughed in for a crop of Wheat, and it hath largely repaid the owner. Almoſt any of the pulſe kind, which grow large, are very proper to be ſown for this purpoſe; and next to theſe may be ſown Muſtard, Cole-ſeed, or any of theſe large growing plants; which, if cut before they form their ſeeds, and ploughed in, will greatly enrich the ground.

The refuſe of kitchen-gardens, when laid in heaps and rotted, will alſo afford a good ſort of Manure for Corn land; but as this is not to be obtained in any quantity, excepting near great cities, ſo, in ſuch places, dung being to be had pretty reaſonable, the other will not be much ſought after.

I have lately been informed of another improvement, which may be of great uſe in ſeveral parts of the kingdom; which is, the mowing down of Fern while it is green and tender, and laying it in heaps to rot, which will make a tolerable Manure for land; and as this is a moſt troubleſome plant in many parts of England, ſo by frequently mowing, it may be deſtroyed; and when rotted, a good quantity of this Manure may be obtained, which will more than defray the charges of cutting it down. In ſome places, where no tan or horſe-dung can be obtained, they have cut down Fern and chopped it pretty ſmall, and laid it in a heap to ferment, then have uſed it for hot-beds, for which purpoſe it has anſwered pretty well. The firſt perſon who informed me of this, was Mr. Samuel Brewer, a very curious gentleman in gardening, who made ſeveral hot-beds of Fern, which, he ſays, continued their heat for ſome months; ſo that he prefers it to dung, where a moderate laſting heat is required.

There are many kinds of weeds which infeſt the lands in many parts of England, which, if cut down at a proper time and laid to rot, might be uſed to great advantage for manuring of land; and hereby the weeds may in time be deſtroyed, and the Manure would more than pay the expence of doing it: but few perſons who are employed in huſbandry care to go out of their old beaten road to try experiments, even where they are attended with little expence and nothing hazarded; otherwiſe there is great room to make improvements of this kind, eſpecially in countries where dung, or other common Manure is very ſcarce; in which places, if ſome experiments were properly made, of rotting whatever vegetables could be procured in the neighbourhood, it might turn to good account.

The aſhes of all kinds of vegetables are an excellent Manure for land, ſo that where the ground is overrun with buſhes, brambles, &c. which are become woody, if they are grubbed up in ſummer, and ſpread abroad to dry for a little time, then gently conſumed to aſhes, and theſe ſpread on the land, it will greatly improve it. The method for doing this is already explained under the article of Land.

Rotten wood, and ſaw-duſt when rotted, is a very good Manure for ſtrong land, becauſe it looſens the parts of the earth and renders it light.

Bones, horns, and other parts of animals, alſo enrich land greatly, as do decayed fiſh; ſo that in ſome places where theſe can be eaſily obtained, a great improvement may be made of them.

Sea-ſand and ſhells are in ſeveral parts of England uſed to great advantage, eſpecially in Devonſhire, where they are at the expence of fetching the ſand and ſhells on horſes backs, twelve or fourteen miles. The land on which they lay this Manure, is a ſtrong loam inclining to clay; ſo that this ſeparates the parts, and the ſalts which are contained in the dreſſing are a very great improvement of their land. Coral, and ſuch kinds of ſtony plants which grow on the rocks, are filled with ſalts which are very beneficial to land; but as theſe bodies are hard, the improvement is not the firſt or ſecond year after they are laid on the ground, becauſe they require time to pulverize them before their ſalts can mix with the earth to impregnate it. Therefore dreſſings of this kind are ſeldom uſed by tenants, who want to reap the fruit of their labour as ſoon as poſſible. But theſe Manures are much better for cold ſtrong land, than for that which is light and ſandy. In ſome countries, at a great diſtance from the ſea, have been diſcovered great quantities of foſſil ſhells, which have been dug out of the earth, and uſed as Manure, which have improved the ground a little, eſpecially ſtrong land: as theſe have little ſalts, when compared to thoſe ſhells which are taken from the ſhore, therefore where the latter can be obtained, they other are ſcarce worth uſing.

Where the land lies near the ſea, ſo that either ſand, ſhells, corals, wrecks, or ſea-weeds, can be obtained at an eaſy expence, they are by far the beſt kinds of Manure, becauſe they enrich the land for ſeveral years; for as their ſalts are cloſely locked up, they are communicated by degrees to the land, as the heat and cold cauſes the bodies to pulverize, and fall into ſmall parts; ſo that where ſand and ſmaller kinds of ſea-weeds are uſed, if they are laid on land in proper quantities it will enrich it for ſix or ſeven years; but ſhells, corals, and other hard bodies, will continue many years longer.

In dunging of land, I have frequently obſerved in ſeveral parts of England, but eſpecially in Cambridgeſhire, a very wrong cuſtom continued, by carrying and laying the dung on the land about Midſummer, and ſpread abroad perhaps a month or ſix weeks before the ground is ploughed; in which time the ſun exhales all the goodneſs of the dung, ſo that what remains is of little ſervice to the land. Therefore when dung or any other Manure is uſed, it ſhould not be laid on the ground until the laſt time of ploughing, when it ſhould be buried as ſoon as poſſible, to prevent the evaporation of the ſalts. Indeed, where ſhells, corals, or any other hard ſubſtances, are uſed for Manure, if theſe are ſpread abroad ſome months before the ground is ploughed, the ſun, rain, or froſt will cauſe them to pulverize much ſooner than when they are buried and excluded from the air.

The dreſſing of Graſs ground in ſummer, ſoon after the crop of hay is taken off the land, is equally bad; for before Michaelmas the ſun will have dried and exhaled moſt of the goodneſs, if the dreſſing is of dung or any other ſoft Manure, ſo that the ground will receive ſmall advantage from it; and yet this method is too generally practiſed.

MAPLE. See Acer.

MARACOCK. See Passiflora.

MARANTA. Plum. Nov. Gen. 16. tab. 36. Lin. Gen. Plant. 5. Indian Arrow-root.

The Characters are,

It hath a ſmall three-leaved empalement ſitting upon the germen; the flower hath one petal, which is of the grinning kind, having an oblong compreſſed tube, which is oblique and turned inward; the rim is cut into ſix ſmall ſegments, repreſenting a lip flower, the two ſide ſegments being the largeſt. It has one membranaceous ſtamina, appearing like a ſegment of the petal, with a linear ſummit faſtened to the border. It hath a roundiſh germen ſituated under the flower, ſupporting a ſimple ſtyle the length of the petal, crowned by a three-cornered ſtigma. The germen afterward turns to a roundiſh three-cornered capſule with three valves, containing one hard rough ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's firſt claſs, intitled Monandria Monogynia, which includes thoſe plants whoſe flowers have but one ſtamina and one ſtyle.

The Species are,

1. Maranta (*Arundinacea*) culmo ramoſo. Lin. Sp. 2. *Indian Arrow-root with branching ſtalks.* Maranta Arundinacea cannacori folio. Plum. Nov. Gen. 16. *Maranta with a leaf of the Indian flowering Reed.*
2. Maranta (*Galanga*) culmo ſimplici. Lin. Sp. 3. *Indian Arrow-root with a ſimple ſtalk.* Canna Indica, radice albâ alexipharmica. Sloan. Cat. Jam. 122. *Indian Arrow-root.*

The firſt ſort was diſcovered by Father Plumier in ſome of the French ſettlements in America, who gave it this name, in honour of one Bartholomew Maranta, an ancient botaniſt. The ſeeds of this kind were ſent to Europe by the late Dr. William Houſtoun, who found the plant growing in plenty near La Vera Cruz in New Spain.

This hath a thick, fleſhy, creeping root which is very full of knots, from which ariſe many ſmooth leaves, which are ſix or ſeven inches long, and three broad toward their baſe, leſſening toward each end, terminating in points. They are of the conſiſtence and colour of thoſe of the Reed, and ſtand upon Reed-like foot-ſtalks, which ariſe immediately from the root; between theſe come out the ſtalks, which riſe near two feet high; theſe divide upward into two or three ſmaller, and are garniſhed at each joint with one leaf of the ſame ſhape with the lower, but are ſmaller. The ends of the ſtalks are terminated by a looſe bunch of ſmall white flowers, ſtanding upon foot-ſtalks which are near two inches long. The flowers are cut into ſix narrow ſegments, which are indented on their edges; theſe ſit upon the embryo, which afterward turns to a roundiſh three-cornered capſule, incloſing one hard rough ſeed. It flowers here in June and July.

The other ſort was brought from ſome of the Spaniſh ſettlements in America, into the iſlands of Barbadoes and Jamaica, where it is cultivated in their gardens as a medicinal plant, it being a ſovereign remedy to cure the bite of waſps, and to extract the poiſon of the Manchineel-tree. The Indians apply the root to expel the poiſon of their arrows, which they uſe with great ſucceſs. They take up the roots, and after cleanſing them from dirt, they maſh them, and apply it as a poultice to the wounded part, which draws out the poiſon and heals the wound. It will alſo ſtop a gangrene, if it is applied before it is gone too far, ſo that it is a very valuable plant.

This ſort is very like the firſt, but has a ſingle ſtalk; the flowers are ſmaller, and the ſegments of the petals are entire, in which their principal difference conſiſts; it flowers alſo at the ſame time.

Theſe plants being natives of a warm country, are very tender, and therefore will not live in this climate, unleſs they are preſerved in ſtoves. They may be propagated by their creeping roots, which ſhould be parted in the middle of March, juſt before they begin to puſh out new leaves. Theſe roots ſhould be planted in pots filled with light rich earth, and plunged into a moderate hot-bed of tanners bark, obſerving now and then to refreſh them with water; but it muſt not be given to them in large quantities, for too much moiſture will ſoon rot the roots, when they are in an inactive ſtate. When the green leaves appear above ground, the plants will require more frequently to be watered, and they ſhould have free air admitted to them every day, in proportion to the warmth of the ſeaſon, and the heat of the bed in which they are placed. As the plants advance in ſtrength, they ſhould have a greater ſhare of air, but they muſt conſtantly remain in the ſtove plunged in the tan, otherwiſe they will not thrive; for when the pots are placed on ſhelves in the ſtove, the moiſture paſſes too ſoon from the fibres, which generally ſpread on the ſides and bottoms of the pots, ſo that the plants do not receive much nouriſhment from the water. But where they are conſtantly kept in the tanners bark, and have proper air and moiſture, they will thrive, ſo as from a ſmall root to fill the pot in which it was planted, in one ſummer. About Michaelmas the firſt ſort will begin to decay, and in a ſhort time after the leaves will die to the ground, but the pots muſt be continued all the winter in the bark-bed, otherwiſe the roots will periſh; for although they are in an unactive ſtate, yet they will not keep very long from ſhrinking, when taken out of the ground; and if the pots are taken out of the tan, and placed in any dry part of the ſtove, the roots often ſhrivel and decay; but when they are continued in the tan-bed they ſhould have but little water given to them when their leaves are decayed, leſt it rot them. The firſt ſort doth flower conſtantly in July or Auguſt, and will often produce ripe ſeeds in England; but the ſecond ſort doth not flower ſo conſtant, nor do the flowers appear ſo conſpicuous, being very ſmall and of a ſhort duration. This ſort never hath produced any ſeeds in England, nor could I ever obſerve any rudiment of a ſeed-veſſel ſucceeding the flower. The green leaves abide on this ſort moſt part of the winter, ſeldom decaying till February; and ſometimes will continue green until freſh leaves come up, and thruſt the old ones off; in which particular there is a more remarkable difference between the two ſorts, than can be obſerved in the face of plants.

MARJORAM. See Origanum.

MARLE is a kind of clay, which is become fatter, and of a more enriching quality, by a better fermentation, and by its having lain ſo deep in the earth as not to have ſpent or weakened its fertilizing quality by any product.

Marle is ſuppoſed to be much of the nature of chalk, and is believed to be fertile from its ſalt and oily quality; and that it contracts its ſalts from the air, and for that reaſon is the better the longer it is expoſed to it.

Marles are of different qualities in different counties of England. There are reckoned to be four ſorts of Marles in Suſſex, a gray, a blue, a yellow, and a red; of theſe the blue is accounted the beſt, the yellow the next, and the gray the next to that; and as for the red, that is the leaſt valuable.

The Marle in Suſſex is moſt like fullers earth, and therefore muſt certainly be the fatteſt, whereas that in the north country runs much upon the loam.

In Cheſhire they reckon ſix ſorts of Marle:

1. The cowſhut Marle, which is of a browniſh colour, with blue veins in it, and little lumps of chalk or lime ſtone; it is commonly found under clay, or low black land, ſeven or eight feet deep, and is very hard to dig.

2. Stone, ſlate, or flag Marle, which is a kind of ſoft ſtone, or rather ſlate, of a blue or bluiſh colour, that will eaſily diſſolve with froſt or rain. This is found near rivers and the ſides of hills, and is a very laſting ſort of Marle.

In Staffordſhire they eſteem the dice or ſlate Marle better than the clay Marle, and reckon the blue beſt for arable land, and the gray for paſture.

3. Peat Marle, or delving Marle, which is cloſe, ſtrong, and very fat, of a brown colour, and is found on the ſides of hills, and in wet boggy grounds, which have a light ſand in them about two feet or a yard deep. This is accounted the ſtrongeſt of all Marles, and is very good for ſandy land, but the land muſt have a double quantity laid on.

4. Clay Marle; this reſembles clay, and is pretty near akin to it, but is fatter, and ſometimes mixed with chalk ſtones.

5. Steel Marle, which lies commonly in the bottom of pits that are dug, and is of itſelf apt to break into cubical bits; this is ſometimes under ſandy land.

6. Paper Marle, which reſembles leaves or pieces of brown paper, but ſomething of a lighter colour; this lies near coals. This ſort is leſs eſteemed, it being hard to be got.

The properties of any ſorts of Marles, and by which the goodneſs of them may be beſt known, are better judged of by their purity and uncompoundedneſs, than their colour: as if it will break in pieces like dice, or into thin flakes, or is ſmooth like lead ore, and is without a mixture of gravel or ſand; if it will ſhake like ſlate ſtones, and ſhatter after wet, or will turn to duſt when it has been expoſed to the ſun: or will not hang and ſtick together when it is thoroughly dry, like tough clay; but is fat and tender, and will open the land it is laid on, and not bind; it may be taken for granted, that it will be beneficial to it.

Some adviſe to try the goodneſs of Marle, by putting ſome of it in a glaſs of water; and they account it to be good, if it be ſo tender, that the lumps break, and diſſolve as ſoon as it comes to the bottom; they alſo reckon it a good ſign, if it ſparkle in the water, and feel fat between the fingers; but the ſureſt ſign of its goodneſs is, if it diſſolve by wet or froſt. The ſtrength of Marle may alſo be known, by putting a lump of it in a glaſs of good vinegar, where, if the fermentation is great, it is a ſure ſign of the goodneſs of the Marle.

Some approve of marling land ſhallow, becauſe they ſay, it is apt to work downwards; others of laying it in deep at firſt, becauſe the ſun waſtes the fatneſs of it.

Some recommend Marles for the improving of ſandy looſe land, but the ſureſt way to know what lands it will beſt ſuit with, is to try with a little of it on lands ſuppoſed to be of a contrary nature to it.

Marles do not make ſo good an improvement of lands the firſt year as afterwards.

Some adviſe, firſt to burn the Marle before it is laid on the lands; which if it be done, one load will go as far as five.

The quantity of Marle ought to be in proportion to the depth of the earth, for over-marling has often proved of worſe conſequence than under-marling, eſpecially where the land is ſtrong; for by laying it in too great quantities, or often repeating the marling, the land has become ſo ſtrong, and bound ſo cloſely, as to detain the wet like a diſh, ſo that the owners have been obliged to drain the ground at a great expence, and have often been obliged to lower their rents; but in ſandy land there can be no danger in laying on a great quantity, or repeating it often, for it is one of the beſt dreſſings for ſuch land.

MARRUBIASTRUM, Baſtard Horehound. See Sideritis.

MARRUBIUM. Tourn. Inſt. R. H. 192. tab. 91. Lin. Gen. Plant. 640. Pſeudodictamnus. Tourn. 188. tab. 89. Lin. Gen. Plant. 640. [ſome derive the name of מרוב, *Heb.* Marrob, i. e. bitter juice; others from the Latin word Marcidum, becauſe the leaves of this plant are ſo wrinkled, that they appear to be withering.] Horehound.

The Characters are,

The empalement of the flower is funnel-ſhaped, of one leaf, and equal at the brim, which ſpreads open. The flower is of the lip or grinning kind, with a cylindrical tube opening at the brim, where it is divided into two lips, the upper being very narrow and acute, the under broad, reflexed, and cut into three ſegments, the middle one is broad and indented. It has four ſtamina, which are under the upper lip, two of which are a little longer than the other, terminated by ſimple ſummits. It hath a four-pointed germen, ſupporting a ſlender ſtyle of the ſame length, and ſituated with the ſtamina, crowned by a bifid ſtigma. The germen afterward turns to four oblong ſeeds, ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, which includes thoſe plants whoſe flowers have two long and two ſhort ſtamina, which are ſucceeded by naked ſeeds ſitting in the empalement.

The Species are,

1. **Marrubium** (*Vulgare*) dentibus calycinis ſetaceis uncinatis. Hort. Cliff. 312. *Horehound with hooked briſtly indentures to the empalement.* Marrubium album vulgare. C. B. P. 230. *Common white Horehound.*

2. **Marrubium** (*Peregrinum*) foliis ovato-lanceolatis ſerratis, calycum denticulis ſetaceis. Hort. Cliff. 311. *Horehound with oval, ſpear-ſhaped, ſawed leaves, and briſtly indentures to the empalement.* Marrubium album latifolium peregrinum. C. B. P. 230. *Broad-leaved, foreign, white Horehound.*

3. **Marrubium** (*Creticum*) foliis lanceolatis dentatis, verticillis minioribus, dentibus calycinis ſetaceis erectis. *Horehound with ſpear-ſhaped indented leaves, ſmaller whorls, and erect briſtly indentures to the empalements.* Marrubium album anguſtifolium peregrinum. C. B. P. 230. *Narrow-leaved, foreign, white Horehound.*

4. **Marrubium** (*Alyſſon*) foliis cuneiformibus, quinque verticillis involucro deſtitutis. Hort. Cliff. 311. *Horehound with wedge-ſhaped plaited leaves, with five indentures, and the whorls deſtitute of covers.* Marrubium alyſſon dictum, foliis profundè inciſis. H. L. *Horehound, called Madwort, with leaves which are deeply cut on their ſides.*

5. **Marrubium** (*Supinum*) dentibus calycinis ſetaceis rectis villoſis. Hort. Cliff. 312. *Horehound with hairy, erect, briſtly indentures to the empalement.* Marrubium Hiſpanicum ſupinum, foliis ſericeis argenteis. Tourn. 193. *Low Spaniſh Horehound with ſilken ſilver-coloured leaves.*

6. **Marrubium** (*Candidiſſimum*) foliis ſubovatis lanatis ſupernè emarginato-crenatis, denticulis calycinis ſubulatis. Hort. Cliff. 312. *Horehound with woolly leaves almoſt oval, the upper parts of which are indented and crenated, with awl-ſhaped indentures to the empalements.* Marrubium album candidiſſimum & villoſum. Tourn. Cor. 1. *Whiteſt and villoſe Horehound.*

7. **Marrubium** (*Hiſpanicum*) calycum limbis patentibus, denticulis acutis. Hort. Cliff. 312. *Horehound with ſpreading borders to the empalement, and acute indentures.* Marrubium album rotundifolium Hiſpanicum. Par. Bat. 201. *Round-leaved Spaniſh Horehound.*

8. **Marrubium** (*Criſpum*) calycum limbis planis villoſis, foliis orbiculatis rugoſis, caule herbaceo. *Horehound with a plain hairy border to the empalement, round rough leaves, and an herbaceous ſtalk.* Pſeudodictamnus Hiſpanicus, foliis criſpis & rugoſis. Tourn. Inſt. 188. *Spaniſh Baſtard Dittany, with rough curled leaves.*

9. **Marrubium** (*Suffruticoſum*) calycum limbis planis villoſis, foliis cordatis rugoſis incanis, caule ſuffruticoſo. *Horehound with the border of the empalement plain and hoary, heart-ſhaped, rough leaves, and a ſhrubby ſtalk.* Pſeudodictamnus Hiſpanicus, ampliſſimo folio candicante & villoſo. Tourn. Inſt. R. H. 118. *Spaniſh Baſtard Dittany, with a very large hoary leaf.*

10. **Marrubium** (*Pſeudodictamnus*) calycum limbis planis villoſis, foliis cordatis, caule fruticoſo. Hort. Cliff. 312. *Horehound with a plain hairy border to the empalement, heart-ſhaped leaves, and a ſhrubby ſtalk.* Pſeudodictamnus verticillatus inodorus. C. B. P. 232. *Whorled unſavoury Baſtard Dittany.*

11. **Marrubium** (*Acetabuloſum*) calycum limbis tubo longioribus membranaceis, angulis majoribus rotundatis. Lin. Sp. Plant. 584. *Horehound with a membranaceous rim to the empalement longer than the tube, and larger rounder angles* Pſeudodictamnus acetabulis Moluccæ. C. B. P. 222. *Baſtard Dittany, with a pan or hollow of Molucca Baum.*

The firſt ſort is the Praſium, or white Horehound of the ſhops. This grows naturally in moſt parts of England, ſo is ſeldom propagated in gardens. It hath a ligneous fibrous root, from which come out many ſquare ſtalks a foot or more in length, which branch out upward, and are garniſhed with hoary roundiſh leaves, indented on the edges, placed oppoſite. The flowers grow in very thick whorls round the ſtalks at each joint; they are ſmall, white, and of the lip kind, ſtanding in ſtiff hoary empalements, cut into ten parts at the top, which end in ſtiff briſtles; theſe are ſucceeded by four oblong black ſeeds ſitting in the empalement. It flowers in June, and the ſeeds ripen in autumn.

The ſecond ſort grows naturally in Italy and Sicily; this riſes with ſquare ſtalks near three feet high, which branch much more than the firſt; the leaves are rounder, whiter, and ſtand farther aſunder; the whorls of flowers are not ſo large, but the flowers have longer tubes.

The third ſort grows naturally in Spain and Portugal; this riſes with ſlender hoary ſtalks near three feet high; the leaves are very hoary, much longer and narrower than thoſe of the ſecond; the whorls of flowers are ſmaller, the briſtly indentures of the empalements are longer and erect; the whole plant has an agreeable flavour.

The fourth ſort grows naturally in Spain and Italy; this is a biennial plant, whoſe ſtalks are about the ſame length as thoſe of the firſt; the leaves are wedge-ſhaped, hoary, and obtuſely indented; the whorls of flowers are ſmall, and have no covers. The flowers ſtand looſer in the whorls, and the cuts of the empalement end in very ſtiff prickles, which ſpread open; the flowers are purple, and larger than thoſe of the firſt ſort.

The fifth ſort grows naturally in the iſlands of the Archipelago; the ſtalks of this are ſeldom above eight or nine inches long, covered with a ſoft hoary down; the leaves are ſmall, roundiſh, and very ſoft to the touch; they are hoary, and indented on the edges. The whorls of flowers are ſmall, very downy, and white; the flowers are ſmall and white.

The ſixth ſort grows naturally in Spain; this hath ſtalks about the ſame length as the firſt; the leaves are nearly oval, woolly, and crenated toward the top, and the empalement of the flowers are awl-ſhaped.

The ſeventh ſort grows naturally in Iſtria, from whence I received the ſeeds. The ſtalks of this grow more erect than thoſe of the common ſort: the leaves are rounder and more ſawed on the edges; the empalement of the flowers ſpread open, ending in acute ſegments. The flowers are like thoſe of the common ſort; the whole plant is very hoary.

The eighth ſort grows naturally in Spain and Sicily; this ſends out many ſtiff roundiſh ſtalks, which riſe more than two feet high, covered with a white cottony down; the leaves are almoſt round, rough on their upper ſide, and woolly on their under; the whorls of flowers are large, the borders of the empalement are flat and hairy; the tube of the flower is ſcarce ſo long as the empalement, ſo the two lips are but juſt viſible.

The ninth ſort grows naturally in Spain; the ſtalks of this are ſhrubby, and riſe near three feet high, dividing into ſmall branches; the leaves are heart-ſhaped and rough on their upper ſide, but hoary on their under; the whorls of flowers are large, the borders of the empalements flat and hairy; the tube of the flower is longer, and the flowers are larger than thoſe of the former ſort; they are of a pale purple colour, and their upper lips are erect.

The tenth ſort grows naturally in Sicily, and the Iſlands of the Archipelago. This riſes with a ſhrubby ſtalk two feet high, which divides into many branches, garniſhed with ſmall heart-ſhaped leaves, ſitting pretty cloſe to the ſtalks: the whorls of flowers are not ſo large as thoſe of the two former ſorts. The rim of the empalements are flat. The flowers are white, and the whole plant is very hoary.

The eleventh ſort grows naturally in Crete; this hath very hairy ſtalks which riſe about two feet high, garniſhed with heart-ſhaped leaves, which are rough on their upper ſide, but hoary on their under. The whorls of flowers are large, the border of the empalements flat, and cut into many ſegments, which are membranaceous, angular, and rounded at the top. The flowers are ſmall, of a pale purple colour, but ſcarce appear out of their empalements, and their upper lips are erect.

The firſt ſort is what the College of Phyſicians has directed to be uſed in medicine. The leaves and tops of the plants are eſteemed hot and dry, pectoral, and good to free the lungs from thick viſcid phlegm, and thereby to help old coughs, eſpecially in cold moiſt conſtitutions, the juice being made into a ſyrup with ſugar or honey; they open obſtructions of the liver and ſpleen, and are very ſerviceable againſt the dropſy, jaundice, green ſickneſs, and obſtructions of the catamenia, and ſuppreſſion of the lochia, and other diſtempers of the female ſex, for which few herbs go beyond this. The officinal preparation is the ſyrupus de Praſſio.

The fourth ſort is ſuppoſed to be Galen's Madwort; this was by the antients greatly recommended for its efficacy in curing of madneſs, and ſome few of the moderns have preſcribed it in the ſame diſorder, but at preſent it is ſeldom uſed; it is a biennial plant, which generally periſhes after it hath perfected ſeeds.

All theſe plants are preſerved in botanic gardens for the ſake of variety, but there are not above two of the ſorts which are cultivated in other gardens; theſe are the tenth and eleventh ſorts, whoſe ſtalks are ſhrubby; the plants are very hoary, ſo make a variety when intermixed with other plants; theſe very rarely produce ſeeds in England, ſo are propagated by cuttings, which, if planted in a ſhady border the middle of April, will take root pretty freely.

They are ſomewhat tender, ſo in very ſevere winters are killed, unleſs they are ſcreened from the hard froſts, eſpecially thoſe plants which grow in good ground, where they grow luxuriant in ſummer, ſo their branches are more replete with juice, and very liable to ſuffer by cold; but when they are in a poor dry rubbiſh, the roots will be ſhort, firm, and dry, ſo are ſeldom injured by cold, and will continue much longer than thoſe in better ground.

The other ſorts are eaſily propagated by ſeeds, which ſhould be ſown on a bed of poor earth in the ſpring, and when the plants come up they muſt be kept clean from weeds; and where they are too cloſe they ſhould be thinned, leaving them a foot and a half aſunder, that their branches may have room to ſpread; after this they require no other culture; they may alſo be propagated by cuttings, in the ſame manner as the other two ſorts. If theſe plants are upon a dry poor ſoil, they will live ſeveral years, but in rich land they ſeldom laſt above three or four.

MARRUBIUM NIGRUM. See Ballote.

MARTAGON. See Lilium.

MARTYNIA. Houſt. Gen. Nov. Martyn. Dec. 1. 42. [This name was given by the late Dr. William Houſtoun to this genus of plants, which he diſcovered in America, in honour of his friend Mr. John Martyn, who was Profeſſor of Botany at Cambridge.]

The Characters are,

The empalement of the flower is cut into five parts, three of them are erect, and two reflexed. The flower hath one petal, which is bell-ſhaped, with a large ſwelling tube, at the baſe of which is ſituated a gibbous nectarium. The rim of the petal is cut ſlightly into five obtuſe ſegments, two of which are turned upward, the other three downward, repreſenting a lip flower. It hath four ſlender incurved ſtamina, which are inflexed into each other, terminated by ſummits, which are connected together. It hath an oblong germen ſituated under the flower, ſupporting a ſhort ſtyle, crowned by a plain ſtigma. The empalement afterward turns to an oblong gibbous capſule, which divides into two parts, including a hard nut, ſhaped like the body of a ſtag beetle, with two incurved ſtrong horns at the end, having four cells, two of which are generally barren, the other two have one oblong ſeed in each.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, which includes the plants whoſe flowers have two long and two ſhort ſtamina, and the ſeeds are included in a capſule.

The Species are,

1. Martynia (*Annua*) caule ramoſo, foliis angulatis. Lin. Sp. Plant. 618. *Martynia with a branching ſtalk and angular leaves.* Martynia annua villoſa & viſcoſa, folio ſubrotundo, flore magno rubro. Houſt. *Annual, hairy, viſcous Martynia, with a roundiſh leaf, and a large red flower.*
2. Martynia (*Perennis*) caule ſimplici, foliis ſerratis. Lin. Sp. Plant. 618. *Martynia with a ſingle ſtalk and ſawed leaves.* Martynia foliis ſerratis. Lin. Hort. Cliff. *Martynia with ſawed leaves.*
3. Martynia (*Louiſiana*) caule decumbente ramoſa, foliis integris fructibus longiſſimis. *Martynia with a decumbent branching ſtalk, entire leaves, and very long fruit.*

The firſt of theſe plants was diſcovered by the late Dr. William Houſtoun, near La Vera Cruz, in New Spain, from whence he ſent the ſeeds into England, which ſucceeded very well in the Phyſic Garden at Chelſea; and in the year 1731, ſeveral of theſe plants were raiſed, which produced their beautiful flowers, and perfected their ſeed, from whence ſeveral plants were raiſed the ſucceeding year.

This riſes with a ſtrong, herbaceous, hairy ſtalk near three feet high, which divides upward into three or four large branches, garniſhed with oblong oval leaves, cut into angles on their ſides; they are five inches long, and three inches and a half broad at their baſe, where they are broadeſt, ending in obtuſe points; they are hairy, and very viſcous, ſticking to the fingers if handled. The flowers are produced in ſhort ſpikes from the forks of the branches, and alſo at their tops; they are ſhaped like thoſe of the Foxglove, but are of a paler purple colour; theſe are ſucceeded by oblong oval capſules, which are thick, tough, and clammy; theſe, when ripe, divide into two parts, leaving a large hard nut hanging on the plant, about the ſize, and much of the ſame form, as the ſtag beetle, with two ſtrong crooked horns at the end. The nut has two deep longitudinal furrows on the ſides, and ſeveral ſmaller croſſing each other in the middle. It is ſo hard, that it is with difficulty cut open without injuring of the ſeeds: within are four oblong cells, two of which have generally a ſingle oblong ſeed in each, but the other two are abortive. If the plants are brought forward in the ſpring, they will begin to ſhew their flowers in July, which are firſt produced at the diviſion of the branches, and afterward at the extremity of each branch, ſo there will be a ſucceſſion of flowers on the ſame plant till the end of October, when the plants decay.

The ſecond ſort was diſcovered by Mr. Robert Millar, growing naturally about Carthagena in New Spain, from whence he ſent the ſeeds to Europe; this hath a perennial root and an annual ſtalk, which decays every autumn, and new ones ariſe in the ſpring. The roots of this plant are thick, fleſhy, and divided into knots, which are ſcaly, ſomewhat like thoſe of Toothwort; theſe ſend up ſeveral ſtalks, which grow about a foot high; they are thick, ſucculent, and of a purpliſh colour, garniſhed with oblong thick leaves, whoſe baſe ſits cloſe to the ſtalk; they are ſawed on their edges, rough on their upper ſide, where they are of a dark green, but their under ſide is purpliſh. The ſtalk is terminated by a ſhort ſpike of blue flowers, which are bell-ſhaped, and do not ſpread open at the rim ſo much as the former ſort; theſe uſually appear in July or Auguſt, but are not ſucceeded by ſeeds in England.

The firſt ſort, being an annual plant, is only propagated by ſeed, which ſhould be ſown in pots filled with light rich earth, and plunged into a hot-bed of tanners bark, where (if the earth is duly watered to promote the vegetation of the ſeed) the plants will appear in about three weeks or a month, and will grow pretty faſt if the bed is warm; they ſhould therefore be tranſplanted in a little time after they come up, each into a ſeparate pot filled with light rich earth, and then plunged into the hot-bed again, obſerving to water them well, as alſo to ſhade them from the ſun until they have taken new root; after which time they ſhould have a large ſhare of freſh air admitted to them in warm weather, by raiſing the glaſſes of the hot-bed every day: with this management the plants will make great progreſs, ſo as to fill the pots with their roots in about a month or ſix weeks time, when they ſhould be ſhifted into pots about a foot diameter at the top, which ſhould be filled with light rich earth, and then plunged into the hot-bed in the bark-ſtove, where they ſhould be allowed room, becauſe they put out many ſide branches, and will grow three feet high or more, according to the warmth of the bed, and the care which is taken to ſupply them conſtantly with water; and ſhould be conſtantly kept in the tan-bed, giving them plenty of free air at all times when the weather is warm, but they will not bear to be expoſed abroad in this country; when theſe plants thrive well they will ſend out many ſide branches, which will all of them produce ſmall ſpikes of flowers; but it is only from the firſt ſpike of flowers that good ſeeds can be expected in this country, ſo that particular care ſhould be taken, that none of theſe are pulled off or deſtroyed, becauſe it is very difficult to obtain good ſeeds here; and I believe few of thoſe that are produced on the ſide branches in the natural country of their growth, are duly ripened; for I have received a great quantity of theſe ſeeds from abroad, which have appeared to be very good, and yet few of them have grown.

The ſeeds of theſe plants have a ſtrong green covering on them, as thick as the outer covering of an Almond, and when the ſeeds are ripe, the covering opens, and lets the ſeeds fall, in the ſame manner as the covering of Almonds, Walnuts, &c. In each covering there is one hard nut, in ſhape ſomewhat like a beetle, having two ſharp crooked horns at one end. This nut contains four embryos, but there are ſeldom more than two ſeeds which are perfect in any of them. However, when they are ſown, the whole nut muſt be planted, for it is ſo hard, that it is almoſt impoſſible to take out the ſeeds without ſpoiling them; ſo where there are two plants produced from the ſame nut, they are eaſily ſeparated, eſpecially if they are tranſplanted while young. Theſe ſeeds will continue good for ſome years, for I ſaved a pretty large quantity of them in the year 1734, part of which I ſowed the following year, but had not one plant produced from them; the remainder of the ſeeds I divided, and ſowed ſome of them every ſucceeding year, without any ſucceſs, until the year 1738, when I ſowed all the ſeeds I had left, from which I had one plant produced; ſo that if the ſeeds are good, it is evident they will grow when they are four years old; therefore, whenever we receive good ſeeds from abroad, or ſave any in this country which are perfectly ripened, it will be proper to preſerve ſome of them for a year or two, leſt a bad ſeaſon ſhould happen, when the plants may not perfect their ſeeds; ſo that if this precaution be not taken, the ſpecies may be loſt in Europe.

The ſecond ſort dies to the root every winter, and riſes again the ſucceeding ſpring; this muſt be conſtantly preſerved in the ſtove, and plunged into the bark-bed, otherwiſe it will not thrive in this country. During the winter ſeaſon, when the plants are decayed, they ſhould have but little water given to them, for at that time it will rot the roots. In the middle of March, juſt before the plants begin to ſhoot, is the proper ſeaſon to tranſplant and part the roots, when they ſhould be planted into pots of a middle ſize, filled with light rich earth, and then plunged into the bark-bed, which ſhould at this time be renewed with ſome freſh tan. When the plants come up, they muſt be frequently refreſhed with water, but it muſt not be given to them in large quantities, leſt it rot their tender roots; and as the warmth of the ſeaſon increaſes, it will be proper to admit a large ſhare of freſh air, which will greatly ſtrengthen the plants; they muſt alſo be placed in the tan-bed, where they are not over-hung, or ſhaded by other plants; nor ſhould they be ſhifted or tranſplanted when they are in leaf, for that will prevent their flowering. As the roots of this plant increaſe very faſt, there is no neceſſity for uſing other methods to propagate it; otherwiſe the ſhoots of the young ſtalks will take root, if they are planted in pots filled with light earth, and plunged into a hot-bed during any of the ſummer months.

The third ſort grows naturally in Louiſiana, from whence the ſeeds were brought to France. This is an annual plant, having a ſucculent viſcous ſtalk, which divides into many branches; theſe thick ſucculent ſtalks become too weighty for the ſtalk to ſupport them, whereby the ſtalk generally is brought to the ground, unleſs it is well ſupported: the leaves are large, viſcous, and hairy; ſome of them are cut into angles, but for the moſt part they are entire, five or ſix inches long, and four broad in the middle. The flowers are produced from the forks of the ſtalk in ſhort ſpikes; they are of a pale red colour, and in ſhape and ſize like thoſe of the firſt ſort; they are ſucceeded by fruit four or five inches long, having a thick green cover, which parts and falls off when ripe, leaving a rough beetle-ſhaped veſſel, having two very long horns at the end, opening in two parts, containing ſeveral oval ſeeds, covered with a black ſkin, which muſt be taken off before the ſeeds are ſown.

This being an annual plant, ſhould be brought forward in the ſpring, by ſowing the ſeeds on a hot-bed the latter end of March; and when the plants come up, they ſhould be treated almoſt in the ſame manner as the firſt, with this difference only, that being more hardy than the firſt, the plants ſhould have more air admitted to them, to prevent their drawing up weak; nor ſhould they have too much water in ſummer, which is apt to rot their ſucculent ſtems before the ſeeds are perfected.

MARVEL OF PERU. See Mirabilis.

MARUM. See Teucrium.

MARUM VULGARE. See Satureja.

MARYGOLD. See Calendula.

MARYGOLD (AFRICAN.) See Tagetes.

MARYGOLD (FIG.) See Mesembryanthemum.

MARYGOLD (FRENCH.) See Tagetes.

MASTERWORT. See Imperatoria.

MASTICHINA. See Satureja.

MATRICARIA. Tourn. Inſt. R. H. 493. tab. 281. Lin. Gen. Plant. 867. [ſo called from the matrix, becauſe this plant is very good againſt diſeaſes of the womb; and for the ſame reaſon it is called Parthenium, of Παρθένος, a virgin.] Feverfew; in French, *Matricaire.*

The Characters are,

It hath a compound flower. The ray, or border, is compoſed of many female half florets, and the diſk, which is hemiſpherical, of hermaphrodite florets; theſe are included in one common hemiſpherical empalement, compoſed of linear ſcales, nearly equal. The female half florets are tongue-ſhaped, and indented in three parts at the end; theſe have a naked germen, ſupporting a ſlender ſtyle, terminated by two twiſted ſtigmas. The hermaphrodite florets are tubulous, funnel-ſhaped, and cut into five parts at the brim, which ſpread open; they have each five hairy ſhort ſtamina, terminated by cylindrical ſummits, and an oblong naked germen, with a ſlender ſtyle, crowned by a bifid ſpreading ſtigma. The germen of both turn to ſingle, oblong, naked ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's nineteenth claſs, which includes the plants with compound flowers, whoſe ſtamina and ſtyles are connected, and the florets are all fruitful.

The Species are,

1. Matricaria (*Parthenium*) foliis compoſitis planis, foliolis ovatis inciſis, pedunculis ramoſis. Hort. Cliff. 416. *Feverfew with plain compounded leaves, whoſe lobes are oval and cut, having branching foot-ſtalks.* Matricaria vulgaris, ſeu ſativa. C. B. P. 133. *Common, or Garden Feverfew.*
2. Matricaria (*Maritima*) receptaculis hemiſphæricis, foliis bipinnatis ſubcarnoſis, ſuprà convexis, ſubtus carinatis. Lin. Sp. Plant. 891. *Feverfew with hemiſpherical receptacles, doubly winged leaves, which are fleſhy, and convex on their upper ſide, but keel-ſhaped below.* Chamæmelum maritimum perenne humilius, foliis

brevoribus

brevioribus craſſis obſcurè virentibus. Raii Syn. Ed. 3. p. 186. *Dwarf, perennial, maritime Chamomile, with ſhort, thick, dark green leaves.*

3. Matricaria (*Indica*) foliis ovatis ſinuatis angulis ſerratis acutis. *Feverfew with oval, ſinuated, angular, acutely-ſawed leaves.* Matricaria latiore folio, flore pleno. Mor. Hiſt. 3. p. 33.

4. Matricaria (*Argentea*) foliis bipinnatis, pedunculis ſolitariis, Hort. Cliff. 415. *Feverfew with winged leaves, and ſingle foot-ſtalks to the flowers.* Chamæmelum Orientale incanum, Millefolium folio. Tourn. Cor. 37.

5. Matricaria (*Americana*) foliis lineari-lanceolatis integerrimis, pedunculis unifloris. *Feverfew with entire ſpear-ſhaped leaves, and foot-ſtalks with one flower.*

The firſt ſort is the common Feverfew, which is directed to be uſed in medicine. It grows naturally in lanes, and upon the ſide of banks in many parts of England, but is frequently cultivated in the phyſic-gardens to ſupply the markets; this is commonly a biennial plant, which decays ſoon after it has perfected ſeeds. The root of this plant is compoſed of a great number of fibres, which ſpread wide on every ſide. The ſtalks riſe upward of two feet high; they are round, ſtiff, and ſtriated, branching out on every ſide. The leaves are compoſed of ſeven lobes, which are cut into many obtuſe ſegments; they are of a yellowiſh green colour. The ſtalks and branches are terminated by the flowers, which are diſpoſed almoſt in the form of looſe umbels, each flower ſtanding upon a ſeparate foot-ſtalk, about two inches long. The flowers are compoſed of ſeveral ſhort rays, which are white, like thoſe of the Chamomile, ſurrounding a yellow diſk, compoſed of hermaphrodite florets, which form a hemiſphere; theſe are incloſed in one common ſcaly empalement, and are ſucceeded by oblong, angular, naked ſeeds. It flowers in June, and the ſeeds ripen in autumn. The whole plant has a ſtrong unpleaſant odour. The leaves and flowers of this are uſed in medicine, and are particularly appropriated to the female ſex, being of great ſervice in all cold flatulent diſorders of the womb, and hyſteric affections, procuring the catamenia, and expelling the birth and ſecundines.

The following varieties of this plant are preſerved in botanic gardens, many of which are pretty conſtant, if care is taken in ſaving the ſeeds; but where the ſeeds of theſe plants has been ſuffered to ſcatter, it will be almoſt impoſſible to preſerve the varieties without mixture; but if the ſeeds are ſown upon a freſh ſpot of ground, where there has not grown any of the plants before, I am inclinable to believe the ſeeds will produre the ſame plants as thoſe they were taken from; however, as they are ſuppoſed to be only varieties, ſo I ſhall only juſt inſert them here, for the uſe of thoſe who are curious in collecting the varieties.

1. Feverfew with very double flowers.
2. Feverfew with double flowers, whoſe borders, or rays are plain, and the diſk fiſtular.
3. Feverfew with very ſmall rays.
4. Feverfew with very ſhort fiſtular florets.
5. Feverfew with naked heads, having no rays or border.
6. Feverfew with naked ſulphur-coloured heads.
7. Feverfew with elegant curled leaves.

Theſe plants are all propagated by their ſeeds, which ſhould be ſown in March upon a bed of light earth, and, when they are come up, they ſhould be tranſplanted out into nurſery-beds, at about eight inches aſunder, where they may remain till the middle of May, when they may be taken up, with a ball of earth to their roots, and planted in the middle of large borders, where they will flower in July and Auguſt; and, if the autumn be favourable, will produce ripe ſeeds the ſame year. But it is not adviſeable to permit them to ſeed, which often weakens and decays the roots; therefore, when their flowers are paſt, you ſhould cut down their ſtems, which will cauſe them to puſh out freſh heads, whereby the roots may be maintained.

When the different varieties of theſe plants are intermixed with other plants of the ſame growth, they make a handſome appearance during the ſeaſon of flowering, which commonly continues a full month, or more, which renders them more valuable. But as their roots ſeldom abide more than two, or at moſt three years, freſh plants would be raiſed from ſeeds to ſupply their places; for although they may be propagated by parting their roots either in ſpring or autumn, yet theſe ſeldom make ſo good plants as thoſe obtained from ſeeds; but the ſecond variety ſeldom produces any good ſeeds, therefore that muſt be propagated in this manner, or by planting cuttings in the ſpring or ſummer months, which will take root, and make good plants.

The ſecond ſort grows naturally near the ſea, in ſeveral parts of England. I have obſerved it upon the Suſſex coaſt in great plenty, from whence I brought the plants, which were of no longer duration in the garden than two years, though in their native ſoil they may continue longer. The ſtalks of this plant branch out pretty much, and ſpread near the ground; they are garniſhed with dark green leaves, which are compoſed of many double wings, or pinnæ, like thoſe of the common Chamomile, but are much thicker in ſubſtance; they have their edges turned backward, ſo are convex on their upper ſurface, and concave on their under. The flowers are white, like thoſe of the common Chamomile, and are diſpoſed almoſt in the form of an umbel; they appear in July, and the ſeeds ripen in autumn.

This plant is ſeldom cultivated but in botanic gardens for variety. It may be propagated by ſeeds, which may be ſown either in autumn, ſoon after they are ripe, or in the ſpring, upon a bed of common earth, in almoſt any ſituation; and when the plants come up, they will require no other care but to thin them where they are too cloſe, and keep them clean from weeds.

The third ſort grows naturally in many parts of India, I received it from Nimpu, where it grows plentifully; this plant riſes a foot and a half high, dividing into many branches, garniſhed with angular oval leaves, which are acutely ſawed on their edges, and are of a pale colour; the flowers are produced on foot-ſtalks which ariſe from the wings of the leaves, and alſo terminate the branches; theſe are, in all I have yet ſeen, very double, and full as large as thoſe of the double ſort before-mentioned; theſe appear in July, and in favourable ſeaſons are ſucceeded by ſeeds which ripen late in the autumn.

This ſort is propagated by ſeeds, which ſhould be ſown in the ſpring upon a moderate hot-bed, and when the plants come up, they muſt be treated in the manner already directed for the Chryſanthemum Coronarium, with which culture they will thrive and flower very well.

The fourth ſort grows naturally in the eaſt; this ſort riſes a foot high, having winged leaves of a ſilver colour, which are for the moſt part placed oppoſite; the foot-ſtalks of the flowers ariſe ſingle from the ſide of the branches, each ſupporting one white flower. This flowers in July, and in warm ſeaſons will ſometimes perfect ſeeds in autumn.

The ſeeds of this ſort ſhould be ſown in April, on a bed of light earth, in a good expoſure; and when the plants are grown of a proper ſize to remove, they ſhould be planted in the borders of the flower-garden; where, if they are kept clean from weeds, they will flower and perfect their ſeeds.

The fifth ſort grows naturally in North America; this is a perennial plant, whoſe ſtalks and leaves decay in the autumn, and new ones come out again in the ſpring; the ſtalks riſe a foot and a half high, and divide upward into ſeveral forked branches; at each of theſe diviſions is placed one linear ſpear-ſhaped leaf about two inches long, and a quarter of an inch broad, entire on the edges, and of a deep green. The branches are terminated by ſingle foot-ſtalks, each ſupporting one blue flower, very like thoſe of ſome kind of Starwort; but the empalement being ſcaly, and the ſeeds having no down, occaſions its being here placed. The flowers appear in July and Auguſt, and the ſeeds ripen in the autumn.

This is propagated by ſeeds, which, if ſown in the autumn, ſoon after they are ripe, will more certainly ſucceed than when ſown in the ſpring; they ſhould be ſown in the full ground, and when the plants are fit to remove, if they are planted in the borders of the flower-garden, they will continue ſome years without protection, and annually produce flowers and ſeeds.

MATTED ROOTS are ſuch as are entangled or plaited together.

MAUDLIN. See ACHILLEA.

MAUROCENIA. Lin. Gen. Plant. Edit. 2. 289. Frangula. Hort. Elth. 121. The Hottentot Cherry, vulgo.

The CHARACTERS are,

The empalement of the flower is of one leaf, cut into five ſegments, and is permanent. The flower hath five oval petals, which ſpread open. It hath five ſtamina, which are ſituated between the petals, crowned by obtuſe ſummits. In the center is ſituated a roundiſh germen, having no ſtyle, crowned by a trifid ſtigma. The germen afterward turns to an oval berry with one or two cells, each containing a ſingle oval ſeed.

This genus of plants is ranged in the third ſection of Linnæus's fifth claſs, which includes the plants whoſe flowers have five ſtamina and three ſtyles or ſtigmas; and in the laſt edition of his Genera, he has joined it to the Caſſine, making them the ſame; but as the flower of Caſſine has but one petal, and the flower of theſe have five; and the berries of the former three cells, and thoſe of this but one or two, therefore I have ſeparated them.

The SPECIES are,

1. MAUROCENIA (*Frangula*) foliis ſubovatis integerrimis, floribus confertis lateralibus. *Maurocenia with entire leaves which are almoſt oval, and flowers growing in cluſters on the ſides of the branches.* Frangula ſempervirens, folio rigido ſubrotundo. Hort. Elth. 146. tab. 121. *Evergreen berry-bearing Alder with a roundiſh ſtiff leaf, commonly called Hottentot Cherry.*
2. MAUROCENIA (*Phillyrea*) foliis obverſè ovatis ſerratis, floribus corymboſis alaribus & terminalibus. *Maurocenia with obverſe, oval, ſawed leaves, and flowers growing in a corymbus at the ſides and ends of the branches.* Phillyrea capenſis, folio celaſtri. Hort. Elth. 315. tab. 236. *Phillyrea of the Cape with a Staff-tree leaf, by the Dutch called Leplebout.*
3. MAUROCENIA (*Ceraſus*) foliis ovatis nervoſis integerrimis. *Maurocenia with oval veined leaves, which are entire.* Ceraſus Hottentotorum. Pluk. Almag. 94. *The ſmaller Hottentot Cherry.*
4. MAUROCENIA (*Americana*) foliis obverſè ovatis emarginatis, floribus ſolitariis alaribus. *Maurocenia with obverſe oval leaves which are indented at the edges, and flowers growing ſingly from the ſides of the branches.* Frangula folio ſubrotundo rigido ſubtus ferrugineo. Houſt. MSS. *Berry-bearing Alder with a roundiſh ſtiff leaf, which is of an iron colour on the under ſide.*

The firſt ſort grows naturally at the Cape of Good Hope, where it riſes to a conſiderable height, but here they are rarely more than five or ſix feet high. The ſtalk is ſtrong, woody, and covered with a purpliſh bark, ſending out many ſtiff branches, garniſhed with very thick leaves, almoſt oval, ſtanding for the moſt part oppoſite; they are about two inches long, and almoſt as much in breadth, of a dark green colour, and entire. The flowers come out from the ſide of the old branches, in cluſters, three, four, or five, ſtanding upon one common foot-ſtalk, which is ſlender, compoſed of five plain equal petals, ending in acute points; they are firſt of a greeniſh yellow colour, but afterward change to white, ſpreading wide open. In the center is ſituated the oval germen, crowned by the trifid ſtigma, and between each petal is ſituated a ſtamina; theſe ſpread open in the ſame manner as the petals, and are terminated by obtuſe ſummits. The germen afterward turns to an oval pulpy berry, ſome having but one, and others two cells; in each of theſe is lodged one oval ſeed. The berries change to a dark purple when they are ripe. This plant flowers in July and Auguſt, and the berries ripen in winter.

The ſecond ſort is a native of the Cape of Good Hope; this hath a woody ſtalk, which in this country ſeldom riſes more than five or ſix feet high, ſending out many branches, covered with a dark purpliſh bark, and garniſhed with pretty ſtiff leaves, which are obverſely oval, and ſawed on their edges, ſtanding oppoſite; they are about an inch and a half long, and a little more in breadth, of a light green, having ſhort foot-ſtalks. The flowers are produced in roundiſh bunches from the ſide, and at the end of the branches; they are white, and have five ſmall petals which ſpread open; between theſe are ſituated the ſtamina, which ſpread in the ſame manner; theſe are terminated by obtuſe ſummits. In the center is ſituated the roundiſh germen, which is crowned ſometimes by a bifid, and at others by a trifid ſtigma. The flowers appear in July and Auguſt, but are not ſucceeded by berries in England.

The third ſort grows naturally at the Cape of Good Hope; this riſes with a woody ſtalk about the ſame height as the former, dividing into many branches, which are garniſhed with ſtiff oval leaves about two inches long, and nearly as much in breadth, of a lucid green colour, and entire, having three longitudinal veins; theſe are ſometimes placed oppoſite, and at others they are alternate, having a ſtrong margin, or border, ſurrounding them. This ſort hath produced its flowers in England, and I am fully convinced that the characters of the flowers are the ſame with the others.

The fourth ſort was diſcovered by the late Dr. Houſtoun, growing naturally at the Paliſadoes in Jamaica, from whence he ſent the ſeeds to Europe; this riſes with a woody ſtalk from fifteen to twenty feet high, covered with a rough brown bark, and divides into many branches, which are garniſhed with ſtiff leaves, placed alternately; they are about an inch and a half long, and a little more in breadth, indented at the top, with a ſtiff reflexed border, of a gray colour on their upper ſide, but of a ruſty iron colour on their under, ſtanding upon ſhort foot-ſtalks. The flowers come out ſingly along the ſide of the branches; they have five ſmall white petals, which end in acute points, and five ſlender ſtamina, which ſpread open, and are terminated by obtuſe ſummits. In the center is ſituated a roundiſh germen, ſupporting a long bifid ſtigma, which is permanent. The germen afterward turns to a round berry, with one or two cells, each having one oblong ſeed.

The firſt ſort is too tender to live abroad in England, but as it requires no artificial heat, ſo may be preſerved through the winter in a good green-houſe, where it deſerves a place for the beauty of its leaves, which are very thick, of a deep green, and differing in appearance from every other plant; this may be propagated by laying down thoſe ſhoots which are produced near the root, but they are long in putting out roots. The ſhoots ſhould be twiſted in the part which is laid, to facilitate their putting out roots; if theſe are laid down in the autumn, they will put out roots ſufficient to remove by the following autumn; it may alſo be propagated by cuttings, but this is a tedious method, as they are ſeldom rooted enough to tranſplant in leſs than two years. When this is practiſed, the young ſhoots of the former year ſhould be cut off, with a ſmall piece of the old wood at the bottom, in the ſpring, and planted in pots filled with loamy earth, and plunged into a moderate hot-bed, covering the pots with glaſſes, which ſhould be cloſe ſtopped down to exclude the external air; they ſhould be pretty well watered at the time they are planted, but afterward they will require but little wet; the glaſſes over them ſhould be covered every day with mats, to ſcreen the cuttings from the ſun during the heat of the day, but in the morning before the ſun is too warm, and in the afternoon, when the ſun is low, they ſhould be uncovered, that the oblique rays of the ſun may raiſe a gentle warmth under the glaſſes. With this care the cuttings will take root, but where it is wanting, they ſeldom ſucceed. When the cuttings or layers are rooted, they ſhould be each planted in a ſeparate ſmall pot, filled with ſoft loamy ſoil, and placed in the ſhade till they have taken new root; then they may be removed to a ſheltered ſituation, where they may remain during the ſummer ſeaſon; and, before the froſts of the autumn come on, they muſt be removed into the green-houſe, and treated in the ſame way as the other plants of that country, giving them but little water in cold weather, and in mild weather admitting the free air. In ſummer they muſt be removed into the open air, and placed in a ſheltered ſituation with other exotic plants, and in very warm weather they muſt be watered three times a week, but it muſt not be given them too freely at any time. When the plants have obtained ſtrength, they will produce flowers and fruit, which, in warm ſeaſons, will ripen perfectly; and if the ſeeds are ſown ſoon after they are ripe, in pots, and plunged into the tan-bed in the ſtove, the plants will come up the ſpring following, and may then be treated in the ſame manner as thoſe which are propagated by cuttings and layers.

The ſecond ſort is not altogether ſo hardy as the firſt, ſo muſt have a warmer place in the green-houſe in winter, and ſhould not be placed abroad quite ſo early in the ſpring, nor ſuffered to remain abroad ſo late in the autumn, but if the green-houſe is warm, the plants will require no additional heat. This may be propagated by layers and cuttings, in the ſame manner as the firſt, and requires the ſame care, for the cuttings are with difficulty made to root; nor will the branches which are laid, put out roots in leſs than a year, and if theſe are not young ſhoots, they will not take root.

As this ſort does not produce ſeeds in England, it can be only propagated by layers and cuttings, which being difficult to root, occaſions its being ſcarce at preſent in Europe.

The third ſort is yet more rare than either of the former, and is with greater difficulty propagated, for the layers and cuttings are commonly two years before they get roots ſufficient to remove, and as it never produces ſeeds here, it can be no other way propagated; this is alſo tenderer than either of the other ſorts, ſo requires a moderate degree of heat in winter, for without ſome artificial warmth, it will ſeldom live through the winters in England. In the middle of ſummer the plants may be placed abroad in a warm ſituation, but they muſt be removed into ſhelter early in the autumn, before the cold nights come on, otherwiſe they will receive a check, which they will not recover in winter; during the ſummer ſeaſon they ſhould be gently watered three times a week in dry weather, but in winter they will require to be ſeldom watered.

The fourth ſort is much more impatient of cold than either of the other, being a native of a warmer country. This is propagated by ſeeds, which muſt be procured from the country where it grows naturally, for it does not produce any here. Theſe do not grow the firſt year, ſo the ſeeds ſhould be ſown in pots filled with light earth, and plunged into a moderate hot-bed of tanners bark, where they may remain all the ſummer; and in the autumn they ſhould be removed into the bark-ſtove, and plunged into the tan-bed between the other pots of plants, in any vacant ſpaces; there they may remain till ſpring, when they ſhould be taken out of the ſtove, and plunged into a freſh hot bed, which will bring up the plants. When theſe are fit to remove, they ſhould be each tranſplanted into a ſeparate ſmall pot, filled with a ſoft loamy earth, and plunged into a hot-bed again, being careful to ſhade them from the ſun till they have taken new root, after which they muſt be treated in the ſame manner as other tender plants from the ſame country, always keeping them in the tan-bed; and in winter they muſt have a temperate warmth, otherwiſe they will not live here.

All the ſorts delight in a ſoft, gentle, loamy ſoil, not over ſtiff, ſo as to detain the wet; nor ſhould the ſoil be too light, for in ſuch they ſeldom thrive. They retain their leaves all the year, ſo make a good appearance in the winter ſeaſon, their leaves being remarkably ſtiff and of a fine green, eſpecially the firſt ſort, whoſe fruit ripens in winter, which when it is in plenty on the plants, affords an agreeable variety.

MAYS. See ZEA.

MEADIA. Cateſb. Carol. 3. p. 1. Dodecatheon. Lin. Gen. Plant. 183.

The CHARACTERS are,

It hath a ſmall involucrum of many leaves, in which are many flowers. The flower hath a permanent empalement of one leaf, cut into five long ſegments which are reflexed. The flower hath one petal, cut into five parts, whoſe tube is ſhorter than the empalement, and the limb is reflexed backward. It hath five ſhort obtuſe ſtamina ſitting in the tube, terminated by arrow-pointed ſtigmas, which are connected into a beak, with a conical germen, ſupporting a ſlender ſtyle longer than the ſtamina, crowned by an obtuſe ſtigma. The empalement afterward becomes an oblong oval capſule with one cell, opening at the top, and filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle. The title of this genus was given to it by Mr. Mark Cateſby, F. R. S. in honour of the late Dr. Mead, who was a generous encourager of every uſeful branch of ſcience; but being himſelf no great botaniſt, Dr. Linnæus was unwilling any plant ſhould bear his name, ſo he has altered it to that of Dodecatheon, which was a title applied by Pliny to a ſpecies of Primroſe with a yellow root, and leaves like the Garden Lettuce.

We have but one SPECIES of this genus, viz.

MEADIA (*Dodecatheon.*) Cateb. Hiſt. Carol. App. 1. tab. 1. *Meadia.* Auricula urſi Virginiana, floribus boraginis, inſtar roſtratis, cyclaminum more reflexis. Pluk. Alm. 62. tab. 79. fol. 6. *Bear's-ear of Virgina, whoſe flower has a beak like that of Borage, and reflexed petals like thoſe of Sowbread.*

This plant grows naturally in Virginia, and other parts of North America, from whence it was ſent by Mr. Baniſter, many years ſince, to Dr. Compton, Lord Biſhop of London, in whoſe curious garden I firſt ſaw this plant growing in the year 1709; after which the plant was for ſeveral years loſt in England, till within a few years paſt, when it was again obtained from America, and has been propagated in pretty great plenty. It hath a yellow perennial root, from which comes out ſeveral long ſmooth leaves in the ſpring, which are near ſix inches long, and two and a half broad; at firſt ſtanding erect, but afterward they ſpread on the ground, eſpecially if the plants are much expoſed to the ſun; from between theſe leaves ariſe two, three, or four flower-ſtalks, in proportion to the ſtrength of the roots, which riſe eight or nine inches high, they are ſmooth, naked, and are terminated by an umbel of flowers, under which is ſituated the many-leaved involucrum. Each flower is ſuſtained by a pretty long ſlender foot-ſtalk which is recurved, ſo that the flower hangs downward. The flower has but one petal, which is deeply cut into five ſpear-ſhaped ſegments, which are reflexed upward like the flowers of Cyclamen or Sowbread; the ſtamina, which are five in number, are ſhort, and ſit in the tube of the flower, having five arrow-pointed ſummits, which are connected together round the ſtyle, forming a ſort of beak. The flowers are purple, inclining to a Peach bloſſom colour, and have an oblong germen ſituated in the bottom of the tube, which afterward becomes an oval capſule incloſed by the empalement, with the permanent ſtyle on its apex, which, when ripe, opens at the top to let out the ſeeds, which are faſtened round the ſtyle. This plant flowers the beginning of May, and the ſeeds ripen in July, ſoon after which the ſtalks and leaves decay, ſo that the roots remain inactive till the following ſpring.

This plant is propagated by offsets, which the roots put out pretty freely when they are in a looſe moiſt ſoil and a ſhady ſituation; the beſt time to remove the roots, and take away the offsets, is in Auguſt, after the leaves and ſtalks are decayed, that they may be fixed well in their new ſituation before the froſt comes on. It may alſo be propagated by ſeeds, which the plants generally produce in plenty; theſe ſhould be ſown in the autumn ſoon after they are ripe, either in a ſhady moiſt border, or in pots, which ſhould be placed in the ſhade; in the ſpring the plants will come up, and muſt then be kept clean from weeds, and if the ſeaſon proves dry, they muſt be frequently refreſhed with water; nor ſhould they be expoſed to the ſun, for while the plants are young, they are very impatient of heat, ſo that I have known great numbers of them deſtroyed in two or three days, which were growing to the full ſun. Theſe young plants ſhould not be tranſplanted till their leaves are decayed, then they may be carefully taken up and planted in a ſhady border, where the ſoil is looſe and moiſt, at about eight inches diſtance from each other, which will be room enough for them to grow one year, by which time they will be ſtrong enough to produce flowers, ſo may then be tranſplanted into ſome ſhady borders in the flower-garden, where they will appear very ornamental during the continuance of their flowers.

At the firſt many ſuppoſed this plant to be tender, ſo planted it in warm ſituations and nurſed it too much, whereby the plants were often killed; but by experience it is found to be ſo hardy, as not to be hurt by the ſevereſt cold of this country; but it will not thrive in a very dry ſoil, or where it is greatly expoſed to the ſun.

MEADOW.

Under the general title of Meadow, is commonly comprehended all paſture land, or at leaſt all Graſs land, which is mown for hay; but I chuſe rather to diſtinguiſh ſuch land only by this appellation, which is ſo low, as to be too moiſt for cattle to graze upon them in winter, being generally too wet to admit heavy cattle, without poaching and ſpoiling the ſward; and thoſe Graſs lands which are drier, I ſhall diſtinguiſh by the title of paſture.

There are two ſorts of Meadows in England, one of which is ſtiled Water Meadows, and the other are ſimply called Meadows.

Water Meadows are thoſe which lie contiguous to rivers or brooks, from whence the water can be carried to overflow the Graſs at pleaſure. Of theſe there are large tracts in ſeveral parts of England, which, if ſkilfully managed, would become much more profitable to their owners than they are at preſent, as hath been already mentioned in another place; for nothing can be more abſurd than the common practice of flowing theſe low grounds all the winter, whereby the roots of all the ſweeteſt kinds of Graſs are deſtroyed, and only ſuch Graſſes left as are natives of marſhes, which are coarſe and ſour: and if people were curious to examine the herbage of theſe Water Meadows, they would find the bulk of them compoſed of bad weeds, ſuch as grow by the ſides of rivers, brooks, and ditches, of which the ſeveral ſorts of Docks make no ſmall ſhare; and although many of theſe Meadows produce a great burden of what the country people call hay, yet this is only fit for cows, cart-horſes, and other animals, which by hard labour and hunger, are driven to eat it; for horſes which have been accuſtomed to feed on good hay, will ſtarve before they will touch it: and after the Graſs is mown off theſe Meadows, and cattle turned in to graze upon them, how common is it to ſee the land almoſt covered with theſe rank weeds, which the cattle never will eat! Which muſt always be the condition of ſuch Meadows, where the water is let over them in autumn and winter; for, as the ſides of rivers and brooks do every where abound with theſe rank weeds, whoſe ſeeds ripen in autumn, and falling into the water, they are carried by the ſtream, and depoſited on the flowed land, where they grow and fill the ground in every part; but ſo incurious are the generality of farmers in this reſpect, that if the ground is but well covered, they care not what it is, few of them ever taking any pains to weed or clean their paſtures.

The method which I propoſe for the management of theſe Meadows is, never to flow them till the middle or latter end of March, excepting once or twice in winter, when there may happen floods, which may bring down a great ſhare of ſoil from the upper lands, at which times it will be of great ſervice to let water upon the Meadows, that the ſoil may ſettle there; but the ſooner the wet is drained off when this is lodged, the greater advantage the Meadows will receive by it; but from the end of March to the middle of May, in dry ſeaſons, by frequently letting on the water, the growth of the Graſs will be greatly encouraged, and at this ſeaſon there will be no danger of deſtroying the roots of the Graſs; and after the hay is carried off the ground, if the ſeaſon ſhould prove dry, it will be of great ſervice to the Graſs, if the Meadows are flowed again; but when this is practiſed, no cattle ſhould be turned into the Meadows, till the ſurface of the ground is become firm enough to bear their weight without poaching the land, for otherwiſe the Graſs will ſuffer more from the treading of the cattle, than it will receive benefit by the flowing; but theſe are things which the country people ſeldom regard, ſo that the Meadows are generally very unſightly, and rendered leſs profitable.

I would alſo recommend the weeding of theſe Meadows twice a year; the firſt time in April, and again in October; at which times if the roots of Docks and all bad weeds are cut up with a ſpaddle, the Meadows will ſoon be cleared of this trumpery, and the herbage greatly improved.

Another great improvement of theſe lands might be procured, by rolling them with a heavy roller in ſpring and autumn. This will preſs the ſurface of the ground even, whereby it may be mown much cloſer, and it will alſo ſweeten the Graſs; and this piece of huſbandry is of more ſervice to paſtures than moſt people are aware of.

As to thoſe Meadows which cannot be flowed, there ſhould be the ſame care taken to weed and roll them, as hath been directed for the Water Meadows; as alſo never to let heavy cattle graze upon them in winter when they are wet; for the cattle will then poach them, and greatly injure the Graſs; therefore theſe ſhould be fed down as cloſe as poſſible in the autumn, before the heavy rains fall to render the ground ſoft; and thoſe paſtures which are drier, may be kept to ſupply the want of theſe in winter; and where there are not cattle enough to eat down the Graſs in time, it will be much better to cut off what is left, than to ſuffer it to rot upon the ground, for that will prevent the Graſs from ſhooting early in the ſpring; but where people have not cattle enough of their own to eat down the Graſs in time, they had much better take in ſome of their neighbours, than ſuffer their fog (as it is called) to remain all the winter. When theſe Meadows are fed in the autumn, the greater variety of animals are turned in, the cloſer they will eat the Graſs; and I am fully convinced, the cloſer it is eaten, the better the Graſs will come up the following ſpring; therefore, if during the time while the cattle are feeding, the Meadows are well rolled, the animals will eat the Graſs much cloſer than they otherwiſe would.

Thoſe perſons who are beſt ſkilled in this part of huſbandry, always dreſs their Meadows every other, or at leaſt every third year, without which it is in vain to expect any good crop of hay; but the generality of the farmers are ſo much diſtreſſed for dreſſing to ſupply their Corn land, as not to have any to ſpare for their Meadows, ſo that they are content with what the land will naturally produce, rather than take any part of their manure from their arable ground; but this is a very imprudent piece of huſbandry; for if land is to be annually mowed far hay, can it be ſuppoſed that it will produce a good crop long, unleſs there are proper dreſſings allowed it? And when ground is once beggared for want of manure, it will be ſome years before it can be recovered again; but I ſhall reſerve what is neceſſary to be farther enlarged on this ſubject, to be fully treated under the article of PASTURE.

MEADOW SAFFRON. See COLCHICUM.

MEDEOLA. Lin. Gen. Plant. 411.

The CHARACTERS are,

The flower has no empalement; it hath ſix oblong oval petals which are equal, ſpread open, and turn backward; and ſix awl-ſhaped ſtamina the length of the petal, terminated by incumbent ſummits, and three corniculated germen terminating the ſtyle, crowned by thick recurved ſtigmas. The germen afterward turns to a roundiſh trifid berry with three cells, each containing one heart-ſhaped ſeed.

This genus of plants is ranged in the third ſection of Linnæus's ſixth claſs, which includes thoſe plants whoſe flowers have ſix ſtamina and three ſtyles.

The SPECIES are,

1. MEDEOLA (*Aſparagoides*) foliis ovato-lanceolatis alternis, caule ſcandente. *Medeola with oval, ſpear-ſhaped, alternate leaves, and a climbing ſtalk.* Aſparagus Africanus, ſcandens, myrti folio. Hort. Piſſ. 17. *Climbing African Aſparagus, with a Myrtle leaf.*
2. MEDEOLA (*Anguſtifolia*) foliis lanceolatis alternis, caule ſcandente. *Medeola with ſpear-ſhaped alternate leaves, and a climbing ſtalk.* Aſparagus Africanus, ſcandens, myrti folio anguſtiore. Hort. Piſſ. 17. *Climbing African Aſparagus, with a narrower Myrtle leaf.*
3. MEDEOLA (*Virginiana*) foliis verticillatis, ramis inermibus. Lin. Sp. Plant. 339. *Medeola with leaves growing in whorls and ſmooth branches.* Lilium ſive martagon puſillum, floribus minutiſſimè herbaceis. Pluk. Alm. 410. tab. 328. fol. 4. *The Lily or little Martagon, with very ſmall herbaceous flowers.*

The firſt ſort grows naturally at the Cape of Good Hope; this hath a root compoſed of ſeveral dugs or oblong knobs, which unite together at the top like that of the Ranunculus, from which ariſe two or three ſtiff winding ſtalks, which divide into branches riſing four or five feet high, if they meet with any neighbouring ſupport to which they can faſten, otherwiſe they will fall to the ground; theſe are garniſhed with oval ſpear-ſhaped leaves, ending in acute points, placed alternately, and ſitting cloſe to the ſtalks; they are of a light green on their under ſide, and dark on their upper. The flowers come out from the ſide of the ſtalks, ſometimes ſingly, and at others there are two upon a ſlender ſhort foot-ſtalk; they have ſix oblong equal petals which ſpread open, and are of a dull white colour; within theſe are ranged ſix ſtamina, which are as long as the petals, terminated by incumbent ſummits. In the center is ſituated a germen with three horns, upon a ſhort ſtyle, crowned by three thick recurved ſtigmas; the germen afterward turns to a roundiſh berry with three cells, each containing one heart-ſhaped ſeed. It flowers the beginning of winter, and the ſeeds are ripe in the ſpring.

The ſecond ſort is alſo a native of the Cape of Good Hope, from whence I received the ſeeds. This hath a root like the firſt, but the ſtalks are not ſo ſtrong; they climb higher, but do not branch ſo much; the leaves are much longer and narrower, and are of a grayiſh colour. The flowers come from the ſide of the branches, two or three upon each foot-ſtalk; they are of an herbaceous white colour, ſhaped like thoſe of the former ſort, and appear about the ſame time, but this has not produced any fruit here. Theſe are undoubtedly diſtinct ſpecies, for they never vary when they are propagated by ſeeds.

Both theſe ſorts propagate freely by offsets from the roots, ſo that when they are once obtained, there will be no neceſſity of ſowing their ſeeds, which commonly lie a year in the ground, and the plants will not be ſtrong enough to flower in leſs than two years more, whereas the offsets will flower the following ſeaſon. The time for tranſplanting and parting of the roots is in July, when their ſtalks are entirely decayed, for they begin to ſhoot toward the end of Auguſt, and keep growing all the winter, and decay in the ſpring. Theſe roots ſhould be planted in pots filled with good kitchen-garden earth, and may remain in the open air till there is danger of froſt, when they muſt be removed into ſhelter, for they are too tender to live through the winter in the open air; but if they are placed in a warm green-houſe, they will thrive and flower very well, but they do not produce fruit unleſs they have ſome heat in winter; therefore where that is deſired, the plants ſhould be placed in a ſtove kept to a moderate degree of warmth. During the winter, when the plants are in vigour, they ſhould be frequently, but gently watered; but when the ſtalks begin to decay, they muſt have very little wet, for much moiſture will rot them while they are in an inactive ſtate; during which time, if the pots are placed where they have only the morning ſun, they will require little or no water: but when they begin to ſhoot out their ſtalks, they ſhould be removed to a warmer ſituation, and ſhould then be frequently but gently watered.

The flowers of theſe plants make no great appearance, ſo the plants are not preſerved for their beauty; but as their ſtalks are climbing, and their leaves are in full vigour in winter, during that ſeaſon they add to the variety in the green-houſe.

The third ſort is a native of North America; it is by Dr. Linnæus joined to this genus, in which I have followed him; though, if I remember rightly, the characters of this ſort do not exactly agree with thoſe of the other, for the flower is either polypetalous, or is cut into many ſegments, and has but five ſtamina; it being ſome years ſince I ſaw the flowers, I cannot be very certain if I am right. This hath a ſmall ſcaly root, from which ariſes a ſingle ſtalk about eight inches high, garniſhed with one whorl of leaves at a ſmall diſtance from the ground, and at the top there are two leaves ſtanding oppoſite; between theſe come out three ſlender foot-ſtalks which turn downward, each ſuſtaining one pale herbaceous flower with a purple pointal. It flowers in June, but I have not ſeen any fruit upon it.

This plant is hardy enough to live in the open air, but does not propagate faſt here, as it produces no ſeeds, ſo can only be encreaſed by offsets.

MEDICA. Tourn. Inſt. R. H. 410. tab. 231. Medicago. Tourn. Inſt. 412. Lin. Gen. Plant. 805. [This plant takes its name from Media (as Pliny writes) becauſe when Darius Hyſtaſpis carried his army into Greece, he had with him a great many ſacks of this ſeed for provender for his cattle, and ſo the ſeeds came to be ſcattered in Greece.] Medick, or La Lucerne.

The CHARACTERS are,

The flower hath a bell-ſhaped empalement of one leaf, cut into five equal acute points. The flower is of the butterfly kind; the ſtandard is oval, entire, and the border is reflexed; the two wings are oblong, oval, and fixed by an appendix to the keel; the keel is oblong, bifid, obtuſe, and reflexed toward the ſtandard. It has ten ſtamina, nine of which are joined almoſt to their tops, the other is ſingle; they are terminated by ſmall ſummits. It hath an oblong compreſſed germen which is incurved, ſitting on a ſhort ſtyle, terminated by a ſmall ſtigma; this and the ſtamina are involved by the keel and ſtandard. The germen afterward turns to a compreſſed moon-ſhaped pod, incloſing ſeveral kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſeventeenth claſs, which includes the herbs with a butterfly flower, having ten ſtamina in two houſes. He alſo has joined the Medica and

Medicago of Tournefort together, making them one genus under the title Medicago, but Tournefort makes the diſtinguiſhing character of Medicago to conſiſt in having a falcated compreſſed pod. Therefore I ſhall here ſeparate thoſe plants whoſe pods are of that form, from the others whoſe pods are twiſted like a ſcrew; and as the title of Medica was firſt applied to the Lucern, ſo I ſhall continue it to thoſe ſpecies as have ſuch pods, and refer the others to the genus of Medicago.

The Species are,

1. Medica (*Sativa*) pedunculis racemoſis, leguminibus contortis, caule erecto glabro. Lin. Sp. 1096. *Medick with branching foot-ſtalks, contorted pods, and an erect ſmooth ſtalk.* Medica major, erectior, floribus purpuraſcentibus. J. B. 2. 382. *Greater upright Medick with purpliſh flowers, commonly called La Lucerne, and by the French, Burgundy Hay.*
2. Medica (*Falcata*) pedunculis racemoſis, leguminibus lunatis, caule proſtrato. Flor. Suec. 620. *Medick with branching foot-ſtalks, moon-ſhaped pods, and trailing ſtalks.* Medica ſylveſtris, floribus croceis. J. B. 2. 383. *Wild Medick with Saffron-coloured flowers.*
3. Medica (*Radiata*) leguminibus reniformibus, margine dentatis, foliis ternatis. Hort. Cliff. 377. *Medick with kidney-ſhaped pods indented on the borders, and trifoliate leaves.* Medicago annua, trifolii facie. Tourn. Inſt. R. H.. 412. *Annual Medicago with the appearance of Trefoil.*
4. Medica (*Hiſpanica*) caule herbaceo procumbente, foliis pinnatis, leguminibus ciliato-dentatis. *Medick with a trailing herbaceous ſtalk, winged leaves, and pods having hairy indentures.* Medicago vulnerariæ facie Hiſpanica. Tourn. Inſt. R. H. 412. *Spaniſh Medicago with the appearance of Ladies Finger.*
5. Medica (*Italica*) caule herbaceo proſtrato, foliis ternatis, foliolis cuneiformibus ſupernè ſerratis, leguminibus margine integerrimis. *Medick with a proſtrate herbaceous ſtalk, trifoliate leaves whoſe lobes are wedge-ſhaped and ſawed at the top, and the borders of the pods entire.* Medicago Italica, annua maritima, trifolia, polycarpos, fructu toroſo non ſpinoſo. Mitchel. Hort. Piſſ. *Annual, Italian, maritime Medicago with trifoliate leaves, and bearing much fruit, which is thick and without ſpines.*
6. Medica (*Cretica*) caule herbaceo proſtrato, foliis radicalibus integerrimis, caulinis pinnatis leguminibus dentatis. *Medick with a proſtrate herbaceous ſtalk, the bottom leaves entire, thoſe on the ſtalks winged, and indented pods.* Medicago vulnerariæ facie Cretica. Tourn. Inſt. 412. *Cretan Medicago, with the appearance of Ladies Finger.*
7. Medica (*Arborea*) leguminibus lunatis margine integerrimis caule arboreo. Hort. Cliff. 376. *Medick with moon-ſhaped pods whoſe borders are entire, and a tree-like ſtalk.* Medicago trifolia, fruteſcens, incana. Tourn. Inſt. R. H. 412. *Shrubby, hoary, three-leaved Medica, or the Cytiſus Virgilii.*

The firſt ſort hath a perennial root and annual ſtalks, which riſes near three feet high in good land; theſe are garniſhed with trifoliate leaves at each joint, whoſe lobes are ſpear-ſhaped, about an inch and a half long, and half an inch broad, a little ſawed toward their top, of a deep green, and placed alternately on the ſtalks. The flowers grow in ſpikes, which are from two to near three inches in length, ſtanding upon naked foot-ſtalks which are two inches long, riſing from the wings of the ſtalk; they are of a Pea bloom or butterfly kind, of a fine purple colour, and are ſucceeded by compreſſed moon-ſhaped pods, which contain ſeveral kidney-ſhaped ſeeds. It flowers in June, and the ſeeds ripen in September.

There are the following varieties of this plant:
One with Violet-coloured flowers.
Another with pale blue flowers.
And a third with variegated flowers.

Theſe variations of their flowers have accidentally riſen from ſeed, therefore are not to be ſuppoſed different plants; yet thoſe with the pale blue and variegated flowers are never ſo ſtrong as thoſe with purple, ſo are leſs profitable to the cultivators.

This plant is ſuppoſed to have been brought originally from Media, and from thence had its name Medica: it is by the Spaniards called Alfaſa; by the French, La Lucerne, and Grand Trefle; and by ſeveral botanic writers it is called Fœnum Burgundiacum, i. e. Burgundian Hay. But there is little room to doubt of this being the Medica of Virgil, Columella, Palladius, and other ancient writers of huſbandry, who have not been wanting to extol the goodneſs of this fodder, and have given direction for the cultivation of it in thoſe countries where they lived.

But notwithſtanding it was ſo much commended by the antients, and hath been cultivated to ſo good purpoſe by our neighbours in France and Switzerland for many years, it hath not as yet found ſo good reception in our country as could be wiſhed; nor is it cultivated in conſiderable quantities, though it is evident, it will ſucceed as well in England as in either of the before-mentioned countries, though will not bear cutting ſo often here, yet is extremely hardy, and reſiſts the ſevereſt cold of our climate: as a proof of this, I muſt beg leave to mention, that the ſeeds which have have happened to be ſcattered upon the ground in autumn, have come up, and the plants have endured the cold of a ſevere winter, and made very ſtrong plants the following ſeaſon.

About the year 1650, the ſeeds of this plant were brought over from France, and ſown in England; but whether for want of ſkill in its culture, whereby it did not ſucceed, or that the people were ſo fond of going on in their old beaten road, as not to try the experiment whether it would ſucceed here or not, was the occaſion of its being entirely neglected in England, I cannot ſay, but it is very certain that it was neglected many years, ſo as to be almoſt forgotten. However, I hope, before I quit this article, to give ſuch directions for its culture, as will encourage the people of England to make farther trial of this valuable plant, which grows in the greateſt heat, and alſo in very cold countries, with this difference only, that in very hot countries, ſuch as the Spaniſh Weſt-Indies, &c. where it is the chief fodder for their cattle at this time, they cut it every week; whereas in cold countires, it is ſeldom cut oftener than four or five times in a year. And it is very likely that this plant may be of great ſervice to the inhabitants of Barbadoes, Jamaica, and the other hot iſlands in the Weſt-Indies, where one of the greateſt things they want is fodder for their cattle; ſince by the account given of this plant by Pere Feuillé, it thrives exceedingly in the Spaniſh Weſt-Indies, particularly about Lima, where they cut it every week, and bring it into the market to ſell, and is there the only fodder cultivated.

It is alſo very common in Languedoc, Provence, aad Dauphiné, and all over the banks of the Rhone, where it produces abundantly, and may be mowed five or ſix times in a year. Horſes, mules, oxen, and other domeſtic cattle, love it exceedingly; but above all when it is green, if they are permitted to feed on it, and eſpecially the black cattle, which will feed very kindly upon the dried plant; the exceſs of which is, by many people, thought to be very dangerous; but it is ſaid to be exceeding good for milch cattle, to promote their quantity of milk; and is alſo ſaid to agree with horſes the beſt of all, though ſheep, goats, and moſt other cattle, will feed upon it, eſpecially when young.

The directions given by all thoſe who have written of this plant are very imperfect, and generally ſuch as, if practiſed in this country, will be found entirely wrong; for many of them order the mixing of this ſeed with Oats or Barley, (as is practiſed for Clover) but in this way it ſeldom comes up well, and if it does, it will draw up ſo weak by growing amongſt the Corn, as not to be recovered under a whole year, if ever it can be brought to its uſual ſtrength again. Others have directed it to be ſown upon a low, rich, moiſt ſoil, which is found to be the worſt next to a clay, of any for this plant; in both which the roots will rot in winter, and in a year or two the whole crop will be deſtroyed.

But the ſoil in which this plant is found to ſucceed beſt in this country is, a light, dry, looſe, ſandy land, which ſhould be well ploughed and dreſſed, and the roots of all noxious weeds, ſuch as Couch Graſs, &c. deſtroyed, otherwiſe they will overgrow the plants while young, and prevent their progreſs.

The beſt time to ſow the ſeed is about the middle of April, when the weather is ſettled and fair; for if you ſow it when the ground is very wet, or in a rainy ſeaſon, the ſeeds will burſt and come to little (as is often the caſe with ſeveral ſorts of the leguminous plants;) therefore you ſhould always obſerve to ſow it in a dry ſeaſon, and if there happens rain in about a week or ten days after it is ſown, the plants will ſoon appear above ground.

But the method I would direct for the ſowing theſe ſeeds is as follows: after having well ploughed and harrowed the land very fine, you ſhould make a drill quite acroſs the ground, about half an inch deep, into which the ſeeds ſhould be ſcattered very thin by a hopper fixed to a drill plough; then cover them over half an inch thick, with the earth that came out of the drill; then proceed to make another drill about two feet and a half from the former, ſowing the ſeeds therein in the ſame manner as before, and ſo proceed through the whole ſpot of ground, allowing the ſame diſtance between row and row, and ſcatter the ſeeds very thin in the drills. In this manner, an acre of land will require about ſix pounds of ſeeds; for when it is ſown thicker, if the ſeed grows well, the plants will be ſo cloſe as to ſpoil each other in a year or two, the heads of them growing to a conſiderable ſize, as will alſo the roots, provided they have room. I have meaſured the crown of one root, which was in my poſſeſſion, eighteen inches diameter; from which I cut near four hundred ſhoots at one time, which is an extraordinary increaſe, and this upon a poor, dry, gravelly ſoil, which had not been dunged for many years, but the root was at leaſt fourteen years old; ſo that if this crop be well cultivated, it will continue many years, and be equally good as when it was firſt ſown; for the roots generally run down very deep in the ground, provided the ſoil be dry; and although they ſhould meet a hard gravel a foot below the ſurface, yet their roots would penetrate it, and make their way downward, as I have experienced, having taken up ſome of them which were above four feet in length, and had run above two feet into a rock of gravel, which was ſo hard as not to be looſened without mattocks and crows of iron, and that with much difficulty.

The reaſon for directing this ſeed to be ſown in rows is, that the plants may have room to grow; and for the better ſtirring the ground between them, to deſtroy the weeds, and encourage the growth of the plants, which may be very eaſily effected with a Dutch hoe, juſt after the cutting the crop each time, which will cauſe the plants to ſhoot again in a very little time, and be much ſtronger than in ſuch places where the ground cannot be ſtirred; but when the plants firſt come up, the ground between them ſhould be hoed by hand with a common hoe; and if in doing of this you cut up the plants where they are too cloſe in the rows, it will cauſe the remaining to be much ſtronger. This hoeing ſhould be repeated two or three times while the plants are young, according as the weeds are produced, obſerving always to do it in dry weather, that the weeds may the better be deſtroyed; for if it be done in moiſt weather, they will take root and grow again.

With this management, the plants will grow to the height of two feet, or more, by the beginning of Auguſt, when the flowers will begin to appear, when it ſhould be cut for the firſt time, obſerving to do it in a dry ſeaſon, eſpecially if it is to be made into hay, and keep it often turned, that it may ſoon dry, and be carried off the ground; for if it lie long upon the roots, it will prevent their ſhooting again. After the crop is taken off, you ſhould ſtir the ground between the rows with a hoe, to kill the weeds, and looſen the ſurface, which will cauſe the plants to ſhoot again in a ſhort time, ſo that by the middle of September there will be ſhoots four or five inches high, when you may turn in ſheep upon it to feed it down, for it will not be fit to cut again the ſame ſeaſon; nor ſhould the ſhoots be ſuffered to remain upon the plants, which would decay when the froſty weather comes on, and fall down upon the roots, and prevent their ſhooting early the ſucceeding ſpring; but theſe ſheep ſhould not remain ſo long upon it as to endanger the crowns of the roots.

So that the beſt way is to feed it until November, when it will have done ſhooting for that ſeaſon; but it ſhould not be fed by large cattle the firſt year, becauſe the roots being young, would be in danger of being deſtroyed, either by their trampling upon them, or their pulling them out of the ground; but ſheep will be of ſervice to the roots by dunging the ground, provided they do not eat it too cloſe.

The beginning of February, the ground between the roots ſhould be again ſtirred with the hoe, to encourage them to ſhoot again; but in doing of this you ſhould be careful not to injure the crown of the roots, upon which the buds are at that time very turgid, and ready to puſh. With this management, if the ſoil be warm, by the middle of March the ſhoots will be five or ſix inches high, when, if you are in want of fodder, you may feed it down till a week in April; after which it ſhould be ſuffered to grow for a crop, which will be fit to cut the beginning of June, when you ſhould obſerve to get it off the ground as ſoon as poſſible, and ſtir the ground again with a Dutch hoe, which will forward the plants ſhooting again, ſo that by the middle of July, there will be another crop fit to cut, which muſt be managed as before: after which it ſhould be fed down again in autumn; and as the roots by this time will have taken deep hold in the ground, there will be little danger of hurting them, if you ſhould turn in larger cattle; but you muſt always obſerve not to ſuffer them to remain after the roots have done ſhooting, leſt they ſhould eat down the crown of the roots below the buds, which would conſideraby damage, if not deſtroy them. In this manner you may continue conſtantly to have two crops to cut, and two feedings upon this plant, and in good ſummers there may be three crops cut, and two feedings; which will be a great improvement, eſpecially as this plant will grow upon dry barren ſoils, where Graſs will produce little, eſpecially in dry ſeaſons, when it will be of great uſe, the Graſs being often burnt up. And as it is an early plant in the ſpring, ſo it will be of great ſervice when fodder falls ſhort at that ſeaſon, when it will be fit to feed at leaſt a month before Graſs or Clover; for I have had this plant eight inches high by the tenth of March, old ſtyle, at which time the Graſs in the ſame place has ſcarcely been one inch high.

That the cold will not injure this plant, I am fully ſatisfied; for in the very cold winter, anno 1729-30, I had ſome roots of this plant which were dug up in October, and laid upon the ground in the open air till the beginning of March, when I planted them again, and they ſhot out very vigorouſly ſoon after; nay, even while they lay upon the ground, they ſtruck out fibres from the under ſide of the roots, and begun to make ſhoots from the crown of the roots. But that wet will deſtroy the roots I am fully convinced, for I ſowed above an acre upon a moiſt ſpot of ground for a trial, which came up very well, and flouriſhed exceedingly during the ſummer ſeaſon, but in winter, when the great rains fell, the roots began to rot at bottom, and before the ſpring moſt of them were deſtroyed. There has been lately ſome perſons who have adviſed the ſowing of Lucern in broad-caſt, and to make uſe of a ſtrong harrow, to tear up and deſtroy the weeds which naturally grow up among the plants; but this advice has been given too prematurely, therefore it is to be hoped will not be followed by any diſcreet perſons, who are deſired to take a ſurvey of ſome of theſe lands which have been ſo cultivated three or four years, which I am fully perſuaded will convince them of the bad huſbandry, for no perſon who has any regard to neatneſs and utility, will ever practiſe this method.

The beſt places to procure the ſeed from, are Switzerland, and the northern parts of France, for the ſeeds ſaved in thoſe countries ſucceed better with us than that which comes from a more ſouthern climate; but this ſeed may be ſaved full as well in England, and in as great plenty, were people curious enough to let the firſt crop ſtand for that purpoſe; in order to which, a ſmall quantity of the plants ſhould be ſuffered to grow uncut till the ſeeds are ripe, which is commonly about the beginning of September, when it muſt be cut, and laid to dry in an open barn, where the air may freely paſs through, but be defended from the wet; for if it be expoſed thereto, it will ſhoot while it remains in the pod, whereby it will be ſpoiled. When it is quite dry, it muſt be threſhed out, and cleanſed from the huſk, and preſeved in a dry place till the ſeaſon for ſowing it; and this ſeed ſaved in England is much preferable to any brought from abroad, as I have ſeveral times experienced, the plants produced from it having been much ſtronger than thoſe produced from French, Helvetian, and Turkey ſeeds, which were ſown at the ſame time, and on the ſame ſoil and ſituation.

I am inclinable to think, that the reaſon of this plant not ſucceeding, when it has been ſown in England, has either been occaſioned by the ſowing it with Corn, with which it will by no means thrive (for though the plant be very hardy when grown pretty large, yet at its firſt coming up, if it be incommoded by any other plants or weeds, it ſeldom does well; therefore it ſhould always be ſown by itſelf, and carefully cleared from weeds until it has ſtrength, after which it is not eaſily deſtroyed;) or, perhaps, people have ſown it at a wrong ſeaſon, or in wet weather, whereby the ſeeds have rotted, and never come up, which hath diſcouraged their attempting it again: but however the ſucceſs has been, I dare aver, that if the method of ſowing and managing of this plant, which is here laid down, be duly followed, it will be found to thrive as well as any other ſort of plant now cultivated in England, producing a much greater crop than any other ſort of fodder, and will continue much longer; for if the ground be duly ſtirred after the cutting each crop, and the laſt crop fed as hath been directed, the plants will continue in vigour forty years or more, without renewing, provided they are not permitted to ſeed, which will weaken the roots more than four times cutting it would do. The hay of this plant ſhould be kept in cloſe barns, it being too tender to be kept in ricks open to the air as other hay; but it will remain good, if well dried before it be carried in, three years. The people abroad reckon an acre of this fodder ſufficient to keep three horſes all the year round.

And I have been aſſured by perſons of undoubted credit, who have cultivated this plant in England, that three acres of it have fed ten cart-horſes from the end of April to the beginning of October, without any other food, though they have been conſtantly worked. Indeed, the beſt uſe which can be made of this Graſs is, to cut it, and give it green to the cattle; where this hath been daily practiſed, I have obſerved that by the time the field has been cut over, that part which was the firſt cut hath been ready to cut again; ſo that there has been a conſtant ſupply in the ſame field, from the middle of April to the end of October: when the ſeaſon has continued long mild, and when the ſummers have proved ſhowery, I have known ſix crops cut in one ſeaſon, but in the drieſt ſeaſons there will be always three or four. When the plant begins to flower, it ſhould then be cut; for if it ſtands longer, the ſtalks will grow hard, and the under leaves will decay, ſo that the cattle will not ſo greedily devour it. Where there is a quantity of this cultivated, ſome of it ſhould be cut before the flowers appear, otherwiſe there will be too much to cut within a proper time.

When this is made into hay, it will require a great deal of making; for as the ſtalks are very ſucculent, it muſt be often turned, and expoſed a fortnight or longer, before it will be fit to houſe; for this requires a longer time to make than Saint Foin; therefore, when it is cut, it ſhould be carried to make upon ſome Graſs ground, becauſe the earth in the intervals of the rows will waſh up, and mix with the hay in every ſhower of rain, and by carrying it off as ſoon as it is cut, the plants will ſhoot up again ſoon; but it is not ſo profitable for hay, as to cut green for all ſorts of cattle, but eſpecially horſes, which are extremely fond of it; and to them it will anſwer the purpoſe both of hay and Corn, and they may be worked at the ſame time juſt as much as when they are fed with Corn, or dry food.

The ſecond ſort grows naturally in the ſouth of France, in Spain, Italy, and alſo in ſome more northern countries, and has been ſuppoſed only a variety of the firſt, but I have frequently cultivated this by ſeeds, and have never obſerved it to alter. The ſtalks of this are ſmaller, and never riſe ſo high, generally proſtrating on the ground; the leaves are not half ſo broad, the flowers are produced in ſhort roundiſh ſpikes, and are of a Saffron colour. This flowers about the ſame time as the firſt, and the ſeeds ripen the latter part of ſummer. It may be eaſily propagated by ſeeds, and hath a perennial root which will continue many years, but is ſeldom cultivated any where.

The third ſort grows naturally in Italy; this is an annual plant, having ſeveral ſlender branching ſtalks a foot and a half long, which ſpread on the ground, garniſhed with trifoliate leaves, whoſe lobes are oval, ſpear-ſhaped, and entire. The flowers are produced ſingly upon ſlender foot-ſtalks, which proceed from the ſide of the branches; they are ſmall, of a yellow colour, and ſhaped like thoſe of the former ſort; theſe are ſucceeded by broad, flat, moon-ſhaped pods, whoſe borders are indented, and theſe indentures are terminated by fine hairs; in each of theſe pods is lodged four or five kidney-ſhaped ſeeds. It flowers in June and July, and the ſeeds ripen in the autumn.

The fourth ſort grows naturally in Spain; this is alſo an annual plant, whoſe ſtalks grow a foot and a half long, trailing on the ground, and are garniſhed with winged leaves compoſed of two pair of ſmall lobes, terminated by one large, oval, ſpear-ſhaped lobe, which are a little hoary, and placed alternately at the joints. The flowers ſtand upon long ſlender foot-ſtalks, each ſuſtaining four or five gold-coloured flowers at the top, which are ſucceeded by compreſſed moon-ſhaped pods, not half ſo large as thoſe of the third ſort, but have hairy indentures like thoſe. This flowers and perfects its ſeeds about the ſame time as the former.

The fifth ſort grows naturally on the borders of the ſea in ſeveral parts of Italy; it is alſo an annual plant, with proſtrate herbaceous ſtalks about a foot long, garniſhed with trifoliate leaves, whoſe lobes are wedge-ſhaped and ſawed toward the top. The flowers are produced upon ſlender foot-ſtalks ariſing from the joints of the ſtalk; they are about an inch long, each ſuſtaining five or ſix pale yellow flowers, which are ſucceeded by ſmall, thick, moon-ſhaped pods, whoſe borders are entire, containing three or four ſmall kidney-ſhaped ſeeds in each. It flowers and ſeeds about the ſame time with the two former.

The ſixth ſort grows naturally in the Archipelago; this is an annual plant, from whoſe roots come out ſeveral oblong leaves about two inches and a half long, narrow at their baſe, but broad toward the top, where they are rounded; theſe ſpread on the ground, and between them come out the ſtalks which are ſlender, about a foot long, branching out into ſmaller, garniſhed with winged hoary leaves: thoſe on the lower part of the ſtalk are compoſed of two pair of lobes terminated by an odd one; theſe are equal in ſize, but thoſe on the upper part of the ſtalks are trifoliate. The flowers are produced at the end of the ſtalks; they are ſmall, yellow, and ſhaped like thoſe of the other ſorts, and are ſucceeded by compreſſed moon-ſhaped pods, which are acutely indented on their borders, and contain three or four kidney-ſhaped ſeeds. This plant flowers and ripens its ſeeds about the ſame time as the other.

Theſe annual ſorts are preſerved in the gardens of thoſe who are curious in botany; the ſeeds of theſe ſhould be ſown upon an open bed of freſh ground, in the places where the plants are to remain, becauſe they do not bear tranſplanting well, unleſs when they are very young. As the plants ſpread their branches on the ground, ſo they ſhould not be ſown nearer than two feet and a half aſunder; when the plants come up, they will require no other care but to keep them clean from weeds. In June they will begin to flower, and as the ſtalks and branches extend, there will be a ſucceſſion of flowers produced till the autumn; but the early flowers are ſuch as will have good ſeeds ſucceed them; for thoſe which come late in ſummer, have not time to ripen before the cold weather comes on.

The ſeventh ſort grows naturally in the iſlands of the Archipelago, in Sicily, and the warmeſt parts of Italy. This riſes with a ſhrubby ſtalk to the height of eight or ten feet, covered with a gray bark, and divides into many branches, which, while young, are covered with a hoary down; theſe are garniſhed at each joint with trifoliate leaves, ſtanding upon foot-ſtalks about an inch long; there are two or three of theſe at each joint, ſo that the branches are cloſely covered with them; the lobes are ſmall, ſpear-ſhaped, and hoary on their under ſide; theſe remain all the year. The flowers are produced on foot-ſtalks which ariſe from the ſide of the branches, they are of a bright yellow, each foot-ſtalk ſuſtaining four or five flowers; theſe are ſucceeded by compreſſed moon-ſhaped pods, each containing three or four kidney-ſhaped ſeeds.

It flowers great part of the year, and when the winters are favourable all the year; or when the plants are ſheltered in winter, they are ſeldom deſtitute of flowers; but thoſe in the open air begin to flower in April, and continue in ſucceſſion till December. Thoſe flowers which appear early in ſummer will have their ſeeds ripe in Auguſt, or the beginning of September, and the others will ripen in ſucceſſion till the cold ſtops them.

This plant may be propagated by ſowing the ſeeds upon a moderate hot-bed, or a warm border of light earth, in the beginning of April; and when the plants come up, they ſhould be carefully cleared from weeds; but they ſhould remain undiſturbed, if ſown in the common ground, till September following; but if on a hot-bed, they ſhould be tranſplanted about Midſummer into pots, placing them in the ſhade until they have taken root; after which they may be removed into a ſituation where they may be ſcreened from ſtrong winds, in which they may abide till the latter end of October, when they muſt be put into a common garden frame, to ſhelter them from hard froſts; for thoſe plants which have been brought up tenderly, will be liable to ſuffer by hard weather, eſpecially while they are young. In April following theſe plants may be ſhaken out of the pots, and placed in the full ground where they are deſigned to remain, which ſhould be in a light ſoil and a warm ſituation, in which they will endure the cold of our ordinary winters extremely well, and continue to produce flowers moſt part of the year, and retaining their leaves all the winter renders them the more valuable.

Thoſe alſo which were ſown in an open border may be tranſplanted in Auguſt following, in the ſame manner; but in doing of this you muſt be careful to take them up with a ball of earth to their roots, if poſſible, as alſo to water and ſhade them until they have taken root; after which they will require little more care than to keep them clean from weeds, and to prune off the luxuriant branches to keep them within due compaſs; but you ſhould never prune them early in the ſpring, nor late in autumn, for if froſt ſhould happen ſoon after they are pruned, it will deſtroy the tender branches, and many times the whole plant is loſt thereby.

Theſe plants have been conſtantly preſerved in the green-houſe, ſuppoſing them too tender to live thro' the winter in the open air; but I have had large plants of this kind, which have remained in a warm ſituation many years without any cover, and have been much ſtronger, and flowered better, than thoſe which were houſed; though, indeed, it will be proper to keep a plant or two in ſhelter, leſt by a very ſevere winter (which ſometimes happens in England) the plants abroad ſhould be deſtroyed.

They may alſo be propagated by cuttings, which ſhould be planted in April, upon a bed of light earth, and watered and ſhaded until they have taken root, after which they may be expoſed to the open air; but they ſhould remain in the ſame bed till July or Auguſt following, before they are tranſplanted, by which time they will have made ſtrong roots, and may be removed with ſafety to the places where they are to remain, obſerving (as was before directed) to water and ſhade them until they have taken root; after which you may train them up with ſtrait ſtems, by faſtening them to ſticks, otherwiſe they are apt to grow crooked and irregular; and when you have got their ſtems to the height you deſign them, they may then be reduced to regular heads, and with pruning their irregular ſhoots every year, they may be kept in very good order.

This plant grows in great plenty in the kingdom of Naples, where the goats feed upon it, with whoſe milk the inhabitants make great quantities of cheeſe; it alſo grows in the iſlands of the Archipelago, where the Turks uſe the wood of theſe ſhrubs to make handles for their ſabres, and the Caliogers of Patmos make their beds of this wood.

This is, as hath been before obſerved, by many people, ſuppoſed to be the Cytiſus of Virgil, Columella, and the old writers in huſbandry, which they mention as an extraordinary plant, and worthy of cultivation for fodder, from whence ſeveral perſons have recommended it as worthy of our care in England. But however uſeful this plant may be in Crete, Sicily, Naples, or thoſe warmer countries, yet I am perſuaded it will never thrive in England, ſo as to be of any real advantage for that purpoſe; for in ſevere froſt it is very ſubject to be deſtroyed, or at leaſt ſo much damaged, as not to recover its former verdure before the middle or latter end of May; and the ſhoots which are produced will not bear cutting above once in a ſummer, and then will not be of any conſiderable length; and the ſtems growing very woody, will render the cutting of it very troubleſome; ſo that, upon the whole, it can never anſwer the trouble and expence in cultivating it, nor is it worth the trial, ſince we have ſo many other plants preferable to it; though in hot, dry, rocky countries, where few other plants will thrive, this may be cultivated to great advantage, ſince in ſuch ſituations this plant will live many years, and thrive very well.

But however unfit this may be for ſuch uſes in England, yet for the beauty of its hoary leaves, which will abide all the year, together with its long continuance in flower, it deſerves a place in every good garden, where, being intermixed with ſhrubs of the ſame growth, it makes a very agreeable variety.

As there are at preſent ſo many perſons inquiſitive to know which is the true Cytiſus mentioned by the antients, I have taken the pains of tranſcribing briefly what they have ſaid as to its deſcription, by which may be judged how uncertain it is to determine in an affair where there is ſo little to be found in authors to aſſiſt us.

Theophraſtus ſays, Cytiſus is ſuch an enemy to other plants, that it will kill them, by robbing them of nouriſhment, and that the medulla of it is ſo hard and thick, that it comes the neareſt of any thing to Ebenum.

The ſhrub Cytiſus, by Ariſtomachus, the Athenian, as may be ſeen in Pliny [who ſays much the ſame as Varro and Columella, from whom probably he has taken it,] is highly commended for food for ſheep, and, being dry, for ſwine; the utility [as to health and fattening, Dal.] the ſame as that of Ervum, but the ſatiety is quicker, a four-footed animal growing fat with a little of it, ſo that cattle ſet light by their Barley.

No food makes a greater quantity, nor better milk, and it excels all things as to the diſeaſes of cattle; moreover, being given dry, or in a decoction of water mixed with wine, to nurſes whoſe milk fails, it helps very much, and makes the children ſtronger, and take to their feet ſooner; green, it is alſo good for them, or dry, if it be made moiſt.

Democritus and Ariſtomachus ſay, bees will never want food, if they have Cytiſus enough, nor is any thing cheaper.

If, when the ſeed be ſown, ſhowers are wanting, Columella directs, That it be watered the fifteen following days.

It is ſown [according to the antients] after the equinoxes. It is perfected in three years. It is mown in the vernal equinox [for it flouriſhes all the winter, Dal.] with the cheap labour of a boy, or old woman.

The Cytiſus is hoary in aſpect. If any one would expreſs its likeneſs briefly, it is a ſhrub of a broader ſort of Trefoil.

In winter, being moiſtened, ten pounds will ſatisfy a horſe, and a leſs quantity other animals. Being dry, it has more virtue, and a leſs quantity ſatisfies.

This ſhrub was found in the iſle Cythnus, thence it was tranſlated into all the Cyclades, and afterwards into the cities of Greece, where it occaſioned a great increaſe of cheeſe.

It fears not the injury of heat nor cold, nor hail nor ſnow, and Hyginus adds, nor of enemies, becauſe the wood is of no value.

Alſo Galen, in his book de Antid. writes, "Cytiſus
" is a ſhrub. In Myſia, in that part that is neareſt to
" our province, there is a tract which they call Brot-
" ton, in which there is a place full of Cytiſus, from
" the flowers of which, all agree, the bees make very
" much honey.
" It is a fruticoſe plant; it riſes to the height of a
" Myrtle."

He ſays, ſeven ſimple leaves have the faculty of digeſting, mixed with warm water, as the leaves of Mallows: thus Galen.

Cornarus too ſecurely writes, That Cytiſus either never came among the Germans, or that it periſhed long ago. From what Pliny ſays, That it was very rare in Italy in his time, he cannot perſuade me, that nothing could grow in Germany, that was ſcarce in Italy. Jo. Bauh.

Strabo, contrary to Dioſcorides, Pliny, and Galen, will have the Cytiſus to be a tree, and he likens it to the Balſamum, an odoriferous tree, which probably was the occaſion, that Cornarus thought this tree came neareſt to a ſhrub, becauſe Pliny ſaid the wood was of no value, therefore he perſuades himſelf, that it produces woody branches, not tender and ſoft, as in an herb.

But Virgil ſhews it is neither a tree nor a ſhrub, when he ſays:

" —— Non me paſcente, capellæ,
" Florentem Cytiſum, & ſalices capretis amaras."
[Buc. Eclog. 1.
" Sic Cytiſo paſtæ diſtendunt ubera vaccæ."
Eclog. 9.
" Nec Cytiſo ſaturantur apes, nec fronde capellæ."
Eclog. 10.

Virgil, I ſay, indicates very plainly in theſe verſes, that it is neither a tree nor a ſhrub, for goats do not uſe it; nor can they, if they were wont to eat flowery trees. Neither will what Cornarus ſays avail, when Pliny ſays the wood is of no value, that it muſt of neceſſity produce woody branches; nay, the contrary is rather true, that there is no value in the wood, that it bears viny pliable branches, with which the goats cannot be ſatiated.

Theocritus very plainly expreſſes it, That Cytiſus is a very grateful food to goats:

Ἡ αἶξ τὸν κύτισον, ὀλύκος τὴν αἶγα διώκει.

" Capra Cytiſum, lupus capellam ſequitur."

Which is thus imitated by Virgil:

" Torva leæna lupum ſequitur, lupus ipſe capellam:
" Florentem Cytiſum ſequitur laſciva capella."

Amatus, to avoid this difficulty, concludes Cytiſus to be between trees and ſhrubs, by the difference of genus, to be diſtinguiſhed by Pliny, that, as a tree, it may be uſed in the feminine gender, as a ſhrub in the maſculine, which is not worth the minding.

Columella uſes Cytiſus in the feminine gender, and Theocritus and others in the maſculine; as Cob. Conſt. in Lex. who writes that it was called ἀρνόφυλλον, and Theocritus calls this ſhrub κυτιλὸν, and others, κύτισον; others again τῆλις.

Of Cythnus, or, as others, of Cythiſa, the name of an iſland, as Severius has it.

Among theſe words of Dioſcorides in ſome manuſcripts, there are found, falſely written, in ſome, Telinen Triphyllon, in others Lotum Grandem.

Dioſcorides's deſcription of the Cytiſus is not ſo accurate, that from it the true Cytiſus may be aſcertained.

Although in the ſeveral ſpecies of Cytiſuſes it is hard to judge which is the legitimate Cytiſus ſpecified by the antients; the moſt ſkilful take it to be that which Maranthus has deſcribed, which is our Medica, which has been ranged under the genus of Cytiſus, by moſt of the writers before Dr. Tournefort, who eſtabliſhed the genus of Medicago, on account of the ſeed-veſſel being like that of Medica, or Snail Trefoil.

This plant grows in great plenty at Abruzzo, where the goats feed upon it, and from their milk are made great quantities of cheeſe. I have had both ſeeds and ſpecimens of the plant ſent me from thence, by perſons of the greateſt ſkill in botany, who have aſſured me, that this plant is generally ſuppoſed, by all the people of learning in that country, to be the plant mentioned by Virgil.

Trifolium fruticans, according to Dodonæus, or Polemonium, according to ſome, is improperly called, Cytiſus by many.

Trifolium candidum Dodon. by ſome is ſaid to be the Cytiſus of Columella, concerning which, ſee Lib. Hiſt. n. 9. 17. of Trifolious herbs.

Tragus writes, That their opinion is to be rejected, who interpret the Trifolium pratenſe to be a Cytiſus. Some contend the Trifolium candidum of Dodon. the Rectum Melilotum vulgarem, to be the Cytiſus of the antients, as Dodonæus ſays, but they have not hit on the truth.

Ruellius writes, That he was afraid that Marcellus took Cytiſus for Medica.

MEDICAGO. Lin. Gen. Plant. 805. Medica. Tourn. Inſt. R. H. 410. tab. 231. Snail Trefoil.

The CHARACTERS are,

The flower hath a cylindrical erect empalement of one leaf, which is cut at the brim into five equal acute ſegments. The flower is of the butterfly kind, having an oval erect ſtandard, whoſe borders are reflexed. The wings are oblong, oval, and fixed to the keel by an appendix. The keel is oblong, bifid, obtuſe, and reflexed. It hath ten ſtamina, nine of which are joined, and the other is ſingle, terminated by ſmall ſummits, and an oblong germen, which ſits upon a ſhort ſtyle, is involved with the ſtamina by the keel, and crowned by a very ſmall ſtigma. The germen afterward turns to a long compreſſed pod, twiſted into the form of a ſnail, incloſing many kidney-ſhaped ſeeds.

This genus of plants is ranged in the ſame ſection and claſs, as the former by Tournefort and Linnæus.

The Species are,

1. Medicago (*Marina*) pedunculis racemoſis, leguminibus cochleatis, ſpinoſis, caule procumbente tomentoſo. Hort. Cliff. 378. *Medicago with branching foot-ſtalks, ſnail-ſhaped prickly pods, and a trailing woolly ſtalk.* Medica Marina. Lob. Icon. 38. *Sea Medick, or Snail Trefoil.*
2. Medicago (*Scutellata*) leguminibus chochleatis, inermibus ſtipulis dentatis caule anguloſo diffuſo, foliolis oblongo ovatis acute dentatis. *Medicago with ſmooth ſnail-ſhaped pods, indented ſtipulæ, an angular diffuſed ſtalk, and oblong, oval, ſmall leaves, which are ſharply indented.* Medica ſcutellata. J. B. 2. 384. *Snail Trefoil, commonly called Snails.*
3. Mbdicago (*Tornato*) leguminibus tornatis inermibus, ſtipulis acutè dentatis foliolis ſerratis. *Medicago with a turned ſmooth pod, acute indented ſtipulæ, and the ſmall leaves ſawed.* Medica tornata minor lenis. Park. Theat. 1116. *Snail Trefoil with a ſmaller, turned, ſmooth fruit.*
4. Medicago (*Intortexta*) leguminibus cochleatis ſpinoſiſſimis aculeis utrinque tendentibus. *Medicago with very prickly ſnail-ſhaped pods, whoſe ſpines point every way.* Medica magno fructu, aculeis ſurſum & deorſum tendentibus. Tourn. Inſt. R. H. 411. *Snail Trefoil with a large fruit, whoſe ſpines point upward and downward, commonly called Hedgehog.*
5. Medicago (*Laciniata*) leguminibus chochleatis ſpinoſis, foliolis acutè dentatis tricuſpidiſque. *Medicago with prickly ſnail-ſhaped pods, whoſe lobes are acutely indented, and terminate in three points.* Medica cochleata dicarpos capſulâ rotundâ ſpinoſâ, foliis eleganter diſſectis. H. L. B. *Snail-ſhaped Trefoil, having a double fruit with a round prickly capſule, and elegant cut leaves.*

There are many other ſpecies of this genus, which grow naturally in the warm parts of Europe, and are frequently preſerved in botanic gardens for the ſake of variety; but theſe are rarely cultivated in other gardens, ſo it would be beſide my purpoſe to enumerate them here.

The firſt ſort grows naturally on the borders of the Mediterranean Sea; this is a perennial plant, with trailing woolly branches about a foot long, which are divided into ſmall branches, garniſhed with ſmall, trifoliate, downy leaves at each joint, ſtanding upon ſhort foot-ſtalks. The flowers are produced from the ſide and at the ends of the branches, in ſmall cluſters; they are of a bright yellow colour, and are ſucceeded by ſmall roundiſh ſnail-ſhaped fruit, which are downy, and armed with a few ſhort ſpines. The flowers appear in June and July, and the ſeeds ripen in September.

This plant is propagated by ſeeds, which ſhould be ſown upon a warm border of dry ſoil in the ſpring, where the plants are deſigned to remain; when the plants are come up, two or three of them may be tranſplanted into ſmall pots to be ſheltered in winter, becauſe in very ſevere froſt, thoſe which are in the open air are frequently deſtroyed; though they will endure the cold of our ordinary winters, if they are growing in a dry ſoil and a ſheltered ſituation. Thoſe plants which are left remaining, will require no other culture but to thin them where they are too cloſe, and keep them clean from weeds. This ſort may be propagated by cuttings, which may be planted in June or July, in a ſhady border, covering them cloſe with a glaſs to exclude the external air; theſe will take root in about ſix weeks time, and may then be either planted in a warm border or in pots, and treated in the ſame way as the ſeedling plants.

The ſecond ſort is an annual plant, which grows naturally in the warm parts of Europe, but in England it is frequently cultivated in gardens for the oddneſs of its fruit, which is twiſted in the form of a ſnail; and as it ripens turns to a dark brown colour, ſo as to have the appearance of ſnails feeding on the plants at a diſtant view. This hath trailing branches; the flowers are of a pale yellow, and come out from the ſide of the branches. Theſe appear in June and July, and the ſeeds ripen in the autumn. It is propagated by ſeeds, which ſhould be ſown in the middle of April, where the plants are to remain; and the plants ſhould be thinned where they are too cloſe, and kept clean from weeds, which is all the culture they require.

The third ſort is alſo an annual plant, which grows in the ſame countries as the former. This hath trailing branches, and yellow flowers like the ſecond ſort, but the fruit is much longer and cloſer twiſted, ſo as to reſemble the figure of a veſſel called a pipe, being leſs at each end than in the middle. This is frequently kept in gardens for the ſake of variety, and may be propagated and treated in the ſame way as the ſecond ſort.

The fourth ſort is an annual plant, which was formerly more cultivated in the Engliſh gardens than at preſent. The ſtalks, leaves, and flowers, are like thoſe of the two former ſorts, but the fruit is much larger, and cloſely armed with long ſpines like a hedgehog, from whence it had the title; theſe ſpines point every way, ſo that it is difficult to handle the fruit without ſmarting for it. This is propagated by ſeeds in the ſame way as the ſecond ſort, and the plants require the ſame treatment. It flowers in June, and the ſeeds ripen in September.

The fifth ſort grows naturally in Syria; it is an annual plant, with trailing ſtalks like the former; the lobes of the trifoliate leaves are wedge-ſhaped, ſharply indented on the edges, and at the top have three acute points. The flowers are of a pale yellow, and the fruit is ſnail-ſhaped, but ſmall, armed with many weak ſpines. It flowers about the ſame time with the former, and may be cultivated in the ſame way.

MEDLAR. See Meſpilus.

MELAMPYRUM. Tourn. Inſt. R. H. 173. tab. 78. Lin. Gen. Plant. 660. Μελάμπυρον, of μέλας, black, and πυρὸς, Wheat.] Cow Wheat.

The Characters are,

The flower has a permanent empalement of one leaf, which is tubulous, cut into four ſegments at the brim. The flower is of the lip kind, having an oblong recurved tube compreſſed at the brim; the upper lip is formed like a helmet, and is compreſſed and indented at the top; the under lip is plain, erect, and cut into three ſegments at the top, which are equal and obtuſe. It hath four awl-ſhaped ſtamina which are curved under the upper lip, two of which are ſhorter than the other, terminated by oblong ſummits, and in the center is ſituated an acute-pointed germen, ſupporting a ſingle ſtyle crowned by an obtuſe ſtigma. The empalement afterward turns to an oblong acute-pointed capſule with two cells, incloſing two pretty large oval ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, which contains thoſe plants whoſe flowers have two long and two ſhorter ſtamina, and the ſeeds are included in a capnſule.

The Species are,

1. Melampyrum (*Pratenſe*) floribus ſecundis lateralibus, conjugationibus remotis, corollis clauſis. Flor. Suec. 513. *Cow Wheat with fruitful foot-ſtalks of flowers ſtanding at a diſtance, and the petals ſhut.* Melampyrum luteum latifolium. C. B. P. 234. *Broad-leaved yellow Cow Wheat.*
2. Melampyrum (*Criſtatum*) ſpicis quadrangularibus bracteis cordatis compactis denticulis imbricatis. Flor. Suec. 510. *Cow Wheat with quadrangular ſpikes, and heart-ſhaped bracteæ, which are imbricated.* Melampyrum luteum anguſtifolium. C. B. P. 234. *Yellow narrow-leaved Cow Wheat.*
3. Melampyrum (*Arvenſe*) ſpicis conicis laxè bracteis dentato-ſetaceis. Flor. Seuc. 511. *Cow Wheat with looſe conical ſpikes, and briſtly indented bractea.* Melampyrum purpuraſcente comâ. C. B. P. 234. *Cow Wheat with purpliſh tops.*
4. Melampyrum (*Nemoroſum*) floribus ſecundis lateralibus bracteis dentato cordato lanceolatis, ſummis, coloratis ſterilibus, calycibus lanatis. Flor. Suec. 512. *Cow Wheat with fruitful lateral flowers, heart ſpear-ſhaped bracteæ, ſterile coloured tops, and woolly empalements.*

ments. Melampyrum comâ cæruleâ. C. B. P. 234. *Cow Wheat with blue tops.*

Theſe plants are ſeldom cultivated in gardens. The firſt ſort grows naturally in woods in many parts of England. The ſecond ſort grows plentifully in Bedfordſhire and Cambridgeſhire. The fourth ſort grows in the northern parts of Europe. The third ſort grows naturally in ſome of the ſandy lands in Norfolk, tho' not in great plenty; but in Weſt Friezland and Flanders, it grows very plentifully among the Corn; and Cluſius ſays, it ſpoils their bread, making it dark; and that thoſe who eat of it uſed to be troubled with heavineſs of the head, in the ſame manner as if they had eaten Darnel or Cockle: but Mr. Ray ſays, He has eaten of this bread very often, but could never perceive that it gave any diſagreeable taſte, or that it was accounted unwholeſome by the country people, who never endeavour to ſeparate it from the Corn: and Tabernæmontanus declares, he has often eaten it without any harm; and ſays, it makes a very pleaſant bread. It is a delicious food for cattle, particularly for fattening of oxen and cows, for which purpoſe it may be cultivated.

The ſeeds of theſe plants ſhould be ſown in the autumn ſoon after they are ripe, otherwiſe it ſeldom grows the firſt year; when the plants come up, they muſt be weeded in the ſpring while young, and as ſoon as they begin to ſhew their flowers, the cattle may be fed upon it; but they ſhould be confined to a certain ſpace, and not permitted to run over the whole field to trample it down, which would deſtroy a great part of it.

The third and fourth ſorts make a pretty appearance, with their purple and blue tops, during the months of July and Auguſt. They are all of them annual plants.

MELANTHIUM, Star-flower.

The Characters are,

The flower has no empalement (unleſs the corolla is ſo called) it hath ſix oblong, oval, ſpreading petals, which are permanent, and ſix ſlender erect ſtamina inſerted above the tails, with globular ſummits, with a ſtreaked globular germen, ſupporting three curved diſtinct ſtyles, crowned by obtuſe ſtigma; the germen afterward turns to an oval capſule, having three cells, which are united within, containing ſeveral oval compreſſed ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's ſixth claſs, intitled Hexandria Trigynia, the flower having ſix ſtamina and three ſtyles.

The Species are,

1. Melanthium (*Virginicum*) petalis unguiculatis. Lin. Sp. Plant. 483. *Star-flower with tender nail-ſhaped petals.* Aſphodelo affinis Floridana, ramoſo caule, floribus ornithogali obſoletis. Pluk. tab. 434. f. 8.
2. Melanthium (*Sibericum*) petalis ſeſſilibus. Amœn. Acad. 2. p. 349. *Star-flower with ſeſſile petals.* Ornithogalum ſpicis florum longiſſimis ramoſis. Flor. Siber. p. 45.
3. Melanthium (*Punctatum*) petalis punctatis, foliis cucullatis. Amœn. Acad. 6. *Star-flower with punctuated petals, and hooded leaves.*

The firſt ſort grows naturally in Virginia and in other parts of North America, but being a plant of little beauty, is ſeldom cultivated except in botanic gardens; the flower-ſtalks of this riſes from ſix to eight inches high, branching upward into three or four diviſions, garniſhed below the flower with two or three linear leaves. The flowers are compoſed of ſix ſpreading petals of a duſky worn-out colour, which are rarely ſucceeded by ſeeds in England.

If the roots of this plant are planted in a border of light earth, not too dry, they will thrive and produce their flowers here, but ſeldom increaſe.

The ſecond ſort grows naturally in Siberia, ſo is at preſent a ſtranger in England, but may be propagated here (if once obtained) by planting the bulbous roots in an eaſt border.

The third ſort grows at the Cape of Good Hope, ſo is too tender to thrive in the open air in England. But if the roots are planted in a border, covered in winter with a garden frame, and treated in the ſame way as is directed for the Ixia, they will thrive and flower annually.

MELASTOMA. Lin. Gen. Plant. 481. Groſſularia. Sloan. Hiſt. Jam. Plum. Sp. 18. The American Gooſeberry-tree, vulgò.

The Characters are,

The flower has a permanent empalement of one leaf, ſwelling like a bladder, and obtuſe. It hath five roundiſh petals, which are inſerted into the border of the empalement, and ten ſhort ſtamina, terminated by long erect ſummits a little curved. Under the flower is ſituated a roundiſh germen, ſupporting a ſlender ſtyle, crowned by an incurved indented ſtigma. The germen afterward turns to a berry with five cells, covered by the empalement which crowns it, and contains many ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, which includes thoſe plants whoſe flowers have ten ſtamina and one ſtyle.

The Species are,

1. Melastoma (*Plantaginis folio*) foliis denticulatis ovatis acutis. Lin. Sp. Plant. 389. *Melaſtoma with oval, acute-pointed, indented leaves.* Groſſularia Americana, plantaginis folio ampliſſimo. Plum. Sp. 18.
2. Melastoma (*Acinodendron*) foliis denticulatis ſubtrinerviis ovatis acutis. Lin. Sp. Plant. 558. *Melaſtoma with oval indented leaves ending in acute points, having three veins.* Groſſularia alia plantaginis folio, fructu rariore violaceo. Plum. Sp. 18.
3. Melastoma (*Hirta*) foliis denticulatis quinquenervibus, ovato-lanceolatis caule hiſpido. Lin. Sp. 390. *Melaſtoma with ſpear-ſhaped indented leaves, with five veins, and a prickly ſtalk.* Groſſularia plantaginis folio anguſtiore hirſuto. Plum. Sp. 18.
4. Melastoma (*Holoſericea*) foliis integerrimis trinerviis oblongo-ovatis tomentoſis racemis brachiatis, ſpicis bipartitis. Lin. Sp. 559. *Melaſtoma with very entire oblong oval leaves, which are woolly on their under ſide, and ſpikes of flowers dividing in two parts.* Arbor racemoſa Braſiliana, folio Malabathri. Breyn. Cent. tab. 2 & 3.
5. Melastoma (*Groſſularioides*) foliis lanceolatis utrinque glabris nervis tribus ante baſin coëuntibus. Hort. Cliff. 162. *Melaſtoma with ſpear-ſhaped leaves ſmooth on both ſides, and three veins which join before they reach the baſe.* Groſſularia fructu non ſpinoſo, Malabathri foliis oblongis, floribus herbaceis racemoſis, fructu nigro. Sloan. Cat. 165.
6. Melastoma (*Bicolor*) foliis lanceolatis, nervis tribus longitudinalibus, ſubtus glabris coloratis. Hort. Cliff. 162. *Melaſtoma with ſpear-ſhaped leaves having three longitudinal veins, ſmooth and coloured on their under ſide.*
7. Melastoma (*Malabathrica*) foliis lanceolato-ovatis quinquenervibus ſcabris. Flor. Zeyl. 171. *Melaſtoma with ſpear-ſhaped oval leaves which are rough, and have five veins.* Melaſtoma quinque nervia hirta major, capitulis ſericeis villoſis. Burm. Zeyl. 155. tab. 73.
8. Melastoma (*Lævigata*) foliis oblongo-ovatis minutiſſimè dentatis infernè ſericeis quinquenervibus, floribus racemoſis. *Melaſtoma with oblong oval leaves, having very ſmall indentures on the edges, and ſilky on their under ſide, with five veins, and flowers growing in long bunches.* Groſſulariæ fructu, arbor maximo non ſpinoſa, Malabathri folio maximo inodora, flore racemoſo albo. Sloan. Cat. Jam. 165.
9. Melastoma (*Petiolatis*) foliis denticulatis ovatis acuminatis, infernè nitidiſſimis, petiolis longiſſimis. *Melaſtoma with oval acute-pointed leaves, which are indented on their edges, very ſhining on their under ſide, and have very long foot-ſtalks.*
10. Melastoma (*Umbellata*) foliis cordatis acuminatis integerrimis, infernè incanis, floribus umbellatis. *Melaſtoma with heart-ſhaped, acute-pointed, entire leaves, hoary on their under ſide, and flowers growing in umbels.* Sambucus Barbadenſis dicta, foliis ſubincanis. Pluk. Phyt. tab. 221. fol. 6.
11. Melastoma (*Racemoſa*) foliis oblongo-cordatis acuminatis, denticulato-ſerratis, floribus racemoſis ſparſis.

ſis. *Melaſtoma with oblong, heart-ſhaped, acute-pointed leaves, having ſawed indentures, and flowers growing thinly in long bunches.*

12. MELASTOMA (*Verticillata*) foliis ovato-lanceolatis, quinquenervibus, ſubtus aureis, floribus verticillatis, caule tomentoſo. *Melaſtoma with oval ſpear-ſhaped leaves having five veins, which are of a gold colour on their under ſide, and flowers growing in whorls, with a woolly ſtalk.*

13. MELASTOMA (*Acuta*) foliis lanceolatis acutis denticulatis infernè incanis trinervibus, floribus racemoſis. *Melaſtoma with acute ſpear-ſhaped leaves which are indented on their edges, hoary on their under ſide, have three veins, and flowers growing in bunches.*

14. MELASTOMA (*Glabra*) foliis ovato-lanceolatis acuminatis integerrimis, utrinque glabris trinervibus, floribus racemoſis. *Melaſtoma with entire, oval, ſpear-ſhaped leaves ending in acute points, having three veins, and ſmooth on both ſides, with flowers growing in long bunches.* Arbor Syrinamenſis, canellæ folio utrinque glabro. Pluk. Phyt. tab. 249. fol. 5.

15. MELASTOMA (*Quinquenervia*) foliis ovatis quinquenervibus ſcabris, floribus racemoſis alaribus. *Melaſtoma with oval rough leaves having five veins, and flowers growing in bunches from the ſides of the branches.*

16. MELASTOMA (*Octandria*) foliis lanceolatis trinervibus glabris, marginibus hiſpidis. *Melaſtoma with ſmooth ſpear-ſhaped leaves having three veins, and hairy prickles on the border.*

17. MELASTOMA (*Aſpera*) foliis ovatis quinquenervibus glabris, marginibus hiſpidis. *Melaſtoma with oval ſmooth leaves, having five veins, and hairy prickly borders.*

18. MELASTOMA (*Scabroſa*) foliis ovato-lanceolatis ſcabris acuminatis quinquenervibus, floribus racemoſis. *Melaſtoma with oval, ſpear-ſhaped, acute-pointed leaves, having five veins, and flowers growing in long bunches.*

The title of this genus of plants was given to it by Profeſſor Burman, of Amſterdam, in the Theſaurus Zeylanicus; ſome of theſe plants have been titled Sambucus, others Chriſtophoriana, and to ſome of the ſpecies Dr. Plukenet gave the title of Acidendron; but Sir Hans Sloane and Father Plumier, gave them the title of Groſſularia, from whence I have applied the Engliſh name of Gooſeberry to them, which is the name by which ſome of the ſorts are known in America.

The firſt ſort riſes about four or five feet high, the ſtem and branches being covered with long ruſſet hairs; the leaves are placed on the branches oppoſite; they are five inches long and two broad, and are alſo covered with the ſame ruſſet down, having five ribs or veins running through the leaves from end to end, but the three inner join before they reach the baſe, with ſmall tranſverſe ribs; the fruit is produced at the end of the ſhoots, which is a pulpy blue berry, as large as a Nutmeg.

The ſecond ſort grows to be a large tree, having many crooked branches, covered with a brown bark, the leaves placed oppoſite on the branches; theſe are ſmooth, entire, and above five inches long, and two broad in the middle, with three deep veins running through them; both ſides of theſe leaves are of a light green and ſmooth, and are ſharply indented on their edges, ending in acute points. The fruit grows in looſe ſpikes at the end of the branches; they are thinly placed on the ſpikes, and are of a Violet colour.

The third ſort grows to the height of twenty feet, with a large trunk, covered with a ruſſet bark: the leaves of this tree are very large, being above ſeven inches long, and three and a quarter broad, of a dark ruſſet colour on their upper ſide, but of a yellowiſh ruſſet on their under, ſoft to the touch, having a ſoft down over them; the ſtalks are covered with rough hairs, and the leaves are placed by pairs on the branches, which make a beautiful appearance when the trees are viewed at a diſtance.

The fourth ſort ſeldom grows more than eight or ten feet high, the leaves are about four inches long, having three veins, which join before they reach the baſe; they are entire, and are of a ſattin colour on their under ſide, but of a light green on their upper; theſe are placed by pairs on the branches.

The fifth ſort ſeldom grows more than ſeven or eight feet high, ſpreading out into many branches, which are covered with a ſmooth purple bark; they are ſlender, and are garniſhed with ſpear-ſhaped leaves, five inches long and two broad in the middle, where they are broadeſt; they are ſmooth on both ſides, their edges are entire, and they terminate in acute points. The flowers are produced in pretty long hanging bunches, of an herbaceous colour, with long ſtyles which are ſtretched out a good length beyond the petals; and are permanent; the fruit is ſmall, and black when ripe.

The ſixth ſort riſes four or five feet high, dividing into many ſlender branches, which are ſmooth, and garniſhed with ſpear-ſhaped leaves three inches long, and one and a quarter broad, of a lucid green on the upper ſide, but white on the under, having three longitudinal veins which join before they reach the baſe; theſe are entire, and placed alternately on the branches. The flowers are produced in a looſe panicle at the end of the branches; they are ſmall, white, and have pretty long tubes; theſe are ſucceeded by ſmall purple fruit.

The ſeventh ſort riſes with an angular ſtalk ſix or ſeven feet high, ſending out branches oppoſite, which are garniſhed with ſpear-ſhaped, oval, rough leaves, placed by pairs; they are hairy, of a dark green on their upper ſide, but of a pale green on their under. The flowers are produced at the end of the branches, two or three ſtanding together; they are large, and of a Roſe colour, inclining to purple, ſitting in large hairy empalements; theſe are ſucceeded by roundiſh purple fruit crowned by the empalement, which are filled with a purple pulp ſurrounding the ſeeds.

The eighth ſort grows to the height of twenty feet, with a large ſtrait ſtem, covered with a gray bark, and at the top divides into many angular branches; theſe are garniſhed with oblong oval leaves near a foot long, and ſix inches broad in the middle, of a dark green on their upper ſide, but ſilky on their under, with five ſtrong longitudinal veins; they are indented on their edges, and placed oppoſite. The flowers are produced in looſe long bunches at the end of the branches; theſe are white, and are ſucceeded by roundiſh purple fruit, filled with pulp, in which the ſeeds are lodged.

The ninth ſort riſes with a ſtrong erect ſtalk near thirty feet high, covered with a gray bark, dividing at the top into ſeveral angular compreſſed branches, which are garniſhed with oval leaves indented on their edges; they are ſeven inches long and almoſt five broad, ſtanding by pairs oppoſite on very long footſtalks, of a lucid green on their upper ſide, but of a pale gold colour and ſattiny on their under, with five ſtrong longitudinal veins, and a great number of ſmaller tranſverſe ones. The flowers are produced in looſe panicles at the end of the branches; they are white, and are ſucceeded by purple fruit, about the ſame ſize as thoſe of the former.

The tenth ſort riſes with a ſhrubby ſtalk ten or twelve feet high, covered with a hairy bark, and divides into many branches toward the top, which are garniſhed with heart-ſhaped leaves ending in acute points; they are five inches long and three broad toward their baſe, entire in their borders, of a dark green on their upper ſide, but hoary on their under, with five longitudinal veins, and many ſmaller tranſverſe ones; theſe are placed oppoſite, and ſtand upon hairy footſtalks, two inches and a half in length. The flowers are produced at the end of the branches, in a ſort of umbel; they are of a pale Roſe colour and pretty large, ſitting on hairy empalements; theſe are ſucceeded by ſmall black fruit, a little larger than Elder-berries.

The eleventh ſort riſes with a ſhrubby ſtalk about eight or nine feet high, covered with a dark brown bark, and divides at the top into many ſtraggling branches, which are garniſhed with oblong heart-ſhaped leaves ſix inches long, and three broad toward their baſe, ending in acute points, indented on their edges with ſharp ſerratures; they are ſmooth on both ſides, and of a light green colour. The flowers are produced in very looſe bunches at the end of the branches; they are ſmall, of an herbaceous colour, and are ſucceeded by ſmall fruit, of a dark colour when ripe.

The twelfth ſort riſes with a ſhrubby ſtalk five or ſix feet high, dividing into many ſmaller branches, which are covered with a hairy woolly bark, of a ruſty iron colour; theſe are garniſhed with oval ſpear-ſhaped leaves, one inch and a half long, and three quarters of an inch broad in the middle; they are of a dark green on their upper ſide, and of a ruſty iron colour on their under, having five longitudinal veins; they are placed oppoſite, and ſit cloſe to the branches. The flowers come out in whorls at the joints of the ſtalks; they are ſmall, of a purpliſh colour, and are ſucceeded by ſmall black fruit.

The thirteenth ſort is a low ſhrub, ſeldom riſing more than three feet high, dividing at the bottom into ſlender branches, which are garniſhed with ſpear-ſhaped leaves, ending in acute points; theſe are five inches long, and one and a half broad in the middle, ſawed on their edges, of a dark green on their upper ſide, but of a hoary white on their under, having three longitudinal veins; they are placed oppoſite, upon ſhort foot-ſtalks. The flowers are produced in looſe bunches at the end of the branches; they are white, and ſucceeded by ſmall purple fruit.

The fourteenth ſort hath a ſhrubby ſtalk eight or nine feet high, divided toward the top into many ſlender branches which are ſmooth, garniſhed with oval ſpear-ſhaped leaves, which are ſeven inches long and three broad, ending in acute points; they are entire on their edges, and ſmooth on both ſides, ſtanding oppoſite, and have three longitudinal veins. The flowers are produced in looſe panicles at the end of the branches, and are ſucceeded by very ſmall purple fruit.

The fifteenth ſort riſes with ſeveral ſhrubby ſtalks five or ſix feet high, dividing into ſeveral crooked branches, garniſhed with oval leaves three inches long, and almoſt as much broad, having five longitudinal veins; they are rough, of a dark green on their upper ſide, but of a pale green on their under, indented on their edges, ſtanding upon very hairy foot-ſtalks; they are ſometimes oppoſite, and at others alternate, on the branches. The flowers are produced in very looſe bunches, which come out from the ſide of the ſtalks; they are ſmall, of an herbaceous colour, and are ſucceeded by ſmall purpliſh fruit, filled with very ſmall ſeeds.

The ſixteenth ſort riſes with a ſhrubby ſtalk ſeven or eight feet high, and divides into many ſmooth branches, which are garniſhed with ſpear-ſhaped leaves about four inches long, and one inch and a quarter broad in the middle; they are ſmooth on both ſides, of a dark green colour, and have three longitudinal veins; the edges of theſe leaves are cloſely ſet with briſtly ſtinging hairs. The flowers are produced in looſe bunches at the end of the branches; they are ſmall, of a purpliſh colour, and are ſucceeded by very ſmall black fruit.

The ſeventeenth ſort is in many parts like the former, but the leaves are oval, a little more than two inches long, and one and a quarter broad; theſe have five longitudinal veins, and are ſmooth on both ſides, of a dark green colour, and ſtand oppoſite on ſhort foot-ſtalks. The flowers grow in looſe bunches at the end of the branches, they are larger than thoſe of the former ſort, but are of the ſame colour. The edges of the leaves of this ſort are cloſely ſet with ſtinging hairs, as thoſe of the other.

The eighteenth ſort riſes with a ſhrubby ſtalk eight or nine feet high, dividing into branches ſtanding oppoſite, as do alſo the leaves, which are ſeven inches long and three broad; rough on their ſurface, entire on their edges, ending in acute points; they are of a light green on both ſides, and ſtand upon ſhort foot-ſtalks. The flowers are produced in pretty large looſe panicles at the end of the branches; they are ſmall, white, and are ſucceeded by ſmall, round, purple fruit.

All the ſorts are natives of the warm parts of America, where there are many more ſpecies than are here enumerated. Moſt of theſe here mentioned, were found by the late Dr. Houſtoun, growing naturally in Jamaica, from whence he ſent many of their ſeeds to Europe, ſome of which ſucceeded; but moſt, if not all the plants which were raiſed from them, were loſt in the ſevere winter in 1740, ſince which time they have not been recovered in Europe.

There is great beauty in the diverſity of the leaves of theſe plants, many of them being very large, and moſt of them are of different colours on the two ſurfaces, their under ſide being either white, gold colour, or ruſſet, and their upper of different ſhades of green, ſo that they make a fine appearance in the hot-houſe all the year; indeed, their flowers have no great beauty to recommend them, but yet for the ſingular beauty of their leaves, theſe plants deſerve a place in all curious collections, as much as moſt other ſorts.

There are very few of theſe plants at preſent in any of the European gardens, which may have been occaſioned by the difficulty of bringing over growing plants from the Weſt-Indies; and the ſeeds being ſmall when they are taken out of the pulp, ſoon become dry, ſo ſeldom ſucceed. The beſt way to obtain theſe plants is, to have the entire fruits put up in dry ſand as ſoon as they are ripe, and forwarded by the ſooneſt conveyance to England; theſe ſhould be immediately taken out when they arrive, and the ſeeds ſown in pots of light earth, and plunged into a moderate hot-bed of tanners bark. When the plants come up, and are fit to remove, they muſt be each planted into a ſmall pot of light earth, and plunged into the tan-bed; and may afterward be treated in the manner directed for the ANNONA, to which I ſhall deſire the reader to turn, to avoid repetition.

MELIA. Lin. Gen. Plant. 473. Azederach. Tourn. Inſt. R. H. 616. tab. 387. The Bead-tree.

The CHARACTERS are,

The empalement of the flower is ſmall, erect, and of one leaf, cut into five points at the top, which are obtuſe. The flower hath five long, narrow, ſpear-ſhaped petals which ſpread open, and a cylindrical nectarium of one leaf, the length of the petals, indented at the brim in ten parts. It has ten ſmall ſtamina inſerted in the top of the nectarium, terminated by ſummits which do not appear above it, with a conical germen ſupporting a cylindrical ſtyle, crowned by an obtuſe indented ſtigma. The germen afterward turns to a ſoft globular fruit, including a roundiſh nut having five rough furrows, and five cells, each containing one oblong ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's tenth claſs, intitled Decandria Monogynia, which includes thoſe plants whoſe flowers have ten ſtamina and one ſtyle.

The SPECIES are,

1. MELIA (*Azedarach*) foliis bipinnatis. Flor. Zeyl. 162. *Melia with double winged leaves.* Azederach. Dod. Pempt. 848. *The Bead-tree, or Falſe Sycamore.*
2. MELIA (*Azedirachta*) foliis pinnatis. Hort. Cliff. 161. *Melia with winged leaves.* Olea Malabarica, fraxini folio. Pluk. Alm. 269.

The firſt ſort grows naturally in Syria, from whence it was brought to Spain and Portugal, where it is now become as common almoſt, as if it were a native of thoſe countries. This in warm countries grows to a large tree, ſpreading out into many branches, which are garniſhed with winged leaves, compoſed of three ſmaller wings, whoſe lobes are notched and indented on their edges; they are of a deep green on their upper ſide, and paler on their under. The flowers come out from the ſide of the branches in long looſe bunches; they are compoſed of five long, narrow, ſpear-ſhaped petals, of a blue colour, and are ſucceeded by oblong fruit as large as a ſmall Cherry, green at firſt, but when ripe changes to a pale yellow, incloſing a nut with five deep furrows, having four or five cells, in each of which is lodged one oblong ſeed. This produces its flowers in England in July, but are not often ſucceeded by ſeeds here; it drops its leaves in the autumn, and puts out freſh in the ſpring. The pulp which ſurrounds the nut, is ſaid to have a deadly quality if eaten; and if mixed with greaſe, and given to dogs, it will kill them. The nuts are bored through, and ſtrung by the Roman Catholics to ſerve as beads.

There has been of late years ſome of theſe plants introduced to the iſlands in the Weſt-Indies, where I am informed they continue flowering, and produce their fruit moſt part of the year. The fruit I have received from thence by the title of Indian Lilac, from which I have raiſed many of the plants, and find them to be the ſame as that from Syria.

This ſort is propagated by ſeeds (which may be obtained from Italy or Spain, where theſe trees annually produce ripe fruits in the gardens where they are planted:) the ſeeds or berries ſhould be ſown in pots filled with good freſh light earth, and plunged into a moderate hot-bed of tanners bark, where (if the ſeeds are freſh) they will come up in about a month or five weeks time. When the plants are come up they ſhould be frequently watered, and ſhould have a large ſhare of free air, by raiſing the glaſſes every day; in June they ſhould be expoſed to the open air, in a well ſheltered ſituation, that they may be hardened before winter. In October the pots ſhould be removed under a hot-bed frame, where they may enjoy free open air when the weather is mild, and be covered in hard froſt. During the winter ſeaſon they muſt be refreſhed gently with water, but by no means repeat this too often, nor give them too much at a time; for their leaves being off, they will not be in a condition to throw off a ſuperfluity of moiſture.

In March following, you may ſhake out the plants from the ſeed-pots and divide them, planting each into a ſeparate ſmall pot, filled with light freſh earth, plunging them into a moderate hot-bed, which will greatly promote their rooting, and increaſe their growth, but they muſt not be drawn too much; and in June you ſhould remove them out into the open air as before, and during the three or four winters, while the plants are young, you muſt ſhelter them, to ſecure them from the cold; but when the plants are grown pretty large and woody, they will endure to be planted in the open air againſt a ſouth wall. The beſt ſeaſon for this is in April, at which time you ſhould ſhake them out of the pots, being careful not to break the earth from the roots, but only pare off with a knife the outſide of the ball of earth; then open your holes and put in the plants, cloſing the earth to their roots, obſerving if the weather is dry, to give them ſome water, which ſhould be repeated twice a week until the plants have taken root; but you muſt obſerve to plant them on a dry ſoil, otherwiſe they will be liable to miſcary in ſevere froſty weather.

The ſecond ſort grows naturally in India, where it becomes a large tree; the ſtem is thick, the wood of a pale yellow, and the bark of a dark purple colour and very bitter. The branches extend wide on every ſide, which are garniſhed with winged leaves, compoſed of five or ſix pair of oblong acute-pointed lobes, terminated by an odd one; theſe are ſawed on their edges, of a light green colour, and a ſtrong diſagreeable odour; they ſtand upon pretty long footſtalks, which come out ſometimes oppoſite, and at others they are alternate. The flowers are produced in long branching panicles which proceed from the ſide of the branches; they are ſmall, white, and ſit in ſmall empalements, which are cut in five acute ſegments; theſe are ſucceeded by oval fruit of the ſize of ſmall Olives, which are green, afterward yellow, and when ripe, they change to a purple colour; the pulp which ſurrounds the nut is oily, acrid, and bitter; the nut is white, and ſhaped like that of the former. It grows in ſandy land, both in India and the iſland of Ceylon, where it is always green, and produces flowers and fruit twice a year.

This ſort is now very rare in England, and alſo in the Dutch gardens, where ſome years paſt it was more common; it is propagated by ſeeds in the ſame way as the other ſort, but being much tenderer, the plants ſhould be kept conſtantly in the tan-bed while young. In the ſummer they may be placed under a frame, but in winter they muſt be removed into the bark-ſtove, and treated in the ſame way with other plants from the ſame countries. When the plants have obtained ſtrength, they may be treated more hardily, by placing them in winter in a dry ſtove, and in the middle of ſummer they may be placed abroad for two or three months in a warm ſheltered ſituation, but they ſhould not remain too long abroad; and during the winter ſeaſon they ſhould be ſparingly watered: with this management the plants will produce flowers annually, and as they retain their leaves all the year, they are ornamental in winter in the ſtove.

The firſt ſort is commonly called, Zizyphus alba, in Portugal and Spain, and in Italy, Pſeudocycamorus. It was by moſt of the modern botaniſts titled, Azederach, but Dr. Linnæus has altered it to this of Melia, which was by Theophraſtus applied to a ſpecies of Aſh.

MELIANTHUS. Tourn. Inſt. R. H. 430. tab. 245. Lin. Gen. Plant. 712. [μελίανθος, of μέλι, honey, and ἄνθος, a flower.] Honey Flower.

The Characters are,

The flower has a large, coloured, unequal empalement, divided into five ſegments; the two upper are oblong and erect, the lower is ſhort, and ſhaped like a bag. The middle are ſpear-ſhaped and oppoſite. It hath four narrow ſpear-ſhaped petals, reflexed at their points, ſpreading open outward, and ſhaped like the empalement into two lips, connected on their ſides. It has a nectarium of one leaf, ſituated in the lower ſegment of the empalement, and faſtened with it to the receptacle; it is ſhort, compreſſed on the ſides, and cut on the margin. It hath four erect awl-ſhaped ſtamina, the two under being ſomewhat ſhorter than the other, terminated by oblong heart-ſhaped ſummits. In the center is ſituated a four-cornered germen, ſupporting an erect ſtyle, crowned by a quadrifid ſtigma. The germen afterward becomes a quadrangular capſule with diſtended cells, divided by partitions in the center, each containing one almoſt globular ſeed, fixed to the center of the capſule.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, which includes thoſe plants whoſe flowers have two long and two ſhorter ſtamina, and their ſeeds are included in empalemnets.

The Species are,

1. Melianthus (*Major*) ſtipulis ſolitariis petiolo adnatis. Hort. Cliff. 492. *Honey Flower with ſingle ſtipulæ growing cloſe to the foot-ſtalk.* Melianthus Africanus. H. L. B. 414. *Greater African Honey Flower.*
2. Melianthus (*Minor*) ſtipulis geminis diſtinctis. Hort. Cliff. 492. *Smaller Honey Flower with two diſtinct ſtipulæ.* Melianthus Africanus minor fœtidus. Com. Rar. Pl. 4. tab. 4.

The firſt ſort grows naturally at the Cape of Good Hope, from whence it was brought to Holland in the year 1672; this hath a ligneous perennial root, which ſpreads far on every ſide, from which ariſe many ligneous ſtalks which riſe four or five feet high, and are herbaceous toward the top, where they are garniſhed with large winged leaves, which embrace the ſtalks with their baſe, where they have a large ſingle ſtipulæ faſtened on the upper ſide of the foot-ſtalk, with two ears at the baſe, which alſo embrace the ſtalk. The leaves have four or five pair of very large lobes, terminated by an odd one; theſe are deeply jagged on their edges into acute ſegments, and between the lobes runs a double leafy border or wing on the upper ſide of the midrib, ſo as to connect the baſe of the lobes together; theſe are alſo deeply jagged in the ſame manner as the lobes; they are of a gray colour. The flowers are produced in pretty long ſpikes, which ariſe from between the leaves toward the top of the ſtalks; they are of a brown or chocolate colour, and are formed like the lip flowers, but have four narrow petals, in which it differs from the other plants of this claſs with lip flowers; theſe are ſucceeded by oblong four-cornered capſules, divided by a central partition into four cells, each containing one roundiſh ſeed; this plant flowers in June, but unleſs the ſeaſon proves warm, they are not ſucceeded by ſeeds in England.

This plant was formerly preſerved in green-houſes as a tender exotic, but if planted in a dry ſoil and a warm ſituation, it will endure the cold of our ordinary winters very well; and if in a ſevere froſt the tops of them ſhould be deſtroyed, yet the roots will abide, and put forth again the ſucceeding ſpring, ſo that there is no great danger of loſing it; and the plants which grow in the open air always flower much better than thoſe which are preſerved in the green-houſe, as they are leſs drawn, which always is hurtful to the flowering of plants; for it rarely happens that any of the plants of this ſort, which are placed in the green-houſe do flower, for they are apt to draw up tall and weak, which prevents their flowering, and thoſe branches which produce flowers, generally decay ſoon after; ſo that although the ſtems become woody, yet they are not of long duration, but the roots ſpread where they have room, and ſend out a great number of ſtalks annually; and when the plants grow in the full ground, moſt of thoſe ſtalks which are not injured by froſt, ſeldom fail to flower the ſpring following, ſo that the ſureſt method to have them flower, is to cover the ſhoots of theſe plants in froſty weather with Reeds or mats, to prevent their tops being killed by the cold; therefore it is the beſt way to plant them cloſe to a good aſpected wall, and on a dry rubbiſh, in which they will not ſhoot ſo vigorous as in good ground, ſo will be leſs ſucculent, and therefore not ſo liable to ſuffer by cold; but if the winter proves ſevere, the ſtalks may be faſtened up to the wall, and covered to protect them; for want of this care the ſtalks are frequently killed to the ground in winter, ſo that there is ſeldom any flowers produced.

This plant may be propagated by taking off its ſuckers or ſide ſhoots, any time from March to September, obſerving to chuſe ſuch as are furniſhed with fibres, and after they are planted and taken root, they will require no farther care but to keep them clear from weeds: they may be alſo propagated by planting cuttings, during any of the ſummer months, which, if watered and ſhaded, will take root very well, and may afterwards be tranſplanted where they are deſigned to remain.

The ſecond ſort is alſo a native of the country about the Cape of Good Hope, from whence it was brought to Europe; this riſes with round, ſoft, ligneous ſtalks five or ſix feet high, which ſend out two or three branches from their ſide, garniſhed with winged leaves like thoſe of the former ſort, but not half ſo large; theſe have two diſtinct ſtipulæ adhering to their foot-ſtalks; they are of a deep green on their upper ſide, and whitiſh on their under. The flowers come out from the ſide of the ſtalks in looſe hanging panicles, each ſuſtaining ſix or eight flowers, which are ſhaped like thoſe of the firſt ſort, but ſmaller; the lower part of the petals are green, their upper part are of a Saffron colour, and on the outſide, in the ſwelling part of the petals, is a bluſh of fine red; theſe have two long and two ſhorter ſtamina, which are terminated by yellow ſummits. The flowers are ſucceeded by four-cornered ſeed-veſſels, which are ſhorter than thoſe of the firſt ſort, in which are lodged four oval ſeeds in ſeparate apartments; this flowers at the ſame ſeaſon with the former.

This ſort does not ſpread its roots as the firſt, ſo is not propagated with ſo great facility, but cuttings of this ſort planted upon an old hot-bed, whoſe heat is over, and covered cloſe with bell or hand-glaſſes to exclude the air, will take root pretty freely; theſe may be planted in pots, and ſheltered in the winter under a common frame for a year or two till they have obtained ſtrength, then they may be planted in a warm border, and treated in the ſame way as the former ſort, with which management I have ſeen them flower much better than any of thoſe which have been treated more tenderly, and theſe plants have perfected their ſeeds in good ſeaſons.

MELICOCCA. See Sapindus.

MELILOTUS. See Trigonella.

MELISSA. Tourn. Inſt. R. H. 193. tab. 91. Lin. Gen. Plant. 647. [ſo called of μέλι, honey, becauſe the bees procure it from this plant; it is alſo called Meliſſophyllon, μέλι, and φύλλον, a leaf, q. d. Honey Leaf.] Baum.

The Characters are,

The empalement of the flower is of the open, bell-ſhape, angular kind, ſtreaked with one leaf, whoſe brim is formed into two lips; the upper lip is indented in three parts, which are ſpread open and reflexed; the under lip is ſhort, acute, and indented in two parts. The flower is of the lip kind, having a cylindrical tube; the chaps are gaping, the upper lip is ſhort, erect, forked, and roundiſh, indented at the end. The under lip is trifid, the middle part being the largeſt. It hath four awl-ſhaped ſtamina, two of which are as long as the petal, but the other are but half ſo long; they are terminated by ſmall ſummits, which join by pairs. It hath a quadrifid germen, ſupporting a ſlender ſtyle the length of the petal, which, with the ſtamina, are ſituated under the upper lip, and is crowned by a ſlender, bifid, reflexed ſtigma. The germen afterward turns to four naked ſeeds, ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, which includes the plants whoſe flowers have two long and two ſhort ſtamina, whoſe ſeeds are naked.

The Species are,

1. Melissa (*Officinalis*) racemis axillaribus verticillatis, pedicellis ſimplicibus. Lin. Sp. Plant. 592. *Baum with whorled bunches of flowers proceeding from the ſides of the ſtalks, having ſingle foot-ſtalks.* Meliſſa hortenſis. C. B. P. 229. *Garden Baum, or common Baum.*
2. Melissa (*Romana*) floribus verticillatis ſeſſilibus, foliis hirſutis. *Baum with whorls of flowers ſitting cloſe to the ſtalks, and hairy leaves.* Meliſſa Romana, molliter hirſuta & graveolens. H. R. Par. *Roman Baum with ſoft hairy leaves, and a ſtrong ſmell.*
3. Melissa (*Grandiflora*) pedunculis axillaribus dichotomis longitudine florum. Lin. Sp. Plant. 592. *Baum with foot-ſtalks ariſing from the wings of the ſtalk, which are divided in forks, and are the length of the flowers.* Calamintha magno flore. C. B. P. 229. *Calaminth with a large flower.*
4. Melissa (*Calamintha*) pedunculis axillaribus dichotomis longitudine foliorum. Lin. Sp. Plant. 593. *Baum with foot-ſtalks ariſing from the wings of the ſtalk, which are forked, and as long as the leaves.* Calamintha vulgaris & officinarum Germaniæ. C. B. P. 228. *Common officinal Calamint of the Germans.*
5. Melissa (*Nepeta*) pedunculis axillaribus dichotomis folio longioribus, caule decumbente. Lin. Sp. Plant. 593. *Baum with foot-ſtalks ariſing from the wings of the ſtalk, which are forked, and longer than the leaves, with a declining ſtalk.* Calamintha pulegii odore ſive nepeta. C. B. P. 228. *Calamint with the ſcent of Penny Royal, or Cat Mint.*
6. Melissa (*Cretica*) racemis terminalibus, pedunculis ſolitariis breviſſimis. Lin. Sp. Plant. 593. *Baum with ſpikes of flowers terminating the ſtalks, growing upon very ſhort ſingle foot-ſtalks.* Calamintha incana ocymi foliis. C. B. P. 228. *Hoary Calamint with Baſil leaves.*
7. Melissa (*Majoranifolia*) foliis ovatis glabris, floribus verticillatis ſeſſilibus, pedunculis ſolitariis breviſſimis. *Baum with oval ſmooth leaves, and flowers growing in whorls, ſitting cloſe to the branches, which have very ſhort ſingle ſtalks.* Calamintha Romana, majoranæ

folio, pulegii odore. Bocc. Muſ. *Roman Calamint with a Marjoram leaf, and the ſcent of Penny Royal.*

8. Melissa (*Fruticoſa*) fruticoſa, ramis attenuatis virgatis, foliis ſubtus tomentoſis. Lin. Sp. Plant. 593. *Shrubby Baum with ſlender twig-like branches, and leaves which are woolly on their under ſide.* Calamintha Hiſpanica fruteſcens, mari folio. Tourn. Inſt. 194. *Shrubby Spaniſh Calamint with a Marum leaf.*

The firſt ſort grows naturally on the mountains near Geneva, and in ſome parts of Italy, but is cultivated here in gardens as a medicinal and culinary herb. It has a perennial root, and an annual ſtalk, which is ſquare, branching, and riſes from two to three feet high, garniſhed with leaves ſet by pairs at each joint, which are two inches and a half long, and almoſt two inches broad at their baſe, growing narrower toward the top, indented about their edges, and the lower ones ſtanding upon pretty long foot-ſtalks. The flowers grow in looſe ſmall bunches at the wings of the ſtalk, in whorls, ſtanding upon ſingle foot-ſtalks; they are of the lip kind, the upper lip ſtanding erect and is forked; the under lip is divided into three parts; the middle one is roundiſh, and indented at the top. The flowers are white, and appear in July. The whole plant has a pleaſant ſcent, ſomewhat like Lemons.

It is reckoned to be cordial, cephalic, and good for all diſorders of the head and nerves; there is a ſimple water of this herb. It is alſo uſed as Tea, and is by ſome greatly eſteemed for that purpoſe; there is a variety of this with ſtriped leaves.

This plant is eaſily propagated by parting of the root; the beſt time for this is in October, that the offſets may have time to get root before the froſts come on. The roots may be divided into ſmall pieces with three or four buds to each, and planted two feet apart in beds of common garden earth, in which they will ſoon ſpread and meet together; the only culture it requires is to keep it clean from weeds, and cut off the decayed ſtalks in autumn, ſtirring the ground between the plants.

The ſecond ſort grows naturally about Rome, and in ſeveral parts of Italy; this hath a perennial root, and an annual ſtalk like the former. The ſtalks are ſlender, the leaves are much ſhorter than thoſe of the former ſort, and the whole plant is hairy, and of a ſtrong diſagreeable odour. The flowers grow in whorls, ſitting pretty cloſe to the branches, and are ſmaller than thoſe of the firſt ſort; it flowers about the ſame time. It is ſeldom preſerved in gardens, but may be cultivated in the ſame way as the former.

The third ſort grows naturally in the mountains of Tuſcany and Auſtria, but is preſerved in many Engliſh gardens for the ſake of variety. It hath a perennial root, and an annual ſtalk, which riſes about a foot high, garniſhed at each joint with two leaves ſtanding oppoſite, which are an inch and a half long, and three quarters of an inch broad, ſawed on their edges, of a lucid green on their upper ſide, and whitiſh on their under: from the wings of the ſtalks come out ſingle foot-ſtalks half an inch long, which divide into two ſmaller, and each of theſe ſuſtain two flowers upon ſhort ſeparate foot-ſtalks. The flowers are large, of a purple colour, and ſhaped like thoſe of the other ſpecies. It flowers in June, and the ſeeds ripen in Auguſt. This may be propagated in the ſame way as the firſt ſort, and the plants may be treated in the ſame manner.

The fourth ſort is the common Calamint of the ſhops, which grows naturally in many parts of England, ſo is ſeldom kept in gardens. It hath a perennial root, from which ariſe ſeveral ſquare ſtalks near a foot long, which are hairy, and garniſhed with two roundiſh leaves at each joint, about the ſize of thoſe of Pot Marjoram, a little indented on their edges, and of a ſtrong penetrating odour. The flowers come out in whorls on the ſide of the ſtalks, upon foot-ſtalks, which divide by pairs, and are as long as the leaves; theſe ſuſtain ſeveral ſmall bluiſh flowers, which appear in July, and are ſucceeded each by four ſmall, roundiſh, black ſeeds. The herb is uſed in medicine, and is hotter, and abounds with more ſubtile and volatile parts than Mint. It provokes urine, brings down the menſes, opens the liver, and is good for coughs. This may be planted in gardens, and treated in the ſame way as the common Baum.

The fifth ſort is found in greater plenty than the fourth, growing wild in England. The ſtalks of this are longer and bend towards the ground. The leaves are larger, and more indented on their edges, and have a very ſtrong ſcent like Penny Royal. The whorls of flowers are ſet cloſer together than thoſe of the fourth ſort, but in other reſpects they agree.

The ſixth ſort grows naturally in the ſouth of France and in Italy; this is not of ſo long duration as the former ſorts, ſeldom continuing more than two or three years. The ſtalks are ſlender, a little ligneous, and are garniſhed with ſmall, roundiſh, hoary leaves, placed oppoſite at each joint. The flowers are produced in whorls toward the upper part of the ſtalks, which are terminated by a looſe ſpike; they are ſmall and white, ſhaped like thoſe of the other ſpecies, and appear in June; theſe are ſucceeded by ſeeds, which ripen in autumn, and if they are permitted to ſcatter, there will be a ſufficient ſupply of young plants.

The ſeventh ſort grows naturally in Italy; this is a biennial plant, whoſe ſtalks are about eight inches long, declining toward the ground, and are garniſhed with roundiſh leaves about the ſize of Marjoram, of a light green colour. The flowers come out in cloſe whorls on the upper part of the ſtalks, each ſtanding upon a ſhort ſeparate foot-ſtalk; they are large, and of a bright purple colour, appearing in July and Auguſt, and the ſeeds ripen in autumn; this is propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, and then the plants will come up in the ſpring; but when the ſeeds are not ſown till the ſpring, they ſeldom grow till the next year. The plants may alſo be propagated by cuttings, which if planted in the ſummer, and ſhaded from the ſun, will take root very freely. If theſe plants are on a warm border, they will live through the winter, but to preſerve the ſpecies, a plant or two ſhould be kept in pots, and ſheltered under a frame in winter.

The eighth ſort grows naturally in Spain; this hath ſlender ſhrubby ſtalks about nine inches long, which put out ſmall ſide branches oppoſite, and are garniſhed with ſmall, hoary, oval-pointed leaves, placed by pairs; theſe have much the appearance of thoſe of the Marum. The flowers grow in whorled ſpikes, at the end of the ſtalks; they are ſmall and white, appearing in July, and the ſeeds ripen in autumn. The whole plant has a ſtrong ſcent of Penny Royal; this plant is of as ſhort a duration as the ſeventh ſort, and may be propagated either by ſeeds or cuttings in the ſame way as the ſeventh, and the plants require the ſame treatment.

MELISSA TURCICA. See Dracocephalon.

MELITTIS. Greater Dead Nettle.

The Characters are,

It hath an erect, taper, bell-ſhaped empalement, having two lips; the upper is tall and indented, the under is ſhort and bifid; the flower is ringent, the tube is longer than the empalement, the chaps are thicker; the upper lip is roundiſh, plain, and erect; the lower is trifid, ſpreading, and obtuſe. It hath four ſtamina, which are awl-ſhaped, ſituated under the upper lip, two being a little longer than the other, terminated by bifid obtuſe ſummits, which are placed a croſs; it hath an obtuſe, quadrifid, hairy germen ſupporting a ſlender ſtyle, crowned by a bifid acute ſtigma. The flower is ſucceeded by four ſeeds which ripen in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, intitled Didynamia Gymnoſpermia, the flowers having two long and two ſhort ſtamina, and are ſucceeded by four naked ſeeds ſitting in the empalement.

We know but one Species of this genus, viz.

Melittis (*Melyſſophyllum.*) Hort. Cliff. 309. *Greater Dead Nettle.* Meliſſa. Fuchſii.

This plant grows naturally in ſome woods in the Weſt of England and in Wales, Germany and near Montpelier. It hath a perennial root, which in the ſpring ſends up three, four, or more ſtalks, according to the age and ſtrength, which riſe a foot and a half high; theſe are ſquare, and garniſhed with leaves like thoſe of the common Dead Nettle, but are much larger, rougher, and ſtand on longer foot-ſtalks, two being placed oppoſite at each joint. The flowers come out at the joints of the ſtalks, juſt above the foot-ſtalks of the leaves; they are in ſhape like thoſe of the Dead Nettle, but are much larger, of a redder purple colour, and the upper lip grows erect. Theſe appear in May, when the plants make a handſome appearance, and if the ſeaſon does not prove hot, the flowers will continue in beauty upward of three weeks. As the plants do rarely produce good ſeeds in the gardens, ſo they are uſually propagated by parting the roots; but where the plants are intended for ornament, the roots ſhould not be diſturbed oftener than every third year; nor ſhould they then be divided into ſmall parts, leſt thereby they ſhould not flower the firſt year. The beſt time to remove and part the roots is the beginning of October, that they may have time to get root before the froſt comes on. They ſhould have a loamy ſoil and an eaſt expoſure, where the plants will thrive and produce flowers in plenty.

MELO. Tourn. Inſt. R. H. 104. tab. 32. Cucumis. Lin. Gen. Plant. 969. [it takes its name of Μῆλον, an Apple, becauſe the fruit reſembles an Apple.] The Melon.

The Characters are,

It hath male and female flowers on the ſame plant. The male flowers have a bell-ſhaped empalement of one leaf, whoſe border is terminated by five awl-ſhaped briſtles. The flower is of one petal, which is bell-ſhaped, faſtened to the empalement, and cut into five ſegments at the brim; theſe are veined and rough. It hath three ſhort ſtamina inſerted in the empalement, and are joined together, two of which have bifid points. The ſummits are linear, and run up and down on the outſide of the ſtamina, to which they adhere. The female flowers have no ſtamina or ſummits, but have a large oval germen ſituated below the flower, ſupporting a ſhort cylindrical ſtyle, crowned by three thick gibbous ſtigmas. The germen afterward turns to an oval fruit with ſeveral cells, filled with oval, acute-pointed, compreſſed ſeeds, incloſed in a ſoft pulp.

This genus of plants is by Dr. Linnæus joined with the Colocynthus and Anguria, to the Cucumis, making them only ſpecies of the ſame genus, which, according to his ſyſtem, may be allowable; but whoever will admit the fruit as a characteriſtic note to diſtinguiſh the genera, will find marks to ſeparate them; and however properly theſe may be put together in a ſyſtem of botany, yet in a work of this nature it cannot be admitted.

There is a great variety of this fruit cultivated in the different parts of the world, and in this country there are too many of them propagated, which are of no value, eſpecially by thoſe who ſupply the markets, where their ſize is chiefly regarded; ſo that by endeavouring to augment their bulk, the fruit is rendered of no value; I ſhall therefore only mention a very few of the varieties, which are the moſt deſerving of care, excluding the common Melons, as being unworthy of the trouble and expence in cultivating.

The ſort of Melon which is in the greateſt eſteem among all the curious in every part of Europe, is the Cantaleupe; which is ſo called from a place about fourteen miles from Rome, where the pope has a country ſeat, in which place this fruit has been long cultivated; but it was brought thither from that part of Armenia which borders on Perſia, where this fruit is in ſo great plenty, that a horſe-load is ſold for a French crown. The fleſh of this Melon, when in perfection, is delicious, and does not offend the moſt tender ſtomachs, ſo may be eaten with ſafety. The Dutch are ſo fond of this fruit, as to cultivate very few other ſorts, and by way of pre-eminence, call it only by the appellation of Cantaleupe, and never join the title of Melon to it, which they apply indifferently to all the other ſorts. The outer coat of this is very rough, and full of knobs and protuberances like warts; it is of a middling ſize, rather round than long, and the fleſh is for the moſt part of an Orange colour, though there are ſome with a greeniſh fleſh, but I have never met with any of that colour ſo good as thoſe of the other.

The Romana is by ſome much eſteemed, and when the fruit is well conditioned, the plants in perfect health, and the ſeaſon dry, it is a good Melon, and may be brought forwarder in the ſeaſon than the Cantaleupe; therefore thoſe who are deſirous of early Melons may cultivate this ſort.

The Succado is alſo a good ſort, and may alſo be cultivated for early fruit, but theſe muſt give way to the Cantaleupe, when that is in ſeaſon.

The Zatte is alſo a very good Melon, but very ſmall. The fruit of this is ſeldom bigger than a large Orange; it is a little flatted at the two ends, and the outer coat is warted like the Cantaleupe, but there is ſo little fleſh in one of theſe fruit, that they are ſcarce worthy the trouble of propagating.

The ſmall Portugal Melon, which is by ſome called the Dormer Melon, is a pretty good fruit, and the plants generally produce them in plenty, ſo by many people this is preferred to moſt other, eſpecially thoſe who love a plenty, and are not ſo nice in diſtinguiſhing the quality: this may alſo be cultivated for an early crop.

But the beſt Melon for this purpoſe is the Black Galloway, which was brought from Portugal by Lord Galloway many years ſince, but of late years is rarely to be met with in England, it having been degenerated by growing among other ſorts. The fruit of this ſort will ripen in a ſhorter time from its firſt ſetting, than any other which I have yet ſeen, and when ſuffered to ripen naturally, is not a bad fruit.

The few varieties here mentioned, are ſufficient to ſatisfy the curious, who may be fond of variety, for there are ſcarce any other which deſerve the trouble; and indeed thoſe who have a true taſte for this fruit, ſeldom cultivate any but the Cantaleupe; but as I before obſerved, where this fruit is deſired early in the ſeaſon, the Cantaleupe is not ſo proper as ſome of the other, therefore a few plants of one of the other ſorts ſhould be raiſed earlier in the ſpring, but ſhould be in a different part of the garden from the Cantaleupe Melons; for when two ſorts of Melons grow near, they cannot be preſerved perfectly right; therefore the Dutch and German gardeners are very careful in this reſpect, and in order to keep the ſort in perfection, do not plant any other ſort of Melon, Cucumber or Gourd, near theſe, leſt, by the impregnation of the farina of thoſe other, theſe fruit ſhould be rendered bad; and in this particular, I am convinced, from long experience, they are right; and from the not obſerving this, many perſons who are lovers of this fruit, have gradually diminiſhed their goodneſs, without knowing the cauſe, and have imputed it to the long cultivating from the ſeeds ſaved in the ſame garden, believing it abſolutely neceſſary to procure ſeeds from a diſtant place frequently to preſerve them good: indeed, where a perſon can ſecurely depend on the care and ſkill of thoſe he procures the ſeeds from, it is a very good method to exchange ſeeds now and then; but there are ſo few who are exact in making choice of the fruits from which they ſave the ſeeds, or careful enough to do it themſelves, but often depend on others to clean the ſeed, that I ſhould adviſe every one to do it himſelf, which is the ſure way to have it good; for I have frequently been deceived myſelf, by depending on the fidelity and ſkill of others; nor could I procure any of theſe ſeeds from Cantaleupe which were good, until my much honoured friend, the Chevalier Rathgeb, ſent me plentifully of it from thence; though I had often been ſupplied with ſeeds by perſons who I thought could not be deceived in their choice, and who lived near the place of their growth.

Before I quit this head, I beg leave to caution all perſons againſt depending upon ſeeds which are brought from abroad, either by thoſe perſons who import them for ſale, or gentlemen who frequently bring or ſend over theſe ſeeds to their friends, for it ſeldom happens that any of theſe prove tolerable. I have been ſo often deceived by theſe myſelf, as to determine never to make trial of any of theſe ſeeds again, unleſs I receive them from a perſon who is ſkilful, and who eat of the fruit himſelf of which he ſaved the ſeeds; for in Italy, Spain, Portugal, and many parts of France, the gardeners are very careleſs in the choice of all their ſeeds, but of the Melons they are remarkably ſo; and as for thoſe which come from Conſtantinople, Aleppo, and other parts of Turkey, I have rarely ſeen one Melon produced from thoſe ſeeds which was tolerable.

The ſeeds of Melons ſhould not be ſown until they are three years old, nor would I chuſe to ſow them when they are more than ſix; for although they will grow at ten or twelve years old, yet the fruit which are produced from thoſe old ſeeds are ſeldom ſo thick fleſhed, as thoſe which come from ſeeds which are freſher: and it is the ſame of light ſeeds, which ſwim upon water, when they are taken out of the pulp, for I have made ſome trials of theſe, and have had them grow at three years old; but not one of the Melons produced on theſe plants was near ſo deep fleſhed, as thoſe which grew upon plants raiſed from heavy ſeeds taken out of the ſame fruit, though they grew in the ſame bed, and were cultivated exactly in the ſame manner; nor was their fleſh ſo firm, but rather inclining to be meally; therefore I would not adviſe the ſowing of theſe light ſeeds, nor thoſe which are very old.

Having thus largely treated of the choice of the ſorts, and of the ſeeds, I ſhall next proceed to the method of cultivating them, in order to obtain plenty of good fruit: the method which I am going to preſcribe being very different from what has been conſtantly practiſed in England, will, I doubt not, be objected to by many; but it is what has been practiſed in all the good gardens in Holland and Germany, where the Cantaleupe Melon is produced in great plenty and perfection; and from ſeveral years experience, I have found this to be the only method in which theſe Melons can be cultivated with ſucceſs; and I am likewiſe convinced of its being the beſt way to obtain plenty of any other ſort of Melon.

It is common to hear many perſons valuing themſelves upon having two or three early Melons, which, when brought to the table are not better than a Pumpkin, and theſe are procured at a great expence and with much trouble; and in order to have them ripe a little earlier than they would naturally come, if ſuffered to grow to their full ſize, the ſtem upon which the fruit grows is commonly twiſted, to prevent the nouriſhment entering the fruit, whereby the growth is checked; then the fruit is cloſely covered with the mowings of Graſs-plats, laid of a ſufficient depth to cauſe a fermentation, by which the fruit becomes coloured: but where this unnatural method is practiſed, the fruit has little fleſh, and that has neither moiſture, firmneſs, or flavour; ſo that after four months attendance, with a great expence of dung, &c. there may, perhaps, be three or four brace of Melons produced, which are fitter for the dunghill than the table. Therefore my advice is, never to attempt to have theſe fruit ripe earlier than the middle or latter end of June, which is generally ſoon enough for this climate; and from that time to the end of September, they may be had in plenty, if they are ſkilfully managed; and when the autumn has continued favourable, I have had them very good in the middle of October.

But in order to continue this fruit ſo long, the ſeeds muſt be ſown at two or three different ſeaſons: the firſt ſhould be ſown about the middle or end of February, if the ſeaſon proves forward; but if it is otherwiſe, it will be better to defer it till the end of that month; the future ſucceſs greatly depends on the raiſing the plants in ſtrength, which cannot be ſo well effected, if the weather ſhould prove ſo bad after the plants are come up, as that a ſufficient quantity of freſh air cannot be admitted to them, therefore it is not adviſeable to be too early in ſowing the ſeeds.

When the ſeaſon is come, theſe ſeeds may be ſown on the upper ſide of a Cucumber-bed, where there are any; and if there are none, a proper quantity of new horſe dung muſt be provided, which muſt be thrown in a heap to ferment, and turned over, that it may acquire an equal heat, in the ſame manner as hath been directed for Cucumbers; and the plants muſt be raiſed and managed in the ſame manner as hath been directed for them, until they are planted where they are to remain for good, to which article the reader is deſired to turn, to avoid repetition.

The ſecond ſeaſon for ſowing of theſe ſeeds is about the middle of March, and both theſe ſowings muſt be underſtood to be planted under frames; for thoſe which are deſigned for bell or hand-glaſſes, or to be covered with oil papers, ſhould not be ſown till about a week in April; for when theſe are ſown earlier, if the plants are properly managed, they will grow ſo long, as to extend their ſhoots to the ſides of the glaſſes, before it will be ſafe to let them run out; for it often happens in this country, that we have ſharp morning froſts in the middle of May; ſo that if the ends of theſe Vines are then without the glaſſes, if they are not covered with mats to guard them againſt the froſt, they will be in danger of ſuffering greatly therefrom; and, on the other hand, if the plants have ſpread ſo much as to fill the glaſſes, and not permitted to run out, they will be in equal danger of ſuffering by their confinement from the heat of the ſun in the day time; therefore it is that I ſhould adviſe the putting of the ſeed rather a little later into the hot-bed for the glaſſes, than thoſe which are to be covered with the oil papers. Nor will the times here mentioned be found too late, for I have put the ſeeds of Cantaleupe Melons into a hot-bed the third of May, which were not tranſplanted, but remained where they were ſown, and covered with oiled paper; and from this bed I cut a large crop of good fruit, which ripened about the latter end of Auguſt, and continued till the end of October. This I only mention, to ſhew what has and may be done, though it muſt not be always depended on.

But we next come to the making and preparing of the beds, or, as the gardeners term it, the ridges, into which the plants are to be put out to remain; theſe ſhould always be placed in a warm ſituation, where they may be defended from all cold and ſtrong winds, for the eaſt and north winds are generally very troubleſome in the ſpring of the year; ſo that if the place be expoſed to thoſe aſpects, it will be difficult to admit a proper ſhare of freſh air to the young plants; and if it is much expoſed to the ſouth-weſt winds, which often are very boiſterous in ſummer and autumn, theſe will turn up and diſplace the Vines, whereby they will ſuffer greatly; therefore the beſt poſition for theſe beds is where they are open to the ſouth, or a little inclined to the eaſt, and ſheltered at a diſtance by trees from the other points: this place ſhould be incloſed with a good Reed fence, which is better for this purpoſe than any other incloſure, becauſe the winds are deadened by the Reeds, and are not reverberated back again, as they are by walls, pales, and other cloſe fences; but in making the incloſure, it ſhould be extended to ſuch diſtance every way from the beds, as not to obſtruct the ſun's rays during any part of the day; this ſhould have a door wide enough to admit of wheelbarrows paſſing, to carry in dung, earth, &c. and it ſhould be kept locked, that no perſons ſhould be allowed to go in but thoſe who have buſineſs; for ignorant perſons, having often curioſity to look into the beds, open the glaſſes and let the cold air to the plants, and frequently leave the glaſſes in part open; or ſometimes when they are raiſed by the gardener to admit the freſh air, the tilts are thrown down, ſo that the air is excluded; all which are very injurious to the young plants, as is alſo the handling of the fruit after it is ſet; therefore none ſhould be admitted, but when the perſon who is intruſted with the care of them is there.

The next thing is the preparation of the earth for theſe plants, in which the Dutch and German gardeners are very exact: the mixture which they generally prepare is of the following ſorts; of hazel loam, one third part; of the ſcouring of ditches or ponds a third part, and of very rotten dung a third part; theſe are mixed up at leaſt one, and often two years, before they make uſe of it, frequently turning it over, to incorporate their parts and ſweeten it; but the compoſt in which I find theſe plants ſucceed beſt in England, is two thirds of freſh gentle loam, and one third of rotten neats dung; if theſe are mixed together one year before it is wanted, ſo as to have the benefit of a winter's froſt and ſummer's heat, obſerving to turn it over often, and never ſuffer weeds to grow upon it, this will be found equal to any other compoſt whatever.

As theſe plants ſucceed beſt when they are planted young, ſo before the plants appear there ſhould be a quantity of new dung thrown in a heap, proportionable to the number of lights intended, allowing about fifteen good wheelbarrows full to each light; this muſt be two or three times turned over, to prepare it (as hath been directed for Cucumbers) and in a fortnight it will be fit for uſe, at which time the trench muſt be dug to receive the dung, where the bed is intended; this muſt be made wider than the frames, and in length proportional to the number of frames intended. As to the depth, that muſt be according as the ſoil is dry or wet; but in a dry ground it ſhould not be leſs than a foot, or a foot and a half deep; for the lower theſe beds are made the better they will ſucceed, where there is no danger of their ſuffering by wet. In the well laying and mixing of the dung, the ſame care muſt be taken as hath been adviſed already for Cucumbers, which in every reſpect muſt be the ſame for theſe beds. When the bed is made, the frames ſhould be placed over it to keep out wet; but there ſhould be no earth laid upon it till after it has been three or four days made, and is found of a proper temperature of heat; for many times theſe beds will heat ſo violently when they are firſt made, as to burn the earth, if covered with it; and when this happens, it is much the beſt way to take this earth off again, for the plants will never thrive in it. As ſoon as the bed is found to be of a proper warmth, the earth ſhould be laid upon it, which at firſt need not be more than two inches thick, except in the middle of each light, where the plants are to be placed, where there muſt be a hill raiſed fifteen inches high or more, terminating in a flat cone; in two or three days after the earth is put on the bed, it will be of a proper temper to receive the plants; then in the evening you may tranſplant the plants, but always do it when there is little wind ſtirring: in taking up the plants, their roots ſhould be carefully raiſed with a trowel, ſo as to preſerve all their fibres; for if theſe are broken off, the plants do not ſoon recover this; or if they do, they are generally weaker, and ſeldom make ſo good Vines as thoſe which are more carefully removed; for theſe plants are more nice and tender in tranſplanting than thoſe of Cucumber, eſpecially the Cantaleupe Melon; which, if it is not planted out, ſoon after the third, (or what the gardeners call the rough) leaf is put out, they are long recovering their vigour; ſo that when it happens that the beds cannot be ready for them in time, it will be a good method to plant each plant into a ſmall pot while they are young, and theſe may be plunged into the hot-bed where they were raiſed, or into the Cucumber-bed where there is room, ſo that they may be brought forward; and when the bed is ready, theſe may be turned out of the pots, with the whole ball of earth to their roots, whereby they will receive no check in removing: and this latter method is what I ſhould prefer to any other for the Cantaleupe, becauſe there ſhould never be more than one plant left to grow in each light; therefore in this method there will be no neceſſity of planting more, as there will be no danger of their ſucceeding; whereas in the common way, moſt people plant two or more plants in each light, for fear ſome ſhould miſcarry. When the plants are placed on the top of the hills, they ſhould be gently watered, which ſhould be repeated once or twice after till the plants have taken good root, after which they ſeldom require more; for when they receive too much wet, they often canker at the root, and when that happens they never produce good fruit. When the plants have eſtabliſhed themſelves well in the new beds, there ſhould be a greater quantity of earth laid on the bed, beginning round the hills where the plants grow, that their roots may have room to ſtrike out; and as the earth is put in from time to time, it muſt be trodden or preſſed down as cloſe as poſſible; and it ſhould be raiſed at leaſt a foot and a half thick upon the dung all over the bed, obſerving alſo to raiſe the frames, that the glaſſes may not be too near the plants, leſt the ſun ſhould ſcorch them.

When the plants have gotton four leaves, the top of the plants ſhould be pinched off with the finger and thumb, but not bruiſed or cut with a knife, becauſe in either of theſe caſes the wound will not ſo ſoon heal over: this pinching is to cauſe the plants to put out lateral branches, for theſe are what will produce the fruit; therefore, when there are two or more of theſe lateral ſhoots produced, they muſt alſo be pinched, to force out more; and this muſt be practiſed often, that there may be a ſupply of what the gardeners call runners, to cover the bed. The management of theſe beds muſt be nearly the ſame as hath been directed for the Cucumbers, therefore I need not repeat it here; but ſhall only obſerve, that the Melons require a greater ſhare of air than Cucumbers, and very little water; and when it is given to them, it ſhould be at a diſtance from their ſtems.

If the plants have ſucceeded well, they will ſpread over the bed, and reach to the frames, in about five or ſix weeks, at which time the alleys between the beds ſhould be dug out; or where there is but one bed, there ſhould be a trench made on each ſide, of about four feet wide, as low as the bottom of the bed, and hot dung wheeled in, to raiſe a lining to the ſame height as the dung of the bed, which ſhould be trodden down cloſe, and afterward covered with the ſame earth as was laid upon the bed, to the thickneſs of a foot and a half or more, treading it down as cloſe as poſſible; this will add to the width of the bed, ſo much as to make it in the whole twelve feet broad, which is abſolutely neceſſary, for the roots of the plants will extend themſelves quite through it; and it is for want of this precaution, that it is common to ſee the Vines of Melons decay, before the fruit is well grown; for where there is no addition made to the width of the bed, the roots will have reached the ſides of the beds by the time that the fruit appears, and having no more room to extend themſelves, their extremities are dried by the ſun and air, which is ſoon diſcovered by the plants hanging their leaves in the heat of the day, which is ſoon attended with a decay of many of thoſe leaves which are near the ſtem, and the plants from that time gradually languiſh, ſo that the fruit cannot be ſupplied with nouriſhment; but when ripe, will be found to have little fleſh, and that meally and ill flavoured; whereas thoſe plants which have ſufficient breadth for their roots to run, and the earth laid of a proper depth and cloſely trod down, will remain in vigour until the froſt deſtroys them, ſo that I have had a ſecond crop of fruit on them, which have ſometimes ripened well; but all the firſt were excellent, and of a larger ſize than theſe ſorts uſually grow: the leaves of theſe plants were very large, and of a ſtrong green, ſo that they were in the utmoſt vigour; whereas, in moſt places where the Cantaleupe Melons have been raiſed in England, the beds have been no wider than they were firſt made, and perhaps not more than three inches thickneſs of earth upon them, ſo that the plants have decayed many times without producing a ſingle fruit; and from thence people have imagined, that this ſort of Melon was too tender for this climate, when their ill ſucceſs was entirely owing to their not underſtanding their culture.

There is alſo another advantage attending this method of widening the beds, as above directed, which is that of adding a freſh warmth to the beds, by the hot dung, which is buried on each ſide, which will cauſe the dung in the bed to renew its heat; and as the plants will by this time ſhew their fruit, this additional heat will be of great ſervice in ſetting the fruit, eſpecially if the ſeaſon ſhould prove cold, as it often happens in this country in the month of May. When the beds are made up in the manner here directed, and the Vines have extended ſo far as to fill the frames, and want more room, the frames ſhould be raiſed up with bricks about three inches high, to admit the ſhoots of the Vines to run from under them; for if the plants are ſtrong, they will run ſix or ſeven feet each way from the ſtems; for which reaſon, I caution every one to allow them room, and to put but one plant in each light; for when the Vines are crowded, the fruit ſeldom will ſet well, but will drop off when they are as large as an egg; therefore the frames which are deſigned for Melons ſhould not be made ſmall, but rather ſix feet wide; for the wider theſe are, the better will the plants thrive, and produce a greater plenty of fruit.

There is no part of gardening, in which the practitioners of this art differ more than in the pruning and managing of theſe plants: nor are there any rules laid down in the ſeveral books in which the culture of Melons have been treated of, by which any perſon can be inſtructed; for there is ſuch inconſiſtency in all their directions, and what is worſe, the greateſt part of them are abſurd, ſo that whoever follows them can never hope to ſucceed; therefore I ſhall, in as few words as poſſible, give ſuch plain directions, as I hope will be ſufficient to inſtruct any perſon, who is the leaſt converſant in theſe things.

I have before adviſed the pinching off the ends of the plants as ſoon as they have a joint, in order to get lateral ſhoots, which are by the gardeners called runners; and when theſe ſhoots have two or three joints, to pinch off their tops to force out more runners, becauſe it is from theſe that the fruit is to be produced; but after a ſufficient number are put out, they ſhould not be ſtopped again, but wait for the appearance of the fruit, which will ſoon come out in plenty; at which time the Vines ſhould be carefully looked over three times a week, to obſerve the fruit, and make choice of one upon each runner, which is ſituated neareſt the ſtem, having the largeſt foot-ſtalk, and that appears to be the ſtrongeſt fruit, and then pinch off all the other fruit which may appear on the ſame runner; alſo pinch off the end of the runner at the third joint above the fruit, and if the runner is gently pinched at the next joint above the fruit, it will ſtop the ſap and ſet the fruit. There is alſo another method practiſed by ſome gardeners to ſet this fruit, which is the taking off ſome of the male flowers, whoſe farina are juſt ripe and fit for the purpoſe, laying them over the female flowers, which are ſituated on the crown of the young fruit, and with their nails gently ſtrike the male flowers to ſhake the farina into the female flowers, whereby they are impregnated, and the fruit ſoon after will ſwell, and ſhew viſible ſigns of their being perfectly ſet; ſo that where the plants are under frames, and the wind excluded from them, which is neceſſary to convey the farina from the male to the female flowers, this practice may be very neceſſary. The taking off all the other fruit will prevent the nouriſhment being drawn away from the fruit intended to grow, which, if they were all left on the plant, could not be ſupplied with ſufficient nouriſhment; ſo that when they come to be as large as the end of a man's thumb, they frequently drop off, and ſcarce one of them ſets, which will be prevented by the method before directed: but there are ſome perſons, who are ſo covetous of having a number of fruit, as hot to ſuffer any to be taken off, whereby they generally fail in their expectation. My allowing but one fruit to be left upon each runner is, becauſe if half theſe ſtand there will be full as many fruit as the plant can nouriſh; for if there are more than eight upon one plant, the fruit will be ſmall and not ſo well nouriſhed: indeed, I have ſometimes ſeen fifteen or twenty Melons upon one plant, but theſe have generally been of the ſmaller kinds, which do not require ſo much nouriſhment as the Cantaleupes, whoſe ſkins are of a thick ſubſtance; ſo that where a greater number are left of them than the plants can well ſupply, their fleſh will be remarkably thin.

As I before adviſed the ſtopping or pinching off the runners three joints above the fruit, ſo by this there will be freſh runners produced a little below the places where the others were pinched; therefore it is, that I adviſe the careful looking over the Vines ſo often, to ſtop theſe new runners ſoon after they come out, as alſo to pull off the young fruit which will appear; and this muſt be repeated as often as is found neceſſary, which will be until thoſe intended to ſtand are grown ſo large as to draw all the nouriſhment which the plants can ſupply, for then the plants will begin to abate of their vigour. Theſe few directions, if properly made uſe of, is all the pruning which is neceſſary to be given them; but at the ſame time when this is practiſed, it may be neceſſary to give ſome water to the plants, but at a diſtance from their ſtems, which will be of ſervice to ſet the fruit and cauſe it to ſwell, but this muſt be done with great caution.

The glaſſes of the hot-bed ſhould alſo be raiſed high, to admit a large ſhare of air to the plants, otherwiſe the fruit will not ſet; and if the ſeaſon ſhould prove very warm, the glaſſes may be frequently drawn off, eſpecially in an evening, to receive the dews, provided there is but little wind ſtirring; but the glaſſes ſhould not remain off the whole night, leſt the cold ſhould prove too great; but in warm weather, the glaſſes may be kept off from ten in the morning till evening.

When the plants have extended themſelves from under the frames, if the weather ſhould alter to cold, it will be neceſſary to cover their extremities every night with mats; for if theſe ſhoots are injured, it will retard the growth of the fruit, and often proves very injurious to the plants: and now what water is given to the plants, ſhould be in the alleys between the beds; for as the roots of the Vines will by this time have extended themſelves through the alleys, ſo when the ground there is well moiſtened, the plants will receive the benefit of it; and by this method, the ſtems of the plants will be preſerved dry, whereby they will continue ſound; but theſe waterings ſhould not be repeated oftener than once a week in very dry warm weather, and be ſure to give as much air as poſſible to the plants when the ſeaſon is warm.

Having given full inſtructions for the management of thoſe Melons which are raiſed under frames, I ſhall next proceed to treat of thoſe which are raiſed under bell or hand-glaſſes. The plants for theſe muſt be raiſed in the ſame manner as hath been already directed, and about the latter end of Aprril, if the ſeaſon proves forward, will be a good time to make the beds; therefore a ſufficient quantity of hot dung ſhould be provided, in proportion to the intended number of glaſſes, allowing ſix or eight good wheelbarrows of dung to each glaſs. Where there is but one bed, which is propoſed to be extended in length, the trench ſhould be dug out four feet and a half wide, and the length according to the number of glaſſes, which ſhould not be placed nearer than four feet to each other; for when the plants are too near each other, the Vines will intermix, and fill the bed ſo cloſely as to prevent the fruit from ſetting: in digging the trench, it ſhould be ſo ſituated, as to allow for the widening of the bed three or four feet on each ſide; the depth muſt be according as the ſoil is dry or wet; but, as was before obſerved, if the ſoil is ſo dry as that there is no danger of the beds being hurt by the wet, the lower they are made in the ground the better: in the making of the beds, the ſame regard muſt be had to the well mixing and laying of the dung as was before directed; and after the dung is laid, there ſhould be a hill of earth raiſed, where each plant is to ſtand, one foot and a half high; the other part of the bed need not as yet be covered more than four inches thick, which will be ſufficient to keep the warmth of the dung from evaporating; then the glaſſes ſhould be placed over the hills, and ſet down cloſe, in order to warm the earth of the hills to receive the plants; and if the beds work kindly, they will be in a proper temperature to receive the plants in two or three days after making; then the plants ſhould be removed, in the ſame manner as was before directed; and if they are in pots, ſo that there will be no danger of their growing, there ſhould but one plant be put under each glaſs; and if they are not in pots, there ſhould be two, one of which may be afterward taken away, if they both grow. Theſe plants muſt be watered at firſt planting, to ſettle the earth to their roots, and ſhaded every day until they have taken new root; and if the nights prove cold, it will be proper to cover the glaſſes with mats, to preſerve the warmth of the bed.

Where there are ſeveral of the beds intended, they ſhould be placed at eight feet diſtance from each other, that there may be a proper ſpace left between them, to be afterward filled up, for the root of the Vines to have room for extending themſelves, for the reaſons before given.

When the plants have taken good root in the beds, their tops muſt be pinched off; and their pruning, &c. muſt, from time to time, be the ſame as for thoſe under the frames. In the day time, when the weather is warm, the glaſſes ſhould be raiſed on the oppoſite ſide to the wind, to admit freſh air to the plants; for where this is not obſerved, they will draw up weak and ſickly, therefore all poſſible care ſhould be taken to prevent this; for if the runners have not proper ſtrength, they can never ſupply the fruit with nouriſhment.

When the plants are grown ſo long as to reach the ſides of the glaſſes, if the weather proves favourable, the glaſſes muſt be ſet on three bricks, ſo as to raiſe them about two inches from the ſurface of the beds, to give room for the Vines to run out from under them; but when this is done, the beds ſhould be covered all over with earth to the depth of one foot and a half, and trod down as cloſe as poſſible; and if the nights ſhould prove cold, there ſhould be a covering of mats put over the beds, to prevent the cold from injuring the tender ſhoots of the Vines; but as the Vines of the Contaleupe Melons are impatient of wet, it will be neceſſary to arch the beds over with hoops to ſupport the mats, that they may be ready for covering at all times when they require it; which is the only ſure method to have theſe Melons ſucceed in England, where the weather is ſo very uncertain and variable; for I have had ſome beds of theſe Melons in as fine order under theſe glaſſes as could be deſired, which were totally deſtroyed by one day's heavy rain in June.

After the thickneſs of earth is laid upon the beds, if the weather ſhould prove cold, it will be adviſeable to dig trenches on each ſide of the beds, into which you ſhould lay a ſufficient quantity of hot dung, to make it of the ſame thickneſs with the bed, after the manner before directed for the frames; or if there is a ſufficient quantity of hot dung ready, the whole ſpace between the beds may be dug out and filled up with the dung, laying thereon the earth a foot and a half deep, treading it down cloſe; this new dung will add a freſh warmth to the beds, and cauſe the plants to ſhew fruit ſoon after.

The watering of theſe plants muſt be done with great caution, and not given to their ſtems; the pinching off the runners muſt alſo be duly attended to, as alſo the pulling off all ſuperfluous fruit, to encourage thoſe which are deſigned to remain: and in ſhort, every thing before directed for thoſe under frames, muſt likewiſe be obſerved for theſe; and the further care is, to cover them in all hard rains and cold nights, with mats, which, if performed with care, there will be little danger of their miſcarrying, and theſe Vines will remain vigorous until the cold in autumn deſtroys them.

There have been many perſons, who of late years have raiſed their Melons under oiled paper, and in many places they have ſucceeded well; but where this is practiſed, there muſt be great care taken not to keep theſe coverings too cloſe over them; for where that is done, the Vines will draw very weak, and rarely ſet their fruit in any plenty; therefore where theſe coverings are propoſed to be uſed, I ſhould adviſe the bringing up of the plants under hand or bell-glaſſes, in the manner before directed, until they are grown far enough to be let out from under the glaſſes; and then, inſtead of the covering with mats, to put over the oiled paper; and if this covering is prudently managed, it will be the beſt that can be uſed. The beſt ſort of paper for this purpoſe is that which is ſtrong, and not of too dark a colour; and it ſhould be done over with linſeed oil, which will dry ſoon. There ſhould be a proportionable number of ſheets of this paper paſted together, as will ſpread to the dimenſions of the frame to which it is faſtened; and if this is fixed to the frame, before the oil is rubbed over it, ſo much the better; but this ſhould be done ſo long before they are uſed, as that the oil may be thoroughly dry, and the ſtench gone off, otherwiſe it will deſtroy the plants.

There are ſome perſons who make theſe frames of broad hoops, in imitation of the covers of waggons; but as theſe are cumberſome to move, and there are no conveniencies for admitting air to the plants, but by raiſing the whole frame on one ſide, I prefer thoſe made of pantile laths, framed like the ridge of a houſe; and each ſlope having hinges, may be raiſed at pleaſure to admit the air to the plants; but as deſcriptions of theſe things are not well comprehended by perſons not ſo converſant with them, I ſhall exhibit a figure of one of theſe frames, to be added to the article of Stoves.

The further management of the Melons, after their fruit is ſet, is to keep pulling off all the ſuperfluous fruit, and to pinch off all weak runners, which may draw away part of the nouriſhment from the fruit; as alſo to turn the fruit gently twice a week, that each ſide may have equal benefit of the ſun and air; for when they are ſuffered to lie with the ſame ſide conſtantly to the ground, that ſide will become of a pale or whitiſh colour, as if it were blanched, for want of the advantages of the ſun and air. The plants will require a little water in very dry weather, but this ſhould be given them in the alleys at a diſtance from the ſtems of the plants, and not oftener than once in a week or ten days, at which time the ground ſhould be well ſoaked in the alleys. This will encourage the growth of the fruit, and cauſe the fleſh to be thick; but the great caution which is neceſſary to be obſerved, is not to over-water the plants, which is certain injury to them: alſo be ſure to give as much free air as poſſible, at all times, when the weather will permit, for this is abſolutely neceſſary to render the fruit good.

When the fruit is fully grown, they muſt be duly watched to cut them at a proper time; for if they are left a few hours too long upon the Vines, they will loſe much of their delicacy, therefore they ſhould be looked over at leaſt twice every day; and if thoſe fruit which are intended for the table, are cut early in the morning, before the ſun has warmed them, they will be much better flavoured; but if any ſhould require to be cut afterward, they ſhould be put into cold ſpring water, or ice, to cool them, before they are brought to the table: and thoſe cut in the morning, ſhould be kept in the cooleſt place till they are ſerved up to table. The ſign of this fruit's maturity is, that of its beginning to crack near the foot-ſtalk, and its beginning to ſmell, which never fail; for as theſe Cantaleupe Melons ſeldom change their colour until they are too ripe, that ſhould never be waited for.

The directions here given for the management of the Cantaleupe Melons, will be found equally good for all the other ſorts, as I have fully experienced; for in the common method of managing them, where the earth is laid but three or four inches thick, the plants are very apt to decay before the fruit is ripe; for their roots ſoon reach the dung, and are extended to the ſides of the bed, where their tender fibres are expoſed to the air and ſun, which cauſe the leaves of the plants to hang down in the heat of the day, ſo it is neceſſary to ſhade them with mats, to prevent their decay; and this alſo occaſions the watering of the plants often to keep them alive, which is alſo prejudicial to their roots; whereas when the beds are made of a proper width, and earthed of a ſufficient thickneſs, the plants will bear the ſtrongeſt heat of the ſun in this climate, without ſhewing the leaſt want of moiſture, or their leaves drooping, and they will continue in health till the autumn cold deſtroys them.

In ſaving of the ſeeds I need not repeat here, that only ſuch ſhould be regarded, which are taken from the firmeſt fruit, and thoſe which have the higheſt flavour; and if theſe are taken out with the pulp entire, without diſplacing the ſeeds, and ſuffered to remain in the pulp two or three days before it is waſhed out, the better; and then to preſerve only the heavy ſeeds, which ſink in the water.

MELOCACTUS. } See Cactus.
MELOCARDUUS. }

MELOCHIA, Jews Mallow.

The Characters are,

It hath a permanent empalement of one leaf, cut half way into five ſegments; the flower hath five large ſpreading petals; the ſtamina are involved in the tube of the germen, and have five ſummits. It has a roundiſh germen with five awl-ſhaped erect ſtyles, which are permanent, crowned by ſingle ſtigmas. The flower is ſucceeded by five-cornered roundiſh capſules, having five cells with two horns, in each cell is lodged one angular compreſſed ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's ſixteenth claſs, intitled Monadelphia Pentandria; the flowers of this claſs have their ſtamina and ſtyles connected in one houſe, and thoſe of this ſection have but five ſtamina.

The Species are,

1. Melochia (*Pyramidata*) floribus umbellatis oppoſitis foliis, capſulis pyramidatis pentagonis, angulis acutis, foliis nudis. Hort. Cliff. 343. *Jews Mallow with umbellated flowers placed oppoſite to the leaves, and five-cornered pyramidal capſules.* Althæa Braſiliana fruteſcens, incarnato flore, fagopyri ſemine. Pluk. Phyt. tab. 131. f. 3.
2. Melochia (*Tomentoſa*) floribus umbellatis axillaribus, capſulis pyramidatis pentagonis, angulis mucronatis, foliis tomentoſis. Lin. Sp. 943. *Jews Mallow with umbellated flowers at the wings of the ſtalk, five-cornered pyramidal capſules, and woolly leaves.* Abutilon herbaceum procumbens, betonicæ folio, flore purpureo. Sloan. Hiſt. Sp. 220.
3. Melochia (*Depreſſa*) floribus ſolitariis capſulis depreſſis pentagonis, anguſtis obtuſis ciliatis. Flor. Leyd. Prod. 348. *Jews Mallow with flowers growing ſingly, and five-cornered depreſſed capſules.* Abutilon Americanum, ribeſii foliis, flore carneo, fructu pentagono aſpero. Houſt. MSS.
4. Melochia (*Concatenata*) racemis confertis terminalibus, capſulis globoſis ſeſſilibus. Flor. Zeyl. 247. *Jews Mallow with cluſtered ſpikes terminating the ſtalks, and globular capſules ſitting cloſe.*
5. Melochia (*Supina*) floribus capititatis, foliis ovatis ſerratis, caulibus procumbentibus. Lin. Sp. 944. *Jews Mallow with flowers in heads, oval ſawed leaves, and trailing ſtalks.* Alcea ſupina puſilla, geranii exigui maritimi folio & facie, maderaſpatenſis, fructu in ſummo caule glomerato, pericarpio duro. Pluk. Phyt. tab. 132. f. 4.

The firſt ſort grows naturally in the Brazils as a common weed, having a ſtalk ſomewhat ſhrubby, which riſes four or five feet high; the flowers are produced in umbels from the ſide of the ſtalk, oppoſite to the leaves; they are of a pale fleſh colour, and are ſucceeded by pyramidal capſules with five corners having five cells, each containing one angular ſeed.

The ſecond ſort grows naturally in Jamaica, and other warm parts of America. This has a trailing herbaceous ſtalk, garniſhed with woolly leaves ſhaped like Betony. The flowers are produced in umbels at the wings of the ſtalk; they are of a purple colour, and are ſucceeded by pyramidal capſules, having five corners.

The third ſort was diſcovered growing naturally at the Havannah, by the late Dr. Houſtoun. This riſes with a ſhrubby ſtalk five or ſix feet high, garniſhed with angular leaves reſembling thoſe of the Currant buſh; the flowers are produced ſingly from the ſide of the ſtalk: they are of a fleſh colour, and in ſhape like thoſe of the ſmall flowering Mallow; theſe are ſucceeded by rough five-cornered capſules, incloſing five Mallow-ſhaped ſeeds.

The fourth ſort grows naturally in both Indies; this hath an herbaceous ſtalk, which is terminated by ſeveral oblong bunches of flowers, which are ſucceeded by globular capſules with five cells, in each of which is lodged a ſingle ſeed.

The fifth ſort grows naturally in India; this is an annual plant with trailing ſtalks which ſpread on the ground, garniſhed with ſmall Betony-ſhaped leaves; the flowers and fruit are produced in cluſters at the end of the branches.

Theſe plants are preſerved in botanic gardens for variety, but having little beauty they are rarely cultivated in other places; they are propagated by ſeeds which muſt be ſown on a hot-bed, and when the plants come up, they ſhould be treated in the ſame way as is directed for Sida, to which the reader is deſired to turn to avoid repetition. The firſt and third ſorts are ſhrubby, ſo may with care be preſerved thro' the winter in a ſtove, whereby good ſeeds may be obtained; for theſe ſeldom ripen their ſeeds well the firſt year, unleſs the plants are brought forward early in the ſpring, and the ſummer proves warm. The other three ſorts generally ripen their ſeeds the ſame year they are ſown.

MELON. See Melo.

MELONGENA. Tourn. Inſt. R. H. 151. tab. 65. Solanum. Lin. Gen. Plant. 224. Mad Apple, by ſome called Egg Plant; in French, *Mayenne*.

The Characters are,

The flower has a permanent empalement of one leaf, which is deeply cut into five acute ſegments, which ſpread open. The flower hath but one petal, which is cut into five parts, which ſpread open and are reflexed. It hath five awl-ſhaped ſtamina, terminated by oblong ſummits which converge together. In the center is ſituated an oblong germen ſupporting a ſlender ſtyle, crowned by an obtuſe ſtigma; the germen afterward becomes an oval or oblong fruit with one cell, which hath a fleſhy pulp, filled with compreſſed roundiſh ſeeds.

This genus of plants is ranged in the ſeventh ſection of Tournefort's ſecond claſs, which includes the herbs with a wheel-ſhaped flower of one leaf, whoſe pointal changes to a ſoft fruit. Dr. Linnæus has joined this genus, and the Lycoperſicon of Tournefort, to the Solanum, making them only ſpecies of that genus; but as the fruit of this genus has but one cell, ſo it ſhould be ſeparated from the Solanum, whoſe fruit have two cells, and of which there are ſo many ſpecies already known, that there need not be any addition of plants which can be ſeparated with propriety added to it; he places it in the firſt ſection of his fifth claſs.

The Species are,

1. **Melongena** (*Ovata*) caule inermi herbaceo, foliis oblongo-ovatis tomentoſis integris, fructu ovato. *Mad Apple with a ſmooth herbaceous ſtalk, oblong, oval, woolly leaves, which are entire, and an oval fruit.* Melongena fructu oblongo violaceo. Tourn. Inſt. 151. *Mad Apple with an oblong Violet-coloured fruit.*
2. **Melongena** (*Tereta*) caule inermi herbaceo, foliis oblongo-ovatis tomentoſis, fructu tereti. *Mad Apple with herbaceous, ſmooth, oblong, oval, woolly leaves, and a taper fruit.* Melongena fructu tereti violaceo. Tourn. Inſt. 151. *Mad Apple with a taper Violet-coloured fruit.*
3. **Melongena** (*Incurva*) caule inermi herbaceo, foliis oblongis ſinuatis tomentoſis, fructu incurvo. *Mad Apple with a ſmooth herbaceous ſtalk, oblong ſinuated leaves which are woolly, and an incurved fruit.* Melongena fructu incurvo. Tourn. Inſt. R. H. 152. *Mad Apple with an incurved fruit.*
4. **Melongena** (*Spinoſa*) ſpinoſa, foliis ſinuatis-laciniatis, fructu tereti, caule herbaceo. *Mad Apple, with a prickly ſtalk and leaves which are cut into ſinuſes, a taper fruit, and an herbaceous ſtalk.* Solanum pomiferum fructu ſpinoſo. J. B. 3. 619. *Apple-beariug Nightſhade with a prickly fruit.*

The firſt ſort grows naturally in Aſia, Africa, and America, where the fruit is commonly eaten by the inhabitants; and it is cultivated in the gardens in Spain as an eſculent fruit, by the title of Barenkeena; the Turks who alſo eat the fruit, call it Badinjan, the Italians Melanzana, and the inhabitants of the Britiſh iſlands in America, Brown John, or Brown Jolly. It is an annual plant with an herbaceous ſtalk, which becomes a little ligneous, and riſes near three feet high, ſending out many ſide branches, garniſhed with oblong oval leaves ſeven or eight inches long, and four broad; they are woolly, and their borders are very ſlightly ſinuated, but not indented, ſtanding without order upon very thick foot-ſtalks. The flowers come out ſingly from the ſide of the branches, having a thick fleſhy empalement of one leaf, which is deeply cut into five acute ſegments, which ſpread open, and is armed with ſtrong prickles on the outſide. The flowers have one petal, which is cut at the brim into five ſegments, which expand in form of a ſtar, and are a little reflexed; they are blue, and the ſummits which are connected together in the boſom of the flower are yellow. The flowers are ſucceeded by oval fleſhy fruit, about the ſize and ſhape of a ſwan's egg, of a dark purple on one ſide, and white on the other. The flowers come out in June and July, and the fruit ripens in September.

There are the following varieties of theſe ſpecies; one with white fruit, called by ſome the Egg Plant; one with yellow fruit, and another with pale red fruit; all theſe varieties are generally conſtant, the ſeeds producing the ſame fruit as thoſe from which they were taken, but as they only differ in colour, ſo I chuſe not to enumerate them as diſtinct ſpecies.

The ſecond ſort differs from the firſt in the ſhape of the fruit, which is commonly eight or nine inches long, taper and ſtrait; in other reſpects they are the ſame, but as this never varies when propagated in gardens, ſo there can be no doubt of their being diſtinct ſpecies. There are two varieties of this ſort, one with a purpliſh fruit, and the other white, but the latter is the moſt common in England.

The third ſort differs from the two former in the ſhape of the leaves, which are deeply ſinuated on their borders. The fruit is oblong and incurved, of a yellowiſh colour, and larger at the end than in any other part.

The ſeeds of the fourth ſort were ſent me from India; this differs greatly from either of the former. The ſtalks and leaves are armed with very ſtrong thorns, and the leaves are larger, and deeply jagged on their ſides. The flowers are larger, and of a deeper blue colour. The fruit is long, taper, and white.

Theſe fruit are eaten by moſt of the inhabitants of the warm parts of the globe, and are eſteemed a delicacy, but are ſuppoſed to have a property of provoking luſt.

They are propagated by ſeeds, which muſt be ſown upon a moderate hot-bed in March, and when the plants come up, they muſt be tranſplanted into another hot-bed about four inches aſunder, obſerving to water and ſhade them until they have taken root; after which you muſt give them a great ſhare of air when the weather is warm, otherwiſe they will draw up very weak. They muſt be alſo frequently watered, without which they will make but very indifferent progreſs; but when they are grown ſo ſtrong as to fill the frame (which will be by the middle or end of May,) you muſt tranſplant them out into a rich ſpot of ground, at two feet diſtance, or in the borders of the pleaſure-garden at the ſame diſtance from other plants, obſerving to preſerve as much earth to the roots as poſſible when you take them up, otherwiſe they are ſubject to miſcarry. You muſt obſerve to water them plentifully, and ſhade them until they have taken root, after which they will require but very little care, more than to keep them clear from weeds, and in very dry weather to give them ſome water.

About the middle of July the fruit will appear, at which time, if the weather ſhould be very dry, you muſt often water them, which will cauſe the fruit to grow very large, and increaſe their number: toward the latter end of Auguſt their fruit will ripen, when you muſt preſerve the ſeeds of each kind ſeparate; but thoſe for the table ſhould be gathered before they are quite ripe.

Theſe plants are only preſerved as curioſities in the Engliſh gardens, the fruit being ſeldom eaten in this country, except by ſome Italians or Spaniards, who have been accuſtomed to eat them in their own countries.

MELOPEPO. See Cucurbita.

MELONRY, or MELON GROUND, is an apartment in the kitchen-garden for the propagation of Melons only.

This ſpot of ground ſhould be open to the ſouth-eaſt ſun, but ſheltered from the weſt, north-weſt, and north-eaſt winds, by walls, pales, or hedges, the latter of theſe is the beſt; it ſhould alſo be upon a dry ſoil, for nothing is more injurious to theſe plants than much wet; for in the ſpring of the year it often proves very wet weather, when, if the ſoil is very wet, there will be no making the ridges until it is very late. This ſhould alſo be contrived as near to the dung as poſſible, which will ſave a great deal of labour in wheeling the dung; and, if there ſhould be a pond of water near it, which, in very dry weather, will be very uſeful to water the Melons when it is neceſſary, though it is not often that water is wanted for this purpoſe in England.

As to the ſize of the ground, that muſt be proportioned to the quantity of ridges intended, which you may eaſily calculate, by allowing twelve feet breadth for every ridge, and the holes placed at about four feet aſunder; but it is the beſt way to allow room enough where you are not ſtreightened to it.

This ground ſhould be incloſed with a Reed fence, and kept conſtantly locked up during the time that the Melons are growing, for if they are expoſed to every perſon that walks in the garden (moſt of whom have a curioſity to handle the Vines, and look after the fruit,) it will be of ill conſequence, nothing being more injurious to theſe plants than frequent tumbling or diſturbing their leaves.

The common practice in moſt gentlemens gardens is, to incloſe a ſpot of ground either with walls or pales, which they conſtantly appropriate to this purpoſe;

but this is by no means a good method, for it rarely happens that theſe ſucceed well longer than two years in the ſame place, unleſs the ſoil be removed and freſh brought in, which is very expenſive; therefore the beſt way is, to have a ſufficient parcel of Reeds made into pannels, which may be annually moved from place to place, ſo that you need not continue your ridges longer than one year in the ſame place; and if you have a piece of ground which is large enough to divide into three or four ſuch places, the fence may be every year removed till the whole has been occupied, after which you may return to the ſpot where you began, which, by that time, will be as good as freſh earth; and hereby, without much trouble, you may remove them every year, for as one of the ſides will remain unremoved every time the fence is carried forward, the labour will not be ſo great as if it were wholly removed to ſome diſtance, and theſe Reed fences are much preferable to either walls or pales, for this purpoſe.

MELOTHRIA. Lin. Gen. Plant. 48.

The title of this genus was applied to it by Dr. Linnæus in the Hortus Cliffortianus. By ſome authors it hath been placed under the genus of Cucumis, and by others under that of Bryonia; but the Doctor has removed this to a diſtance from either of thoſe genera, on account of its having but three ſtamina; but Dr. Van Royen has brought it next to the genus of Bryonia again, as the plants have male and hermaphrodite flowers.

The Characters are,

The empalement of the flower is of one leaf, bell-ſhaped, and cut ſlightly at the brim into five parts, and in the hermaphrodite flowers, reſts upon the embryo. The male flower is of one leaf, wheel-ſhaped, having a tube the length of the empalement. In the center of the hermaphrodite flower is ſituated the pointal, ſupporting a cylindrical ſtyle, attended by three conical ſtamina, which are inſerted in the tube of the flower, and are extended to the ſame length; the male flowers have three ſtamina, terminated by blunt ſtyles. The pointal afterward becomes an oval ſmall berry, having three diviſions, in which are lodged ſmall flat ſeeds.

We have but one Species of this plant, viz.

Melothria (*Pendula.*) Lin. Hort. Cliff. 490. *Small creeping Cucumber.* Cucumis minima fructu ovali nigro lævi. Sloan. Hiſt. 1. p. 227. *Smalleſt Cucumber with a ſmooth, black, oval fruit.*

This plant grows wild in the woods in Carolina, Virginia, and alſo in many of the iſlands in America; it creeps upon the ground with ſlender Vines, having angular leaves, ſomewhat reſembling thoſe of the Melon, but much ſmaller. Theſe Vines ſtrike out roots at every joint, which faſten themſelves into the ground, and thereby a larger ſhare of nouriſhment is drawn to the plants, by which means their ſtalks extend to a great diſtance each way, and cloſely cover the ground. The flowers are very ſmall, in ſhape like thoſe of the Melon, and of a pale ſulphur colour. The fruit, in the Weſt-Indies, grow to the ſize of a Pea, of an oval figure, and changes black when ripe; theſe are by the inhabitants ſometimes pickled when they are green.

In England the fruit are much ſmaller, and are ſo hidden by the leaves, as to render it difficult to find them. The plants will not grow in the open air here, but the ſeeds muſt be ſown upon a hot-bed, and if the plants are permitted, will ſoon ſpread over the ſurface of a large bed; and when the fruit is ripe, if they ſcatter their ſeeds, the plants will come up where the earth happens to be uſed on a hot-bed again, and if they are ſupplied with water, will require no farther care. This plant is in ſome gardens preſerved for the ſake of variety, but is of no uſe.

MENISPERMUM. Tourn. Act. R. Par. 1705. Lin. Gen. Plant. 1131. Moonſeed.

The Characters are,

It hath male and female flowers on different plants; the male flowers have empalements compoſed of two ſhort linear leaves, and have four oval ſpreading petals without ſide, and eight oval concave petals within, which are ſmaller than thoſe without, ranged in four ſeries, and many cylindrical ſtamina which are longer than the petals, terminated by ſhort obtuſe ſummits having four lobes. The female flowers have the ſame empalement and corolla as the male, and have eight ſtamina with pellucid ſummits, which are fruitful. Theſe have two oval incurved germina, ſupporting a ſolitary recurved ſtyle, crowned by a bifid ſtigma; the germen afterward become two roundiſh kidney-ſhaped berries of one cell, incloſing a large kidney-ſhaped ſeed.

This genus of plants is ranged in the tenth ſection of Linnæus's twenty-ſecond claſs, which includes thoſe plants which have male and female flowers on different plants, and the male flowers have twelve ſtamina.

The Species are,

1. Menispermum (*Canadenſe*) foliis peltatis ſubrotundis angulatis. Hort. Cliff. 140. *Moonſeed with target-ſhaped, roundiſh, angular leaves.* Meniſpermum Canadenſe ſcandens, umbilicatis foliis. Tourn. Act. Par. 1705. *Climbing Moonſeed of Canada, with a navel-ſhaped leaf.*
2. Menispermum (*Virginicum*) foliis cordatis peltatis lobatis. Flor. Virg. 40. *Moonſeed with heart and target-ſhaped leaves, which have lobes.* Meniſpermum folio hederaceo. Hort. Elth. 223. tab. 178. *Moonſeed with an Ivy leaf.*
3. Menispermum (*Carinianum*) foliis cordatis ſubtus villoſis. Lin. Sp. Plant. 340. *Moonſeed with heart-ſhaped leaves, which are hairy on their under ſide.*

The firſt ſort grows naturally in Canada, and moſt parts of North America, in the woods; this hath a thick ligneous root, from which are ſent out many climbing ſtalks, which become ligneous, and riſe to the height of twelve or fourteen feet, twiſting themſelves about the neighbouring plants for ſupport; theſe are garniſhed with large, ſmooth, roundiſh leaves, whoſe foot-ſtalks are placed almoſt in the middle of the back of the leaves; on the upper ſide there is a hollow in that part of the leaf reſembling a navel. The flowers come out in looſe bunches from the ſide of the ſtalks; they are of an herbaceous colour, ſmall, and compoſed of two tiers of oblong oval petals, very ſhort ſtamina, with ten in the male flowers, terminated by ſingle ſummits; the two germen ſituated in the center of the female flowers turn to ſo many channelled berries, each containing one kidney-ſhaped ſeed. It flowers in July, and the ſeeds ripen in autumn.

This ſort may be eaſily propagated by laying down of the branches, which, if performed in autumn, will have made good roots by the following autumn, when they may be ſeparated from the old plant, and tranſplanted where they are deſigned to remain; theſe plants require ſupport, for their branches are ſlender and weak. In the country where it grows naturally, they climb up the trees to a conſiderable height, ſo that if theſe are planted near trees in wilderneſs quarters, where their ſtalks may have ſupport, they will thrive better than in an open ſituation.

The ſecond ſort differs from the firſt in the ſhape of its leaves, which are angular, and ſometimes heart-ſhaped; their foot-ſtalks join to the baſe of the leaves, ſo they have no umbilical mark on their ſurface. The ſtalks of this become ligneous, and riſe nearly as high as thoſe of the firſt ſort, and the flowers and berries do not differ from them. It is alſo propagated after the ſame manner.

The third ſort grows naturally in Carolina, from whence the ſeeds were ſent to England; this has by ſome been ſuppoſed the ſame with the ſecond ſort, from which it differs in its branches, not becoming woody as thoſe do. The ſtalks are herbaceous; the leaves are entire and hairy, and are not more than half ſo large as thoſe of the ſecond, nor is the plant ſo hardy, for in ſevere winters, thoſe which are expoſed to the open air are ſometimes killed, whereas the ſecond ſort is never injured by cold. This ſort does not produce any flowers in England, unleſs the ſeaſon proves very warm.

This may be propagated by parting of the roots, which ſpread out on the ſide, ſo that part of them may be cut off every other year; the beſt time for doing this is in the ſpring, a little before the plants begin to ſhoot; theſe ſhould be planted in a warm ſituation and have a light ſoil, for in ſtrong land, where the wet is detained in winter, the roots are apt to rot; therefore if they are planted cloſe to a wall expoſed to the ſouth or weſt, their ſtalks may be faſtened againſt the wall, to prevent their trailing upon the ground; and in this ſituation the plants will frequently flower, and by having a little ſhelter in ſevere froſt, their ſtalks may be preſerved from injury.

There is little beauty in theſe plants, but yet they are preſerved in many gardens for the ſake of variety, for which reaſon they are here inſerted.

MENTHA. Tourn. Inſt. R. H. 188. tab. 89. Lin. Gen. Plant. 633. [Μίνθη, according to the ancients, a goddeſs, as alſo according to the poets. The ancients alſo gave it the name of Sweet-ſmelling, and where this word is found, this plant is underſtood. Mentha is likewiſe ſo called of Mens, *Lat.* the mind, becauſe this plant is ſaid to ſtrengthen the mind.] Mint; in French, *Menthe*.

The CHARACTERS are,

It hath a lip flower of one petal, ſitting on a permanent tubulous empalement of one leaf, which is erect, and cut at the brim into five equal ſegments. The tube of the petal is a little longer than the empalement. The chaps are cut into four almoſt equal ſegments, the upper being a little larger and indented. It hath four awl-ſhaped ſtamina, which are erect, ſtanding aſunder, the two neareſt being longeſt; they are terminated by roundiſh ſummits, and in the bottom of the tube is ſituated a four-pointed germen, ſupporting a ſlender erect ſtyle, crowned by a bifid ſpreading ſtigma. The germen afterward turns to four naked ſeeds ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, which includes thoſe plants whoſe flowers have two long and two ſhorter ſtamina, and the ſeeds ripen in the empalement.

The SPECIES are,

1. MENTHA (*Viridis*) floribus ſpicatis, foliis oblongis ſerratis. Hort. Upſal. 168. *Mint with ſpiked flowers, and oblong ſawed leaves.* Mentha anguſtifolia ſpicata. C. B. P. 227. *Narrow-leaved ſpiked Mint, commonly called Spear Mint.*
2. MENTHA (*Glabra*) floribus ſpicatis, foliis longioribus glabris, ſupernè minimè ſerratis. *Mint with ſpiked flowers, and longer ſmooth leaves, which are very ſlightly ſawed toward their points.* Mentha anguſtifolia ſpicata glabra. Rand. *Narrow-leaved, ſmooth, ſpiked Mint.*
3. MENTHA (*Candicans*) foliis lanceolatis ſerratis, ſubtus incanis, floribus ſpicatis hirſutiſſimis. *Mint with ſpear-ſhaped ſawed leaves, which are hoary on their under ſide, and very hairy ſpiked flowers.* Mentha Sylveſtris candicans, odore ſativi. Doody. Raii Syn. App. *Wild Mint of a white colour, ſmelling like that of the garden.*
4. MENTHA (*Sylveſtris*) ſpicis confertis, foliis ſerratis tomentoſis ſeſſilibus. Hort. Cliff. 306. *Mint with ſpikes of flowers growing in cluſters, and woolly ſawed leaves ſitting cloſe to the ſtalks.* Mentha ſylveſtris longiore folio. C. B. P. 227. *Wild Mint with a longer leaf.*
5. MENTHA (*Aquatica*) ſpicis craſſioribus, foliis ovato-lanceolatis ſerratis ſubtus tomentoſis petiolatis. *Mint with thicker ſpikes, and oval, ſpear-ſhaped, ſawed leaves, which are woolly on their under ſide, and have foot-ſtalks.* Mentaſtri aquatici genus hirſutum, ſpicâ latiore. J. B. 3. 222. *Hairy Water Mint with a broader ſpike.*
6. MENTHA (*Piperita*) ſpicis craſſioribus interruptis, foliis lanceolatis acutè ſerratis. *Mint with thicker ſpikes of flowers, which are interrupted, and ſpear-ſhaped leaves which are ſharply ſawed.* Mentha fervida nigricans, piperis ſapore. Rand. Hort. Chel. Cat. *Blackiſh hot Mint with a taſte like Pepper, commonly called Pepper Mint.*
7. MENTHA (*Criſpa*) floribus ſpicatis, foliis cordatis dentatis undulatis ſeſſilibus. Hort. Cliff. 306. *Mint with ſpiked flowers, and heart-ſhaped indented leaves, which are waved, and ſit cloſe to the ſtalks.* Mentha criſpa Danica ſive Germanica ſpecioſa. Mor. Hiſt. 3. p. 367. *Daniſh or German curled Mint.*
8. MENTHA (*Rotundifolia*) ſpicis confertis, foliis ovatis rugoſis ſeſſilibus. *Mint with ſpikes growing together, and oval rough leaves ſitting cloſe to the ſtalk.* Mentaſtrum folio rugoſo rotundiore ſpontaneum, flore ſpicato, odore gravi. J. B. 3. 217. *Wild Mint with a rounder rough leaf, and a ſpiked flower, having a ſtrong ſcent.*
9. MENTHA (*Rubra*) ſpicis confertis interruptis, foliis oblongo-ovatis acuminatis dentatis ſeſſilibus. *Mint with interrupted ſpikes of flowers growing together, and oblong, oval, acute-pointed, indented leaves, ſitting cloſe to the ſtalk.* Mentha rotundifolia rubra, aurantii odore. Mor. Hiſt. 3. 369. *Round-leaved red Mint, ſmelling like an Orange, commonly called Orange Mint.*
10. MENTHA (*Chalepenſa*) foliis oblongis dentatis, utrinque tomentoſis ſeſſilibus, ſpicis tenuioribus. *Mint with oblong indented leaves, which are woolly on both ſides, ſet cloſe to the ſtalk, and very narrow ſpikes of flowers.* Mentraſtum chalepenſe, anguſtifolium, rarò florens. Boerh. Ind. alt. 1. p. 185. *Narrow-leaved wild Mint of Aleppo, which rarely flowers.*
11. MENTHA (*Paluſtris*) floribus capitatis, foliis ovatis ſerratis petiolatis, ſtaminibus corollâ longioribus. Hort. Cliff. 306. *Mint with flowers growing in heads, oval ſawed leaves having foot-ſtalks, and ſtamina longer than the petals.* Mentha rotundifolia paluſtris ſive aquatica major. C. B. P. 227. *Greater round-leaved Water Mint.*
12. MENTHA (*Nigricans*) floribus capitatis, foliis lanceolatis ſerratis ſubpetiolatis. Lin. Sp. Plant. 576. *Mint with flowers growing in heads, and ſpear-ſhaped ſawed leaves with very ſhort foot-ſtalks.* Mentha fervida nigricans latifolia. Rand. *Broad-leaved blackiſh Pepper Mint.*
13. MENTHA (*Arvenſis*) floribus verticillatis, foliis ovatis acutis ſerratis, ſtaminibus corollâ brevioribus. Lin. Sp. Plant. 577. *Mint with flowers growing in whorls, oval, acute, ſawed leaves, and ſtamina ſhorter than the petals.* Mentha arvenſis, verticillata hirſuta. J. B. 3. 2. 217. *Whorled hairy field Mint, or Calamint of the ſhops.*
14. MENTHA (*Exigua*) floribus verticillatis, foliis ovatis dentatis, ſtaminibus corollâ longioribus. *Mint with flowers growing in whorls, oval indented leaves, and ſtamina longer than the petals.* Mentha aquatica, exigua. Trag. Lib. 1. c. 6. *Smalleſt Water Mint.*
15. MENTHA (*Gentilis*) floribus verticillatis, foliis ovatis, marginibus ciliatis, ſtaminibus corollam æquantibus. *Mint with whorled flowers, oval leaves whoſe borders are hairy, and ſtamina equalling the petals.* Mentha verticillata, rotundiore folio, odore ocymi. Dale. *Whorled Mint with a rounder leaf, ſmelling like Baſil.*
16. MENTHA (*Hirſuta*) floribus verticillatis, foliis ovatis ſerratis hirſutis, ſtaminibus corollâ longioribus. *Mint with whorled flowers, oval, ſawed, hairy leaves, and ſtamina longer than the petals.* Mentha aquatica ſive ſiſymbrium hirſutus. J. B. 3. 2. 224. *Water Mint, or hairy Siſymbrium.*
17. MENTHA (*Verticillata*) floribus verticillatis, foliis lanceolatis acutis ſerratis, rugoſis, ſtaminibus corollam æquantibus. *Mint with whorled flowers, ſpear-ſhaped, acute-pointed, ſawed, rough leaves, and ſtamina equalling the petals.* Mentha verticillata, longiori acuminato folio, odore aromatico. Rand. Hort. Chel. Cat. *Whorled Mint with a longer acute-pointed leaf, and an aromatic ſcent.*

There are ſeveral other varieties of this genus, which have been found growing naturally in England, of which I have twelve or more in my own collection; but as I ſuſpect ſome of them to be only accidental variations, ariſing from the different ſoils and ſituations where they have been found, I have not enumerated them all here; thoſe which are here mentioned, I take to be diſtinct ſpecies, having cultivated them more than thirty years, in which time I have not obſerved them to change from one to another; ſeveral of theſe I have propagated by ſeeds, and have found them keep to the kind from which the ſeeds were ſaved.

The firſt ſort is what the gardeners cultivate to ſupply the markets, and is uſed both as a culinary herb, and for medicine; it is generally called Spear Mint, and by ſome Hart Mint; Parkinſon and Gerard title it Roman Mint; this is a plant ſo well known, as to need no deſcription. There are two varieties of this, one with a curled leaf, and the other has variegated leaves, but both theſe I have had run from the common ſort; theſe are by ſome preſerved in their gardens for the ſake of variety, therefore I have mentioned them here.

This herb is greatly eſteemed for all diſorders of the ſtomach, loſs of appetite, and vomiting; there is a ſimple water, a ſpirit, and compound ſyrup, and a diſtilled oil of it prepared in the ſhops.

The ſecond ſort hath ſmoother leaves than the firſt, and they are rather narrower, in other reſpects it agrees with that, ſo that it is frequently cultivated in the gardens for uſe, without diſtinction.

The third ſort grows naturally in England; the leaves of this are ſhorter, and broader in the middle than either of the former, the ſerratures on their edges are more acute, and their under ſides are woolly, and very white. The ſtalks divide more toward the top, ſo are terminated by a greater number of ſpikes, the lower part of which are interrupted. The ſcent of this ſort is very like that of the Garden Mint.

The fourth ſort hath longer and broader leaves than either of the former, which are woolly and white. The ſerratures on their edges are farther aſunder, and are very ſharp pointed; they ſit cloſe to the ſtalks, which are hairy. The ſpikes of flowers are ſlender, ſeveral of them growing together at the top of the ſtalk, which are hairy. This is the Mentaſtrum, or wild Mint of the ſhops, and is an ingredient in the Trochiſci de Myrrha.

The fifth ſort grows naturally in moiſt places in ſeveral parts of England, it is titled Spiked Horſe Mint, or Water Mint. The ſtalks of this are ſhorter than thoſe of either of the former, and are hairy, as are alſo the leaves, which are oval, ſpear-ſhaped, ſawed on their edges, and of a pale colour. The flowers grow in ſhort thick ſpikes at the top of the ſtalks, their ſtamina being ſhorter than the petal.

The ſixth ſort is found growing naturally in ſome parts of England; I have found it by the ſide of the river between Mitcham and Croydon, in Surry; this hath ſmooth purple ſtalks; the leaves are ſmaller than thoſe of common Mint; they are ſpear-ſhaped, ſawed on their edges, and of a darker green colour than either of the former; their midrib and veins are purple, and a little hairy on their under ſide. The ſpikes of flowers are ſhorter and thicker than thoſe of the common Mint, and are broken or interrupted at the bottom; they are of a dark purple colour, and their ſtamina are longer than the petal. The whole plant has a hot biting taſte like Pepper, and a pleaſant ſcent. There is a diſtilled water of this plant kept in the ſhops, which is by moſt people preferred to that of the common Mint, for all the purpoſes which that is uſually preſcribed, and is eſteemed an excellent remedy againſt the ſtone and gravel.

The ſeventh ſort was originally brought from Denmark, where it was thought to grow naturally, but Dr. Linnæus fixes it as a native of Siberia. The ſtalks of this ſort are hairy, and riſe about the ſame height with the common. The leaves are heart-ſhaped, deeply indented on their edges, waved and curled, and ſit cloſe to the ſtalk, they are of a light green. The flowers are purple, growing in thick interrupted ſpikes at the top of the ſtalks; their empalements are cut almoſt to the bottom, and the ſtyle of the flower is bifid, ſtanding out beyond the petal.

The eighth ſort grows naturally in many parts of England; this riſes with a ſtrong, four-cornered, hairy ſtalk, about the ſame height as the common Mint, branching out toward the top, and garniſhed with oval rough leaves ſitting cloſe to the ſtalks; they are of a dark green, and crenated on their edges. The ſpikes of flowers grow in cluſters at the top of the ſtalks, which are ſhort and cloſe; the flowers are of an herbaceous white colour, and their ſtamina are ſtretched out beyond the petal.

The ninth ſort is commonly called Orange Mint, from its ſcent, which is ſomewhat like that of the rind of Orange. This riſes with an upright ſmooth ſtalk about the ſame height with the common Mint, but does not branch out like that; the leaves are much broader than thoſe of the common ſort; the indentures on their edges are deep, and they end in acute points. The ſpikes of flowers grow in cluſters on the top of the ſtalks, which are interrupted; they are of a pale colour, and their ſtamina are ſhorter than the petal. It is commonly cultivated in gardens for its pleaſant ſcent.

The tenth ſort grows naturally at Aleppo, but is hardy enough to thrive in the open air in England. This hath ſlender four-cornered ſtalks, which are purple at bottom, but woolly upward, ſeldom branching; they are garniſhed with oblong indented leaves, which are downy on both ſides, ſitting cloſe to the ſtalks. The ſpikes of flowers are ſingle, and very ſlender; theſe do not often appear in England, but when they do it is late in the ſummer. It creeps much at the root, ſo the only way to obtain flowers, is to confine their roots in pots.

The eleventh ſort grows naturally in ditches in moſt parts of England, and is commonly known by the name of Water Mint. This hath hairy ſtalks about a foot high, which branch toward the top, and are garniſhed with oval ſawed leaves, ſtanding upon pretty long foot-ſtalks. The flowers grow in roundiſh ſpikes at the end of the branches; they are of a purple colour, and their ſtamina are longer than the petal. The whole plant has a very ſtrong ſcent, ſomewhat like that of Penny Royal. This ſort is ſometimes uſed in medicine, and is reckoned hotter than the Garden Mint: it is carminative, expelling wind out of the ſtomach, and helping the cholick.

The twelfth ſort grows naturally in ditches in ſeveral parts of England; the ſtalks of this are purple, ſmooth, and ſhort, branching out on every ſide; the leaves are ſmall, ſpear-ſhaped, of a dark colour; they are but ſlightly ſawed on their edges, and ſtand upon ſhort foot-ſtalks. The flowers grow in roundiſh heads on the top of the ſtalks, they are purple, and their ſtamina are longer than the petal. This ſort has a warm biting taſte, but not quite ſo hot as the Pepper Mint before deſcribed, but is often uſed for it. There is a variety of this which ſmells like Penny Royal.

The thirteenth ſort grows naturally in arable land in moſt parts of England, and is rarely admitted into gardens. This is the Water Calamint of the ſhops, but is now ſeldom uſed in medicine. The ſtalks of this ſort riſe about a foot high and are hairy, garniſhed with oval leaves ending in acute points, and ſawed on their edges. The flowers grow in very thick whorls round the ſtalks; they are ſmall, of a purple colour, and their ſtamina are ſhorter than the petal. The plant has a ſtrong ſcent like Penny Royal.

The fourteenth ſort grows in watery places in many parts of England; this hath weak trailing ſtalks a foot and a half long, garniſhed with ſmall oval leaves which are indented on their edges, and ſtand upon pretty long foot-ſtalks. The flowers grow in thick whorls round the ſtalks, they are purple, and their ſtamina are longer than the petal.

The fifteenth ſort grows plentifully on the ſide of the road between Bocking and Goſfield in Eſſex; the ſtalks of this are much ſmaller, and not ſo long as thoſe of the former; the leaves are ſhorter and rounder, and are very little indented on their edges, but have their borders ſet with hairs. The whorls of flowers are ſmaller, and the whole plant has the ſcent of Baſil.

The ſixteenth ſort grows naturally in ditches and on the ſides of rivers, in many parts of England. This hath hairy four-cornered ſtalks, which are a foot or more in height; the leaves are oval, ſawed, and very hairy. The flowers grow in large whorls toward the top of the ſtalks; they are purple, and their ſtamina are longer than the petals. This hath a pleaſanter ſcent than the common Water Mint, ſo is called Sweet Water Mint by way of diſtinction: it ſtands in the liſt of ſimples in moſt diſpenſaries, but is now ſeldom uſed in medicine.

The ſeventeenth grows naturally by the ſide of the river Medway, between Rocheſter and Chatham. This riſes with ſlender hairy ſtalks near two feet high, garniſhed with ſpear-ſhaped leaves, ending in acute points, which are ſawed on their edges; the ſtalks are beſet with whorls of flowers almoſt their whole length, ſo that they have frequently ten or twelve whorls on each. The flowers are purpliſh, and their ſtamina are equal with the petals; this hath a very pleaſant aromatic ſcent.

All the ſorts of Mint are eaſily propagated by parting the roots in the ſpring, or by planting cuttings during any of the ſummer months, but they ſhould have a moiſt ſoil; and after the cuttings are planted, if the ſeaſon ſhould prove dry, they muſt be often watered until they have taken root; after which, they will require no farther care but to keep them clear from weeds: they ſhould be planted in beds about four feet wide, allowing a path about two feet broad between the beds, to water, weed, and cut the plants. The diſtance they ſhould be ſet is four or five inches, or more, becauſe they ſpread very much at their roots; for which reaſon, the beds ſhould not ſtand longer than three years before you plant freſh, for by that time the roots will be matted ſo cloſely, as to rot and decay each other, if permitted to ſtand longer. There are ſome people who are very fond of Mint ſallad in winter and ſpring; in order to obtain which, they take up the roots before Chriſtmas, and plant them upon a moderate hot-bed pretty cloſe, covering them with fine earth about an inch thick, and cover the bed either with mats or frames of glaſs. In theſe beds the Mint will come up in a month's time, and be ſoon fit to cut for that purpoſe.

When the herb is cut for medicinal uſe, it ſhould be done in a very dry ſeaſon, juſt when it is in flower; for if it ſtand longer, it will not be near ſo handſome, nor ſo well taſted; and if it be cut when it is wet, it will change black and be little worth; this ſhould be hung up to dry in a ſhady place, where it may remain until it be uſed.

If the ſoil be good in which theſe plants are ſet, they will afford three crops every year, but after July they ſeldom prove good; therefore what ſhoots are produced after that time ſhould be permitted to remain till Michaelmas, when they muſt be cut down cloſe; and after having cleared the beds from weeds, you ſhould ſpread a little fine rich earth all over them, which will greatly encourage the roots againſt the ſucceeding ſpring.

As the diſtilled water of all the ſorts of Mint is eſteemed a very wholeſome cordial dram, ſo I ſhould think it might be ſubſtituted inſtead of thoſe vile ſpirits with which the common people intoxicate themſelves; for the Pepper Mint water is as warm on the ſtomach as any ſort of dram, and more ſo than any of thoſe noxious ſpirits; and if this was mixed with ſome other agreeable aromatic herbs, there might certainly be a diſtilled liquor much more palatable and wholeſome than what is now vended in common; for as the generality of the lower claſs of people are ſo debauched, as not to be contented without drams, ſo the leſs hurtful thoſe are made, the better it will be for the public; and by introducing the diſtilling of herbs, there will be leſs occaſion for uſing of Wheat.

MENTHA CATARIA. See Nepeta.

MENTZELIA. Plum. Nov. Gen. Plant. 40. tab. 6. Lin. Gen. Plant. 595.

The name was given to this plant by Father Plumier, who diſcovered it in the French ſettlements in America, in honour of Dr. Mentzelius, who was phyſician to the Elector of Brandenburgh, and who publiſhed an Index of plants in Latin, Greek, and High Dutch.

The Characters are,

The flower hath a ſpreading empalement cut into five parts, which ſits upon a long cylindrical germen. It hath five petals which ſpread open, and are a little longer than the empalement, and many erect briſtly ſtamina, terminated by ſingle ſummits. From the long cylindrical germen which is ſituated under the flower, ariſes a briſtly ſtyle the length of the petals, crowned by a ſingle ſtigma. The germen afterward turns to a cylindrical long capſule with one cell, containing many ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, which includes thoſe plants whoſe flowers have many ſtamina and one ſtyle.

We know but one Species of this genus, viz.

Mentzelia (*Aſpera.*) Hort. Cliff. 492. Plumier titles it Mentzelia foliis & fructibus aſperis. Nov. Gen. Plant. 41. *Mentzelia with prickly leaves and fruit.*

This plant grows plentifully at La Vera Cruz, from whence the ſeeds were ſent to England by the late Dr. William Houſtoun, which have ſucceeded in the phyſic garden at Chelſea.

This plant is annual; it riſes with a ſlender ſmooth ſtalk, which is ſtiff, and becomes a little woody, riſing more than three feet high, branching out alternately at diſtances; the branches are diſtorted, and run into one another; theſe are garniſhed with leaves ſhaped like the point of an halbert, ſtanding alternately on the branches, upon ſhort foot-ſtalks; they are covered with ſhort hooded prickles, which faſten themſelves into the clothes of thoſe who rub againſt them; and thoſe parts of the branches eaſily ſeparate from the plants, and adhere to the clothes in like manner as the ſeeds of Clivers. The flowers come out ſingly from the joints of the ſtalk, reſting upon a cylindrical germen, which is near an inch in length, narrow at the baſe, but widens upward to the top. Upon the top of it comes out the empalement, which is ſpread open after the ſame manner as thoſe of the Onagra; then the petals of the flower ſpread open upon the empalement; they are of a pale yellow colour, and longer than the empalement. In the middle ariſes a great number of ſtamina which are erect, and are terminated by ſingle ſummits; from the germen ariſes a ſingle ſtyle, which is as long as the petals, crowned by a ſingle ſtigma. The germen afterward turns to a long cylindrical capſule, armed with the like prickles as the leaves, which alſo faſten themſelves to the clothes of thoſe who rub againſt them; theſe have but one cell, which is filled with ſmall ſeeds.

As this is an annual plant, which periſhes ſoon after the ſeeds are ripe, therefore the ſeeds muſt be ſown on a hot-bed early in the ſpring, that the plants may be brought forward early in the ſeaſon, otherwiſe they will not produce ripe ſeed in this country. When the plants are come up about an inch high, they ſhould be each tranſplanted into a ſeparate halfpenny pot filled with light rich earth, and plunged into a hot-bed of tanners bark, being careful to ſhade them from the ſun until they have taken new root; after which time they muſt be conſtantly watered every other day in warm weather, and ſhould have freſh air every day admitted to them, in proportion to the warmth of the ſeaſon, and the heat of the bed in which they are plunged. In about ſix weeks or two months after tranſplanting, if the plants have made a good progreſs, they will have filled the pots with their roots, when they ſhould be ſhifted into larger pots, which muſt be filled with light rich earth, and then plunged into the bark-bed in the ſtove, that they may have room to grow in height, obſerving, as before, to water them duly, as alſo to admit freſh air to them every day in warm weather: with this management the plants will riſe to the height of three feet, and will produce ripe ſeeds the latter end of Auguſt or the beginning of September.

MENYANTHES, is the Trifolium Paluſtre, or Bog Bean.

This plant is common upon boggy places in divers parts of England, but is never cultivated in gardens; for which reaſon I ſhall not trouble the reader with any farther account of it, except the taking notice, that this plant is at preſent in great eſteem, being thought an excellent remedy for the rheumatiſm, gout, and many other diſorders. It is frequently called Bog Bean, or Marſh Trefoil, in the markets, and grows plentifully on bogs in many parts of England, where it is gathered and brought to ſupply the markets.

MERCURIALIS. Tourn. Inſt. R. H. 534. tab. 308. Lin. Gen. Plant. 998. [This plant takes its name from Mercury, becauſe the ancients had a notion, that the God Mercury brought this plant into uſe.] Mercury; in French, *Mercuriale.*

The Characters are,

It is male and female in different plants; the male flowers have a ſpreading empalement, which is cut into three concave ſegments; theſe have no petals, but have nine or twelve erect hairy ſtamina, crowned by globular twin ſummits. The female flowers have no petals, but have two awl-ſhaped acute-pointed nectariums; to each of theſe there is a ſingle broad germen, impreſſed with a furrow between them; theſe roundiſh compreſſed germen have a prickly furrow on each ſide, and ſupport two reflexed prickly ſtyles, crowned by acute reflexed ſtigmas. The germen afterward turns to a twin capſule ſhaped like the ſcrotum, having two cells, each containing one roundiſh ſeed.

This genus of plants is ranged in the eighth ſection of Linnæus's twenty-ſecond claſs, which includes thoſe plants whoſe male flowers grow on different plants from the fruit, and have nine ſtamina in each.

The Species are,

1. Mercurialis (*Annua*) caule brachiato, foliis glabris. Hort. Cliff. 461. *Mercury with a branching ſtalk and ſmooth leaves.* Mercurialis ſpicata & teſticulata mas & fœmina. C. B. P. 121. *Mercury with ſpiked and teſticulated flowers, which are both male and female, called French Mercury.*
2. Mercurialis (*Perennis*) caule ſimpliciſſimo, foliis ſcabris. Hort. Cliff. 461. *Mercury with a ſingle ſtalk and rough leaves.* Mercurialis montana ſpicata & teſticulata. C. B. P. 122. *Mountain Mercury, or Dogs Mercury, with ſpiked and teſticulated flowers.*
3. Mercurialis (*Tomentoſa*) caule ſubfruticoſo, foliis tomentoſis. Hort. Cliff. 461. *Mercury with a ſtalk ſomewhat ſhrubby, and woolly leaves.* Mercurialis fruticoſa incana, ſpicata & teſticulata. Tourn. Inſt. R. H. 534. *Shrubby hoary Mercury, having ſpiked and teſticulated flowers.*

The firſt ſort is commonly called French Mercury, from whence it might have been brought into England; for although it is now become a weed in gardens and upon dunghills, yet it is ſeldom found growing at a diſtance from habitations. This is an annual plant, with a branching ſtalk about a foot high, garniſhed with ſpear-ſhaped leaves about an inch and a half long, indented on their edges, of a pale or yellowiſh green colour. The male plants have ſpikes of herbaceous flowers growing on the top of the ſtalks, theſe fall ſoon; but the female plants, which have teſticulated flowers proceeding from the ſide of the ſtalks, are ſucceeded by ſeeds, which, if permitted to ſcatter, will produce plenty of plants of both ſexes. The leaves and ſtalks of this plant are uſed in medicine, and are reckoned aperitive and mollifying.

The ſecond ſort grows under hedges and in woods in moſt parts of England. This hath a perennial root, which creeps in the ground; the ſtalks are ſingle and without branches, riſing ten or twelve inches high, garniſhed with rough leaves, placed by pairs at each joint; they are of a dark green colour, and indented on their edges; theſe have their male flowers growing in ſpikes upon different plants, from thoſe which produce ſeeds.

This hath a poiſonous quality, there have been many late inſtances of it, where people in the ſpring of the year, when there has been a ſcarcity of greens, have boiled the leaves of this, and have ſuffered greatly by eating them.

The third ſort grows naturally in the ſouth of France, in Spain, and Italy. This riſes with a ſhrubby branching ſtalk a foot and a half high, garniſhed with oval leaves placed by pairs, which are covered with a white down on both ſides. The male flowers grow in ſhort ſpikes from the ſide of the ſtalks, upon different plants from the fruit, which are teſticulated and hoary. If the ſeeds of theſe are permitted to ſcatter, the plants will come up the following ſpring; and if the ſeeds are ſown, it ſhould be performed in the autumn, for thoſe which are ſown in the ſpring ſeldom grow the ſame year. This plant ſhould have a warm ſituation and a dry rubbiſhy ſoil, in which it will live three or four years, but in hard froſt theſe plants are frequently killed.

MESEMBRYANTHEMUM. Dill. Gen. 9. Hort. Elth. 179. Ficoides. Tourn. Act. R. Par. 1705. Fig Marygold.

The Characters are,

The flower hath a permanent ſpreading empalement of one leaf, which is cut at the top into five acute parts. It hath one petal, which is cut into many linear ſegments almoſt to the bottom, and ranged in ſeveral ſeries, but are joined together at their baſe; within theſe are ranged a great number of hairy ſtamina, terminated by incumbent ſummits. Under the flower is ſituated an obtuſe five-cornered germen, ſupporting ſometimes five, and often ten or more ſtyles, which are reflexed, and crowned by ſingle ſtigmas. The germen afterward becomes a roundiſh fleſhy fruit, having as many cells as there are ſtyles, filled with ſmall ſeeds.

This genus of plants is ranged in the fourth ſection of Linnæus's twelfth claſs, which includes thoſe plants whoſe flowers have from twenty to thirty ſtamina inſerted in the empalement, and five ſtyles.

The Species are,

1. Mesembryanthemum (*Nodiflorum*) foliis alternis teretiuſculis obtuſis ciliatis. Hort. Upſal. 129. *Meſembryanthemum with taper, obtuſe, hairy leaves, placed alternately.* Ficoides Neapolitana, flore candido. H. L. *Fig Marygold of Naples with a white flower, or Egyptian Kali.*
2. Mesembryanthemum (*Cryſtallinum*) foliis alternis ovatis papuloſis undulatis. Hort. Cliff. 216. *Meſembryanthemum with oval, obtuſe, waved leaves placed alternately.* Ficoides Africana, folio plantaginis undulato, micis argenteis adſperſo. Tourn. Act. R. Par. 1705. *African Fig Marygold, with a waved Plantain leaf, marked with ſilvery ſpots, commonly called the Diamond Ficoides, or Diamond Plant.*
3. Mesembryanthemum (*Geniculiflorum*) foliis ſemiteretibus papuloſis diſtinctis floribus ſeſſilibus axillaribus. Lin. Sp. Plant. 481. *Meſembryanthemum with half taper leaves, and flowers ſitting cloſe to the wings of the ſtalks.* Ficoides Capenſe, folio tereti, flore albido. Pet. Gaz. 78. fol. 3. *Fig Marygold of the Cape, with a taper leaf and a whitiſh flower.*
4. Mesembryanmthemum (*Noctiflorum*) foliis ſemicylindraceis, impunctatis diſtinctis, floribus pedunculatis calycibus quadrifidis. Lin. Sp. Plant. 481. *Meſembryanthemum with almoſt cylindrical leaves, and quadrifid foot-ſtalks to the flowers.* Ficoides Africana, erecta, arboreſcens, lignoſa, flore radiato, primo purpureo, dein argenteo, interdiu clauſo, nocte aperto. Boerh. Ind. alt. 1. 290. *Upright, ligneous, tree Fig Marygold of Africa, with a radiated flower, which is at firſt purple, afterward ſilvery, ſhut in the day, and open at night.*
5. Mesembryanthemum (*Splendens*) foliis ſemiteretibus impunctatis recurvis diſtinctis congeſtis, calycibus

terminalibus digitiformibus. Lin. Sp. 689. *Meſembryanthemum with taper, unſpotted, recurved, diſtinct leaves in cluſters, whoſe empalement is finger-ſhaped.*

6. Mesembryanthemum (*Umbellatum*) foliis ſubulatis, ſcabrido-punctatis connatis apice patulo, caule erecto, corymbo trichotoma. Lin. Sp. Plant. 481. *Meſembryanthemum with awl-ſhaped leaves which join, having rough ſpots, an erect ſtalk, and a corymbus of flowers at the triple diviſion of the ſtalk.* Ficoides Africana erecta teretifolia, floribus albis umbellatis. Par. Bat. 166. *Upright African Fig Marygold, with a taper leaf, and white flowers growing in umbels.*

7. Mesembryanthemum (*Calamiforme*) acaule foliis ſubteretibus adſcendentibus impunctatis connatis, floribus octagynis. Lin. Sp. Plant. 481. *Meſembryanthemum without a ſtalk, almoſt taper leaves which join at their baſe, and flowers having eight ſtyles.* Ficoides Capenſis humilis, cepææ folio, flore ſtamineo. Brad. Suec. p. 10. fol. 19. *Low Fig Marygold of the Cape, with an Onion leaf, and a ſtamineous flower.*

8. Mesembryanthemum (*Tripolium*) foliis alternis lanceolatis planis impunctatis caulibus laxis ſimplicibus calycibus pentagonis. Hort. Cliff. 217. *Meſembryanthemum with plain ſpear-ſhaped leaves which are not ſpotted, a ſingle weak ſtalk, and a five-cornered empalement.* Ficoides Africana, procumbens, tripolii folio, flore argenteo. Hort. Chelſ. *Trailing African Fig Marygold, with a Tripolium leaf and a ſilvery flower.*

9. Mesembryanthemum (*Bellidiflorum*) acaule, foliis triquetris linearibus impunctatis apice trifariàm dentatis. Hort. Cliff. 218. *Meſembryanthemum without a ſtalk, having narrow, three-cornered, unſpotted leaves, marked with three indentures at their points.* Ficoides Capenſis humilis, folio triangulari in ſummitatem dentato, flore minore purpuraſcente. Brad. Suec. p. 9. tab. 18. *Dwarf Marygold of the Cape, with a triangular leaf indented at the top, and a ſmaller purpliſh flower.*

10. Mesembryanthemum (*Subulatum*) acaule foliis ſubulatis triquetris dorſo ſupernè ſerratis. *Meſembryanthemum without a ſtalk, and awl-ſhaped three-cornered leaves, whoſe back part is ſawed toward the top.*

11. Mesembryanthemum (*Deltoides*) foliis deltoidibus triquetris dentatis impunctatis diſtinctis. Hort. Cliff. 218. *Meſebryanthemum with three-cornered indented leaves, which are ſhaped like the Greek delta, without ſpots, and diſtinct.* Ficoides Africana, folio triangulari craſſo, brevi, glauco, ad tres margines aculeato. Boerh. Ind. alt. 1. 290. *African Fig Marygold, with a ſhort, thick, gray, triangular leaf, with prickles on the three edges.*

12. Mesembryanthemum (*Cauleſcens*) cauleſcens, foliis deltoidibus, lateribus minimè dentatis. *Stalky Meſembryanthemum, with leaves ſhaped like the Greek delta, whoſe ſides are a little indented.* Ficoides Africana, folio triangulari glauco, breviſſimo, craſſiſſimo, margine non ſpinoſo. Boerh. Ind. alt. 1. 290. *African Fig Marygold, with very thick, ſhort, triangular, gray leaves, having no ſpines on their edges.*

13. Mesembryanthemum (*Barbatum*) foliis ſubovatis papuloſis diſtinctis apice barbatis. Hort. Cliff. 216. *Meſembryanthemum with almoſt oval leaves, having diſtinct bladders bearded at their points.* Ficoides ſeu ficus aizoides Africana, folio variegato aſpero, ad apicem ſtella ſpinoſa armato. Boerh. Ind. alt. 1. p. 291. *African Fig Marygold, with a rough variegated leaf, whoſe point is armed with ſpines in form of a ſtar.*

14. Mesembryanthemum (*Stellatum*) caulibus decumbentibus, foliis teretibus papuloſis apice barbatis. *Meſembryanthemum with decumbent ſtalks and taper bladdered leaves, whoſe points are bearded like a ſtar.* Ficoides Capenſis fruteſcens, folio tumido, extremitate ſtellatâ, flore purpureo. Brad. Suec. Dec. 1. tab. 6. *Shrubby Fig Marygold of the Cape, with a ſtar-pointed tumid leaf, and a purple flower.*

15. Mesembryanthemum (*Hiſpidum*) foliis cylindricis papuloſis diſtinctis, caule hiſpido. Lin. Sp. Plant. 482. *Meſembryanthemum with a prickly ſtalk, and deflexed cylindrical leaves with pulpy bladders.* Ficoides Afra, fruticoſa, caule lanugine argenteâ ornato, folio tereti, parvo, longo, guttulis argenteis quaſi ſcabro, flore violaceo. Boerh. Ind. alt. 1. 291. *African ſhrubby Fig Marygold, having ſtalks adorned with ſilvery down, and long, ſmall, taper leaves, ſpotted as it were with ſilvery drops, and a Violet-coloured flower.*

16. Mesembryanthemum (*Villoſum*) caule foliiſque pubeſcentibus. Hort. Cliff. 217. *Meſembryanthemum whoſe ſtalks and leaves are garniſhed with downy hairs.*

17. Mesembryanthemum (*Scabrum*) foliis ſubulatis diſtinctis ſubtus undique muricatis, calycibus muticis. Hort. Cliff. 219. *Meſembryanthemum with awl-ſhaped leaves, which are diſtinct, every where rough on their under ſide, and chaffy empalements.* Ficoides Afra, folio triangulari viridi longo aſpero, flore violaceo. Boerh. Ind. alt. 290. *African Fig Marygold, with a long, green, rough, triangular leaf, and a Violet-coloured flower.*

18. Mesembryanthemum (*Uncinatum*) articulis caulinis terminatis in folia connata acuminata ſubtus dentata. Hort. Cliff. 218. *Meſembryanthemum whoſe joints of the ſtalks are terminated by acute-pointed leaves, which are joined at their baſe, and indented on their under ſide.* Ficoides Afra, folio triangulari glauco, perfoliato, breviſſimo, apice ſpinoſo. Boerh. Ind. alt. 290. *African Fig Marygold, with a ſhort, perfoliated, triangular leaf, whoſe point is prickly, commonly called Buckſhorn Ficoides.*

19. Mesembryanthemum (*Perfoliatum*) perfoliatum, foliis majoribus, apicibus triacanthis. Hort. Elth. 251. *Perfoliate Meſembryanthemum with larger leaves, whoſe points have three thorns.* Ficoides Africana fruteſcens perfoliata, folio triangulari glauco punctato, cortice lignoſo candido tenui. Tourn. Act. Par. 1705. *Shrubby, perfoliate, African, Fig Marygold, with a triangular, gray, ſpotted leaf, and a thin, white, ligneous bark, commonly called Stagſhorn Ficoides.*

20. Mesembryanthemum (*Spinoſum*) foliis tereti-triquetris punctatis diſtinctis ſpinis ramoſis. Hort. Cliff. 216. *Meſembryanthemum with taper three-cornered leaves, which have diſtinct ſpots and branching ſpines.* Ficoides Africana, aculeis longiſſimis & foliolis naſcentibus ex foliorum alis. Tourn. Act. R. Par. 1705. *African Fig Marygold with long ſpines, and ſmaller leaves ariſing from the wings of the leaves.*

21. Mesembryanthemum (*Tuberoſum*) foliis ſubulatis pappiloſis, diſtinctis apice patulis radice capitatâ. Hort. Cliff. 216. *Meſembryanthemum with awl-ſhaped pimply leaves, and a headed root.* Ficoides Africana, folio triangulari recurvo, floribus umbellatis obſoleti coloris, externè purpureis. Tourn. Act. Par. 1705. *African Fig Marygold with a triangular recurved leaf, and umbellated flowers of a dark colour, which are purple on their outſide.*

22. Mesembryanthemum (*Tenuifolium*) foliis ſubulatis ſemiteretibus glabris, diſtinctis internodio longioribus. Hort. Cliff. 216. *Meſembryanthemum with awl-ſhaped, half-taper, ſmooth, diſtinct leaves, whoſe joints are farther diſtant.* Ficoides Capenſis humilis, teretifolia, flore coccineo. Brad. Suec. p. 13. *Low Fig Marygold of the Cape, with a taper leaf and a ſcarlet flower.*

23. Mesembryanthemum (*Stipulaceum*) foliis ſubtriquetris compreſſis incurvatis punctatis diſtinctis congeſtis baſi marginatis. Lin. Sp. 693. *Meſembryanthemum with three-cornered, compreſſed, incurved leaves, having diſtinct ſpots, whoſe baſe are bordered and cluſtered.* Meſembryanthemum fruteſcens, flore purpureo rariore. Hort. Elth. tab. 209.

24. Mesembryanthemum (*Craſſifolium*) foliis ſemicylindricis impunctatis connatis, apice triquetris caule repente ſemicylindricis. Hort. Cliff. 217. *Meſembryanthemum with a creeping cylindrical ſtalk, cylindrical ſmooth leaves, joining at their baſe, whoſe points are three-cornered.* Ficoides Africana reptans, folio triangulari, flore ſaturatè purpureo. Brad. Suec. p. 16. tab. 38. *Creeping African Fig Marygold with a green triangular leaf, and deep purple-coloured flower.*

25. Mesembryanthemum (*Falcatum*) foliiis ſub-acinaciformibus incurvis punctatis diſtinctis ramis teretibus. Hort. Cliff. 219. *Meſembryanthemum with diſtinct, ſmooth, falchion-ſhaped leaves, and taper branches.* Ficoides Afra folio triangulari enſiformi breviſſimo,

flore dilutè purpuraſcente filamentoſo. Brad. Suec. Dec. 5. tab. 42. *African Fig Marygold with a triangular, cimeter-ſhaped, ſhort leaf, and a pale purpliſh flower.*

26. **MESEMBRYANTHEMUM** (*Glomeratum*) foliis teretiuſculis compreſſis punctatis, caule paniculato multifloro. Lin. Sp. 694. *Meſembryanthemum with taper, compreſſed, ſpotted leaves, and a panicled ſtalk with many flowers.* Meſembryanthemum falcatum minus, flore carneo minore. Hort. Elth. tab. 213.

27. **MESEMBRYANTHEMUM** (*Edule*) foliis æquilateri-triquetris acutis ſtrictis impunctatis connatis carina ſubſerratis, caule ancipiti. Lin. Sp. 695. *Meſembryanthemum with equilateral, acute, unſpotted leaves joined at their baſe, whoſe keel are ſawed.* Ficoides ſeu ficus aizoides Africana major procumbens, triangulari folio, fructu maximo eduli. H. L. 244. *Greater trailing African Fig Marygold, with a triangular leaf and a large eatable fruit.*

28. **MESEMBRYANTHEMUM** (*Bicolorum*) foliis ſubulatis lævibus punctatis diſtinctis caule fruteſcente corollis bicoloribus. Lin. Sp. Plant. 695. *Meſembryanthemum with awl-ſhaped ſmooth leaves, which have different ſpots, a ſhrubby ſtalk, and the flower of two colours.* Ficoides Capenſis fruteſcens, folio tereti punctato, petalis luteis. Brad. Suec. 1. p. 8. tab. 7. *Shrubby Fig Marygold of the Cape, with a taper leaf having punctures, and yellow petals.*

29. **MESEMBRYANTHEMUM** (*Acinaciforme*) foliis acinaciformibus impunctatis connatis, angulo carinali ſcabris, petalis lanceolatis. Lin. Sp. 695. *Meſembryanthemum with ſharp, three-cornered, unſpotted leaves, joined at their baſe, whoſe keel are rough, and ſpear-ſhaped petals of the flower.* Ficoides Africana folio longo triangulari incurvo, caule purpureo. Tourn. Act. Par. 1705. *African Fig Marygold with a long triangular leaf, which is incurved, and a purple ſtalk.*

30. **MESEMBRYANTHEMUM** (*Loreum*) foliis ſemicylindricis recurvis congeſtis baſi interiore gibbis connatis, caule pendulo. Lin. Sp. 694. *Meſembryanthemum with cylindrical recurved leaves, whoſe baſe are cluſtered and join, and a pendulous ſtalk.* Meſembryanthemum loreum. Hort. Elth. tab. 200.

31. **MESEMBRYANTHEMUM** (*Serratum*) foliis ſubulatis triquetris punctatis diſtinctis angulo carinali retrorſum ſerratis. Lin. Sp. 696. *Meſembryanthemum with awl-ſhaped leaves having diſtinct ſpots, and the angle of the keel ſawed.* Meſembryanthemum ſerratum flore acetabuliformi luteo. Hort. Elth. tab. 192.

32. **MESEMBRYANTHEMUM** (*Tuberculatum*) acaule foliis ſemicylindricis connatis externè tuberculatis. Hort. Cliff. 219. *Meſembryanthemum without a ſtalk, and cylindrical leaves which have tubercles on their outſides, and are joined at their baſe.* Ficoides Afra, folio triangulari, longo, ſucculento, caulibus rubris. Boerh. Ind. alt. 290. *African Fig Marygold with a long, triangular, ſucculent leaf, and red ſtalks.*

33. **MESEMBRYANTHEMUM** (*Veruculatum*) foliis triquetro-cylindricis acutis connatis arcuatis impunctatis diſtinctis. Hort. Cliff. 220. *Meſembryanthemum with three-cornered cylindrical leaves which are connected at their baſe, bowed and ſmooth.* Ficoides Afra arboreſcens, folio tereti glauco, apice purpureo craſſo. Boerh. Ind. alt. 291. *African Tree Fig Marygold, with a taper gray leaf, having a thick purple top.*

34. **MESEMBRYANTHEMUM** (*Glaucum*) foliis triquetris acutis, punctatis diſtinctis calycinis foliolis ovato-cordatis. Lin. Sp. 696. *Meſembryanthemum with acute three-cornered leaves marked with punctures, and oval heart-ſhaped empalements.* Ficoides Afra caule lignoſo, erecta, folio triangulari enſiformi ſcabro, flore luteo magno. Boerh. Ind. alt. 289. *African Fig Marygold with an erect ligneous ſtalk, a triangular, cimeter-ſhaped, rough leaf, and a large yellow flower.*

35. **MESEMBRYANTHEMUM** (*Corniculatum*) foliis triquetro-ſemicylindricis ſcabrido-punctatis, ſupra baſin linea elevatis connatis. Lin. Sp. 697. *Stalky Meſembryanthemum with three-cornered, ſemicylindrical, rough, ſpotted leaves, which are connected at their baſe.* Ficoides Afra triangulari longiſſimo, marginibus obtuſioribus, flore amplo, intus pallidè luteo, extus lineâ rubrâ longâ picto. Boerh. Ind. alt. 289. *African Fig Marygold with a long triangular leaf, obtuſer borders, and a large flower of a pale yellow within, and marked with a long red ſtreak on the outſide.*

36. **MESEMBRYANTHEMUM** (*Expanſum*) foliis planiuſculis lanceolatis impunctatis patentibus diſtinctis oppoſitis alternatiſque remotis. Lin. Sp. 697. *Meſembryanthemum with plain, ſpear-ſhaped, unſpotted leaves, which ſpread diſtinctly, and are oppoſite and alternate at a diſtance.* Ficoides Africana humifuſa, folio triangulari longiore glauco, flore flaveſcente. Tourn. Acad. R. Par. 1705. *Trailing African Fig Marygold, with a longer, gray, triangular leaf, and a yellowiſh flower.*

37. **MESEMBRYANTHEMUM** (*Micans*) foliis ſubulatis triquetris punctatis diſtinctis, caule ſcabro. Lin. Sp. 696. *Meſembryanthemum with three-cornered awl-ſhaped leaves, which are diſtinctly ſpotted, and a rough ſtalk.* Meſembryanthemum micans, flore Phœnicio, filamentris atris. Hort. Elth. tab. 215.

38. **MESEMBRYANTHEMUM** (*Tortuoſum*) foliis planiuſculis oblongo-ovatis ſubpapilloſis confertis connatis, calycibus tryphyllis bicornibus. Lin. Sp. 697. *Meſembryanthemum with plain, oblong, oval leaves joining at their baſe, and a three-leaved empalement with two horns.* Ficoides Capenſis procumbens aleæ folio, flore albo medio croceo. Brad. Suec. Dec. 2. p. 7. tab. 16. *Trailing Fig Marygold of the Cape, with an Olive leaf, and a white flower of a Saffron colour in the middle.*

39 **MESEMBRYANTHEMUM** (*Ringens*) ſubacaule, foliis ciliato-dentatis. Lin. Hort. Cliff. 218. *Meſembryanthemum with a ſhort ſtalk, and leaves having hairy indentures.* Ficoides Capenſis humilis, folio triangulari prope ſumitatem dentato, flore luteo. Brad. Suec. Dec. 2. p. 8. tab. 17. *Low Fig Marygold of the Cape, with a triangular leaf indented toward the top, and a yellow flower, commonly called Dogs Chap Ficoides.*

40. **MESEMBRYANTHEMUM** (*Roſtratum*) acaule, foliis ſemicylindricis connatis externe tuberculatis. Lin. Sp. 696. *Meſembryanthemum without a ſtalk, having cylindrical leaves joined at their baſe, and tubercles on the outſide.* Ficoides Afra folio triangulari, enſiformi craſſo brevi, ad margines laterales multis majoribus ſpinis aculeato. Martyn. Cent. 30. tab. 30. *African Fig Marygold, with a triangular, cimeter-ſhaped, ſhort, thick leaf, whoſe ſide borders have many large ſpines, commonly called Cats Chap Ficoides.*

41. **MESEMBRYANTHEMUM** (*Dolabriforme*) foliis dolabriformibus punctatis. Hort. Cliff. 219. *Meſembryanthemum with ax-ſhaped ſpotted leaves.* Ficoides Capenſis humilis foliis cornua cervi referentibus, petalis luteis, noctiflora. Brad. Suec. 1. p. 11. tab. 10. *Low Fig Marygold of the Cape, with leaves like a ſtag's horn, yellow petals, and a flower opening at night.*

42. **MESEMBRYANTHEMUM** (*Difforme*) foliis difformibus punctatis connatis. Prod. Leyd. 287. *Meſembryanthemum with deformed leaves.* Ficoides Afra foliis latiſſimis craſſimis lucidis, difformibus. Boerh. Ind. alt. 292. *African Fig Marygold, with very broad, thick, ſhining, deformed leaves.*

43. **MESEMBRYANTHEMUM** (*Lucidnm*) acaule foliis linguiformibus lucidis imarginatis. *Meſembryanthemum without a ſtalk, and tongue-ſhaped lucid leaves, indented at the top.* Ficoides Afra acaulos, foliis latiſſimis craſſis lucidis conjugatis, flore aureo ampliſſimo. Tourn. Acad. R. Scien. 1705. *African Fig Marygold without a ſtalk, broad, thick, ſhining leaves growing by pairs, and a very large yellow flower.*

44. **MESEMBRYANTHEMUM** (*Linguiforme*) acaule foliis linguiformibus altero margine craſſioribus impunctatis. Lin. Sp. 699. *Meſembryanthemum without a ſtalk, very broad tongue-ſhaped leaves, one edge being thicker than the other, and without ſpots.* Ficoides Afra acaulos, foliis latiſſimis craſſiſſimis, lucidis conjugatis, flore aureo amplo, pedunculo brevi. Boerh. Ind. alt. 292. *African Fig Marygold having no ſtalk, very broad, thick, ſhining leaves placed by pairs, and a large golden flower with a ſhort foot-ſtalk.*

45. **MESEMBRYANTHEMUM** (*Albidum*) acaule foliis triquetris. *Meſembryanthemum having no ſtalk, and gray, entire, three-cornered leaves.* Meſembryanthemum foliis robuſtis albicantibus. Hort. Elth. 243. *Meſembryanthemum with ſtrong whitiſh leaves.*

46. Meſembryanthemum (*Pugioneforme*) foliis alternis ſubulatis triquetris longiſſimis impunctatis. Hort. Cliff. 216. *Meſembryanthemum with alternate, awl-ſhaped, three-cornered leaves, which are very long, without ſpots.* Ficoides Capenſis, caryophylli folio, flore aureo ſpecioſo. Brad. Suec. Dec. 2. p. 5. tab. 14. *Fig Marygold of the Cape, with a Clove Gilliflower leaf, and a beautiful golden-coloured flower.*

Theſe plants are moſt of them natives of the Cape of Good Hope, from whence their ſeeds were firſt brought to Holland, and the plants raiſed in many of their curious gardens, and have ſince been communicated to moſt parts of Europe; theſe were at firſt titled Chryſanthemum by the old botaniſts, but afterward they were titled Ficoides by Herman and Tournefort, from their capſules being ſhaped like little Figs; afterward they had this title of Meſembryanthemum applied to them, which ſignifies a flower opening in the middle of the day, which is what moſt of the ſpecies do; there are three or four of them which open in the evening, and are cloſed all the day; theſe have been ſeparated from the others by ſome, and have had the title of Nycterianthemum applied to them, from their flowers being expanded in the night; but as they all agree in the characters which diſtinguiſh the genus, they ſhould by no means be ſeparated.

Moſt of the plants of this genus have beautiful flowers, which appear at different ſeaſons of the year; ſome of them flower early in the ſpring, others in ſummer, ſome in the autumn; and there are others which flower in winter; and many of them produce their flowers in ſuch quantity, as that when they are expanded, the plants are entirely covered with them; they have all of them thick ſucculent leaves, but ſome of the ſpecies are much more ſo than others, and the figures of their leaves vary ſo much in the ſeveral ſpecies, that they afford an agreeable variety when they are not in flower.

To deſcribe all the ſpecies which are here mentioned, would ſwell this work too much, and as their titles are ſhort deſcriptions of the ſpecies, I ſhall not enlarge more on that head, but proceed to their culture.

All the ſorts here mentioned are perennial plants except the two firſt, which are annual. The perennial ſorts are eaſily propagated by cuttings during any of the ſummer months; ſuch of them as have ſhrubby ſtalks and branches, very readily take root when planted in a bed of light ſoil, and covered either with mats or glaſſes, but when they are covered with the latter, they muſt be ſhaded every day when the ſun is warm; theſe cuttings of the ſhrubby ſorts need not be cut from the plant more than five or ſix days before they are planted, during which time they ſhould be laid in a dry room, not too much expoſed to the ſun, that the part which was ſeparated from the old plants may heal over and dry before they are planted, otherwiſe they are apt to rot; theſe may be planted at about three inches diſtance from each other, and the earth preſſed cloſe to them, but none of their leaves ſhould be buried in the ground, for as they abound with moiſture, ſo if they are covered with the earth, it will cauſe them to rot, and that often deſtroys the cuttings; therefore when the cuttings are taken from the old plants, they ſhould be diveſted of their lower leaves, ſo far as may be neceſſary, to allow a naked ſtalk of ſufficient length for planting.

When the cuttings are planted, it will be neceſſary to give them a little water, to ſettle the ground about them, but it ſhoold be done with caution, for too much wet will ſpoil them; if theſe are ſhaded every day from nine or ten o'clock till three or four, when the ſun is warm, it will prevent the ground from drying too faſt, ſo that the cuttings need not be watered oftener than once in a week; but if there ſhould happen ſome gentle ſhowers of rain, it will be proper to take off their covers, and let them receive it, but they ſhould be ſcreened from hard rains. The cuttings thus managed will have put out good roots in about ſix weeks, when they ſhould be carefully taken up, and each planted in a ſeparate ſmall pot filled with light ſandy earth, and then placed in a ſhady ſituation, giving them a little water to ſettle the earth to their roots; in this place they may remain about ten days or a fortnight, by which time they will have taken good root, and may be removed to a ſheltered place, where they may have more ſun, in which they may remain till autumn; during the ſummer months, theſe may be watered twice, or in very hot weather, three times a week, but it muſt not be given them in too great plenty; but as the ſun declines in autumn, they ſhould not have it oftener than once a week, for if they are often ſupplied with it, the plants will grow luxuriant; their leaves and branches will be ſo replete with moiſture, that the early froſts in the autumn will deſtroy them; whereas when they are kept dry, their growth will be ſtinted; ſo that they will be hardy enough to reſiſt ſmall froſts, but there muſt be care taken that they do not ſhoot their roots through the holes of the pots into the ground, for when they do, the plants will grow very luxuriant; and when the pots are removed, and thoſe roots are torn off, their leaves and branches will ſhrink, ſo will not recover it in a long time, if ever; to prevent which, the pots ſhould be removed every fortnight, and where the roots are beginning to come through the pots, they ſhould be cut off. The ſorts which grow very freely ſhould be ſhifted three times in the ſummer, to pare off their roots, and keep them within compaſs, and theſe ſhould never be planted in rich earth for the reaſons before given; for if the earth is freſh, there will require no dung or other compoſt, unleſs it is ſtrong, in which caſe ſea ſand, or lime rubbiſh, will be a good mixture; the quantity of either muſt be in proportion to the ſtiffneſs of the ground, always being careful to render it ſo light, as that the wet may eaſily paſs off.

We next proceed to treat of thoſe ſorts, whoſe ſtalks and leaves are very ſucculent. The cuttings of theſe ſhould be taken from the plants ten days or a fortnight before they are planted, that they may have time for their wounded part to heal over and dry; the lower leaves of theſe ſhould alſo be ſtripped off, that their naked ſtalks may be of a ſufficient length for planting. As theſe are moſtly plants of humble growth, ſo if their ſtalks are diveſted of their leaves an inch and a half, it will be ſufficient. The cuttings of theſe ſorts require to be covered with glaſſes, to keep off the wet; they muſt alſo have leſs water than the other, but in other particulars require the ſame treatment. The roots of theſe do not ſpread and extend ſo much as thoſe of the other, ſo will not require to be ſhifted oftener than twice a year at moſt; they muſt alſo be kept in ſmall pots to confine their roots; the earth in which they are planted ſhould be rather light and not rich. During the ſummer ſeaſon they muſt not have too much wet, and in the winter they muſt have but little water. If theſe ſucculent ſorts are placed in an open airy glaſs-caſe in winter, where they may have free air admitted to them in plenty in mild weather, and ſcreened from the froſt, they will thrive much better than when they are more tenderly treated. The other ſhrubby kinds may be ſheltered in winter under a common frame, where, if they are protected from froſt and wet, it is all they require; for the hardier theſe are treated, the greater quantity of flowers they will produce: and ſome of the ſorts are ſo hardy, as to live abroad when planted cloſe to a good aſpected wall, and in a poor dry ſoil; ſo that where there is room to diſpoſe them againſt a wall, and the border is raiſed with lime rubbiſh to prevent their rooting deep and growing luxuriant, they may be preſerved through the winter with very little ſhelter, and theſe will flower much better than thoſe under cover.

The firſt ſort grows naturally in Egypt, where they cut up the plants, and burn them for pot-aſh; and this is eſteemed as the beſt ſort for making hard ſope, and the beſt ſort of glaſs.

This is an annual plant, which does not perfect ſeeds in England; for when it is placed in the ſtove, or kept in the hot-bed, their ſtalks grow long and ſlender, ſo are not productive of flowers; and thoſe which are raiſed in hot-beds, and afterward expoſed in the open air, will flower pretty freely, but do not perfect their ſeeds. As this plant will thrive in South Carolina as well as in its native ſoil, ſo it might turn to the advantage of that colony, and likewiſe become beneficial to the public, if the inhabitants could be prevailed on to cultivate this plant.

The ſecond ſort is annual; this is a native at the Cape of Good Hope. It is propagated for the oddneſs of its leaves and ſtalks, which are cloſely covered over with pellucid pimples full of moiſture, which, when the ſun ſhines on the plants, they reflect the light, and appear like ſmall bubbles of ice; from whence ſome have called it the Ice Plant, and others have named it the Diamond Plant, or Diamond Ficoides.

This ſort is propagated by ſeeds, which muſt be ſown on a hot-bed early in the ſpring; and when the plants come up, they muſt be planted on a freſh hot-bed to bring them forward; after they have taken root in the hot-bed, they ſhould have but little wet, for moiſture will rot them. When they are grown large enough to tranſplant again, they ſhould be each planted into a ſmall pot, filled with light freſh earth, but not rich, and plunged into a hot-bed of tan, obſerving to ſhade them in the heat of the day until they have taken new root; then they ſhould have plenty of freſh air admitted to them every day in warm weather, to prevent their drawing weak. In the latter end of June, ſome of the plants may be inured to bear the open air, and afterward they may be turned out of the pots, and planted into a warm border, where they will thrive, and ſpread their branches to a great diſtance upon the ground; but theſe plants will not be very productive of flowers, therefore ſome of them muſt be continued in the ſmall pots, and may at the ſame time, when the others are planted out, be removed into the ſtove or glaſs-caſe, placing them upon the ſhelves, that the roots may not get out from the bottom of the pots, ſo that they may be confined, which will cauſe them to flower plentifully, and from theſe good ſeeds may every year be obtained.

MESPILUS [Μέσπιλος, *Gr.*] Tourn. Inſt. R. H. 641. tab. 410. Lin. Gen. Plant. 549. *The Medlar.*

The Characters are,

The empalement of the flower is permanent, of one leaf, cut into five ſpreading concave ſegments. The flower is compoſed of five roundiſh concave petals, which are inſerted in the empalement. The number of ſtamina are different in the ſeveral ſpecies, from ten to twenty or more; theſe are alſo inſerted in the empalement, and are terminated by ſingle ſummits. The germen is ſituated under the flower, and ſupports an uncertain number of ſtyles from three to five, which are crowned by headed ſtigmas. The germen afterward becomes a roundiſh or oval berry, carrying the empalement on its top, and incloſing four or five hard ſeeds.

This genus of plants is ranged in the fourth ſection of Linnæus's twelfth claſs, which includes the plants whoſe flowers have twenty ſtamina inſerted to the empalement, and five ſtyles.

The Species are,

1. Mespilus (*Sylveſtris*) inermis, foliis lanceolatis dentatis acuminatis, ſubtus tomentoſis, calycibus acuminatis. *Smooth Medlar, with ſpear-ſhaped, acute-pointed, indented leaves, woolly on their under ſide, and acute-pointed empalements.* Meſpilus folio laurino major, fructu minori, rariori ſubſtantiâ. Hort. Cath. *Greater Medlar with a Bay-tree leaf, and a ſmaller leſs ſubſtantial fruit.*
2. Mespilus (*Germanica*) inermis foliis lanceolatis integerrimis ſubtus tomentoſis, calycibus acuminatis. Hort. Cliff. 189. *Unarmed Medlar with ſpear-ſhaped entire leaves, which are downy on their under ſide, and acute-pointed empalements.* Meſpilus Germanica, folio laurino, non ſerrato, ſive Meſpilus ſylveſtris. C. B. P. 453. *German Medlar with a Bay-tree leaf which is not ſawed, or wild Medlar.*
3. Mespilus (*Pyracantha*) ſpinoſa, foliis lanceolato-ovatis crenatis, calycibus fructûs obtuſis. Hort. Cliff. 189. *Prickly Medlar, with ſpear-ſhaped, oval, crenated leaves, and obtuſe empalements to the fruit.* Meſpilus aculeata, amygdali folio. Tourn. Inſt. 642. *Prickly Medlar with an Almond leaf, called Pyracantha.*
4. Mespilus (*Cordato*) foliis cordata-ovatis acuminatis, acutè ſerratis, ramis ſpinoſis. Fig. Plant. tab. 179. *Medlar with heart-ſhaped, oval, acute-pointed leaves, which are ſharply ſawed, and prickly branches.*
5. Mespilus (*Amelanchier*) inermis, foliis ovalibus ſerratis, cauliculis hirſutis. Lin. Sp. Plant. 478. *Medlar without thorns, having oval ſawed leaves, and hairy ſtalks.* Meſpilus folio rotundiori, fructu nigro ſubdulci. Tourn. Inſt. 642. *Medlar with a rounder leaf and a black ſweetiſh fruit, commonly called Amelanchier.*
6. Mespilus (*Canadenſis*) foliis ovato-oblongis glabris ſerratis, caule inermi. Lin. Sp. Plant. 478. *Medlar with oval, oblong, ſmooth, ſawed leaves, and branches without thorns.* Meſpilus inermis, foliis ſubtus glabris obverſè-ovatis. Flor. Virg. 54. *Medlar without thorns, and obverſe oval leaves, which are ſmooth on their under ſide.*
7. Mespilus (*Cotoneaſter*) foliis ovatis integerrimis. Hort. Cliff. 189. *Medlar with oval entire leaves.* Meſpilus folio ſubrotundo, fructu rubro. Tourn. Inſt. R. H. 642. *Medlar with a roundiſh leaf and a red fruit, commonly called Dwarf Quince.*
8. Mespilus (*Chamæmeſpilus*) inermis, foliis ovalibus ſerratis glabris, floribus capitatis, bracteis deciduis linearibus. Lin. Sp. Plant. 479. *Medlar without thorns, having ſmooth, oval, ſawed leaves, headed flowers, and linear bracteæ which fall off.* Cotoneaſter folio oblongo ſerrato. C. B. P. 452. *Baſtard Quince with an oblong ſawed leaf.*
9. Mespilus (*Orientalis*) foliis ovatis craſſis integerrimis, ſubtus tomentoſis, floribus umbellatis axillaribus. *Medlar with oval, thick, entire leaves, which are woolly on their under ſide, and flowers growing in umbels from the wings of the ſtalk.* Chamæceraſus Idæa. Alp. Exot. 5. *Dwarf Cherry of Mount Ida.*
10. Mespilus (*Arbutifolia*) inermis, foliis lanceolatis crenatis ſubtus tomentoſis. Hort. Cliff. 189. *Virginia Medlar with an Arbutus leaf.* Meſpilus Virginiana, folio arbuti. H. L. 578.
11. Mespilus (*Virginiana*) inermis, foliis oblongo-ovatis, ſubtus tomentoſis, fructu ovato, pedunculis longiſſimis. *Smooth Virginia Medlar, with oblong oval leaves, downy on their under ſide, and oval fruit on long foot-ſtalks.*

The firſt ſort grows naturally in Sicily, where it becomes a large tree; this riſes with a ſtraiter ſtem, and the branches grow more upright than thoſe of the Dutch Medlar; the leaves are narrower and not ſawed on their edges; the flowers are ſmaller than thoſe of the Dutch Medlar, and the fruit is ſhaped like a Pear.

The ſecond ſort is generally called the Dutch Medlar; this never riſes with an upright ſtalk, but ſends out crooked deformed branches at a ſmall height from the ground; the leaves of this are very large, entire, and downy on their under ſide. The flowers are very large, as are alſo the fruit, which are rounder, and approach nearer to the ſhape of an Apple. This being the largeſt fruit, is now generally cultivated in the gardens; but there is one with ſmaller fruit, which is called the Nottingham Medlar, of a much quicker and more poignant taſte than this; which is, I ſuppoſe, only a variety, ſo I have not enumerated it as a diſtinct ſpecies.

The fifth ſort grows naturally in Auſtria, Italy, and France, particularly near Fontainbleau; this riſes with many ſlender ſtalks about three or four feet high, which put out ſmall ſide branches, covered with a dark purple bark, having no thorns, cloſely garniſhed with oval leaves, about three quarters of an inch long, and half an inch broad, ſlightly ſawed on their edges; the ſmall ſide branches which ſuſtain the flowers, are very hairy and woolly, as are alſo the foot-ſtalks, and the under ſide of the leaves, but their upper ſides are ſmooth and green. The flowers come out in bunches at the end of the ſhoots, which have five long narrow petals, and about ten ſtamina in each. The flowers are ſucceeded by ſmall fruit, which, when ripe, are black; the gardeners call this New England Quince; there is one of this kind which grows naturally in North America, but the leaves of that are wedge-ſhaped and not ſawed on the edges, ſo I take it to be a different ſpecies.

The ſixth ſort grows naturally in Canada; this is alſo a low ſhrub, ſeldom riſing more than five feet high, dividing into ſeveral ſmooth branches, covered with a purpliſh bark. The leaves grow upon long ſlender foot-ſtalks; they are one inch and a half long, and an inch broad, ſmooth on both ſides, and a little ſawed on their edges. The flowers come out in ſmall bunches at the end of the branches; they are about the ſize of thoſe of the common Hawthorn, and are ſucceeded by ſmall fruit of a purpliſh colour when ripe.

The ſeventh ſort grows naturally on the Pyrenean mountains, and in other cold parts of Europe; this riſes with a ſmooth ſhrubby ſtalk about four feet high, dividing into a few ſmall branches, which are covered with a purple bark, and garniſhed with oval entire leaves, little more than one inch long, and about three quarters of an inch broad, having very ſhort foot-ſtalks. The flowers come out from the ſide of the ſtalks, two or three together; they are ſmall, of a purpliſh colour, and ſit cloſe to the ſtalks; theſe appear in May, and are ſucceeded by ſmall roundiſh fruit, which are of a bright red colour when ripe.

The eighth ſort grows naturally in the northern parts of Europe; this hath a ſmooth ſtalk, riſing about four or five feet high, ſending out ſlender branches, which are covered with a purpliſh bark, and garniſhed with oval ſmooth leaves about two inches long, and one inch and a half broad, ſawed on their edges, but the teeth point upward; they have pretty long ſlender foot-ſtalks, and are of a yellowiſh green on both ſides. The flowers come out from the wings of the ſtalk, four or five joined together in a cloſe head, of a purpliſh colour; between the flowers come out long narrow bractea, which are purpliſh, and fall off as the flowers begin to decay. The fruit is ſmall, and red when ripe.

The ninth ſort grows naturally upon mount Ida, in Crete, where the poor ſhepherds feed upon the fruit when ripe; this hath a ſmooth ſtalk about eight feet high, dividing into many ſmooth branches, garniſhed with oval leaves two inches and a half long, and near two inches broad, of a thick ſubſtance, and a dark green on their upper ſide, but downy on their under, ſtanding upon ſhort foot-ſtalks. The flowers come out from the ſide of the ſtalk upon ſhort ſmall branches, five or ſix growing upon each in a cloſe bunch; they are of a purple colour, the petals being but little longer than the empalement, which is woolly, and cut into five obtuſe ſegments. The fruit is large, roundiſh, and of a fine red colour when ripe.

The tenth ſort grows naturally in North America, where it rarely riſes more than five feet high, ſending out a few upright branches, garniſhed with ſpear-ſhaped leaves whoſe edges are crenated, and their under ſide downy; the flowers are produced in ſmall bunches on the ſide, and at the extremity of the branches, which are ſucceeded by ſmall roundiſh fruit a little compreſſed, of a purple colour when ripe.

The eleventh ſort is an inhabitant of the ſame country with the former; this riſes ſix or eight feet high, ſending out ſide branches, garniſhed with oblong, oval, entire leaves, downy on their under ſide; the flowers are produced in ſmall bunches, ſtanding on long foot-ſtalks, having each five narrow white petals which are contracted at their baſe, and are ſucceeded by oval fruit of a blue colour when ripe, and are by ſome of the inhabitants of America eaten in a ſcarcity of other ſorts of fruit, but are not very palatable.

All theſe ſorts are hardy enough to thrive in the open air in England, and ſome of them are very ornamental plants for gardens, where, during the ſeaſon of their flowering, they will make a fine appearance; and again, in autumn, when their fruit are ripe, they will afford an agreeable variety, and their fruit will be food for the deer and birds; ſo that if clumps of each ſort are planted in different parts of the garden, nothing can be more ornamental.

The American kinds are uſually propagated in the nurſeries, by grafting or budding them upon the common White Thorn, but the plants ſo propagated will never grow to half the ſize of thoſe which are propagated by ſeeds; ſo that thoſe plants ſhould always be choſen which have not been grafted or budded, but are upon their own roots.

But there are many who object to this method of raiſing the plants from ſeeds, on account of their ſeeds not growing the firſt year, as alſo from the tediouſneſs of the plant's growth after; but where a perſon can furniſh himſelf with the fruit in autumn, and take out their ſeeds ſoon after they are ripe, putting them into the ground immediately, the plants will come up the following ſpring, if they are kept clean from weeds, and in very dry weather ſupplied with water, they will make good progreſs; but if they are planted in the places where they are to remain, after two years growth from ſeeds, they will ſucceed much better than when the plants are of greater age; the ground ſhould be well trenched, and cleanſed from the roots of all bad weeds. The beſt time to tranſplant them is in autumn, when their leaves fall off; theſe ſhould be conſtantly kept clean from weeds, and if the ground between the plants is dug every winter, it will greatly encourage the growth of the plants, ſo that if they are cleaned three or four times in the ſummer, it will be ſufficient.

All the ſorts of Meſpilus and Cratægus will take, by budding or grafting upon each other; they will alſo take upon the Quince, or Pear ſtocks, and both theſe will take upon the Medlars; ſo that theſe have great affinity with each other, and might be with more propriety brought together under the ſame genus, than the Pear and Apple, which will not take upon each other; but although the Pear will take upon the White Thorn, yet it is not adviſeable to make uſe of theſe ſtocks, becauſe they generally cauſe the fruit to be ſmall and often to crack, and renders their fleſh ſtony; ſo unleſs it is the very ſoft melting kinds of Pears which are upon theſe ſtocks, the fruit will not be good.

METHONICA. See GLORIOSA.

MEUM. See ATHAMANTA.

MEZEREON. See THYMELÆA.

MICROPUS. Lin. Gen. Plant. 892. Gnaphalodes. Tourn. Inſt. R. H. 439. tab. 261. Baſtard Cudweed.

The CHARACTERS are,

It hath hermaphrodite and female flowers, which are included in the ſame double empalement; there are ten hermaphrodite flowers which compoſe the diſk; theſe have one petal, are funnel-ſhaped, erect, and cut into five parts at the top, and have five ſhort briſtly ſtamina, terminated by cylindrical ſummits, with an obſolete germen ſupporting a ſhort ſlender ſtyle, crowned by an obſolete ſtigma. In the ſame empalement are five female flowers in the circumference, which have each an oval germen which is compreſſed, hid under the ſcales of the interior empalement, each having a ſtyle by their ſide, which is briſtly, turning toward the hermaphrodite flowers, crowned by ſlender acute-pointed ſtigmas, divided in two parts. The female flowers have each a ſingle oval ſeed ſucceeding them, included in the ſmall leaves of the empalement, but the hermaphrodite flowers are barren.

This genus of plants is ranged in the fourth ſection of Linnæus's nineteenth claſs, which includes thoſe plants whoſe flowers are compoſed of female fruitful flowers in the border, and barren hermaphrodite flowers in the middle.

We have but one Species of this genus in the Engliſh gardens, viz.

Micropus (*Supinus*) caule proſtrato, foliis geminis. Hort. Upſal. 275. Prod. Leyd. 145. *Micropus, or Baſtard Gnaphalium, with a trailing ſtalk.* Gnaphalodes Luſitanica. Tourn. Inſt. R. H. 439. *Portugal Baſtard Cudweed.*

This is an annual plant, which grows naturally in Portugal, near the ſea. The roots ſend out ſeveral trailing ſtalks about ſix or eight inches long, garniſhed with ſmall, oval, ſilvery leaves, whoſe baſe embrace the ſtalks. The flowers come out from the wings of the ſtalks in ſmall cluſters; they are very ſmall, white, and ſit in a double empalement, the interior being ſo large, as to almoſt hide the flowers. It flowers in June and July, and the ſeeds ripen in autumn; this is frequently preſerved in gardens for the beauty of its ſilvery leaves: if the ſeeds are ſown in autumn, or are permitted to ſcatter, the plants will come up in the ſpring, and will require no other care but to keep them clean from weeds, and thin them where they are too cloſe. When the ſeeds of this plant are ſown in the ſpring, they ſeldom grow the firſt year.

MICROSCOPE, a dioptrical inſtrument, by means of which very minute or ſmall objects are repreſented very large, and capable of being viewed very diſtinctly, according to the laws of refraction.

This inſtrument may be of ſingular uſe to a curious enquirer into the operation of vegetative nature, by viewing nicely the ſeveral minute veſſels and parts of vegetables, in order to diſcover their various uſes, and how the buſineſs of vegetation is carried on, as alſo to examine the minute parts of flowers, which are not obvious to the naked eye.

MILDEW is a diſeaſe that happens to plants, and is ſuppoſed to be cauſed by a dewy moiſture which falls on them, and continuing, for want of the ſun's heat to draw it up, and by its acrimony corrodes, gnaws, and ſpoils the inmoſt ſubſtance of the plant, and hinders the circulation of the nutritive ſap, upon which the leaves begin to fade, and the bloſſoms and fruit are much prejudiced: but Mildew is rather a concrete ſubſtance, which exſudes through the pores of the leaves.

However, what the gardeners commonly call Mildew, is an inſect, which is frequently found in great plenty, preying upon this exſudation.

Others ſay, That Mildew is a thick clammy vapour, exhaled in the ſpring and ſummer from plants, bloſſoms, and even the earth itſelf, in cloſe ſtill weather, where there is neither ſun enough to draw it upwards to any conſiderable height, nor wind of force ſtrong enough to diſperſe it, and that, hanging in the lower regions, when the cold of the evening comes on, it condenſes, and falls on plants, and with its thick clammy ſubſtance ſtops the pores, and by that means prevents perſpiration, and hinders the ſap from aſcending to nouriſh the flowers, ſhoots, &c.

Some ſay, That Mildew is a corroſive or nipping dew, proceeding from the vapours that are exhaled by the earth, which, being drawn up, and falling down again on the tender opening buds, infects them by its acrimony, and hinders the circulation of the nutritious ſap in the proper veſſels, upon which the leaves begin to fade, and the bloſſoms and fruit receive a very great prejudice.

There are others who make this obſervation, That the places moſt liable to Mildew are incloſed grounds and valleys, eſpecially thoſe that lie tending to the eaſt; and the reaſons that they give why thoſe grounds which lie from the horizon to the eaſt, are moſt ſubject to Mildew and blaſtings, may be by the ſun's attracting thoſe vapours towards it, after the manner that a great fire in a room draws the air to it; ſo the ſun having ſet theſe in motion, and not having ſtrength enough to draw them into the middle region, to form them into a cloud, he does yet draw them till he be below the horizon, and then theſe dews tend to the earth, from whence they were exhaled, and in motion to the weſt, do, as it were, fall upon the ground which lies eaſtward at right angles, and therefore is moſt offenſive to them.

But I take the true cauſe of the Mildew appearing moſt upon plants which are expoſed to the eaſt, to proceed from a dry temperature in the air when the wind blows from that point, which ſtops the pores of plants, and prevents their perſpiration, whereby the juices of the plants are concreted upon the ſurface of their leaves, which being of a ſweetiſh nature, inſects are incited thereto, where, finding proper nutriment, they depoſit their eggs, and multiply ſo faſt as to cover the whole ſurface of plants, and by their corroding the veſſels, prevent the motions of their ſap; and it is very probable, that the excrements of theſe inſects may enter the veſſels of plants, and by mixing with their juices, may ſpread the infection all over them; for it is obſervable, whenever a tree has been greatly affected by this Mildew, it ſeldom recovers it in two or three years, and many times is never entirely clear from it after.

Others ſuppoſe, That the reaſon why valleys afford more moiſture than hills is, becauſe of the dew which is attracted from the earth and herbs as before, and that they afford more moiſture than hills (they ſay) is often ſeen by the miſts, which are more frequent on them than on hills; this being drawn by the ſun in the day time, and wanting wind to aſſiſt its motion, hangs in the lower region, and when the ſun ſets, it falls upon the plants with its thick clammy ſubſtance, and hinders the ſap of the plant or tree from aſcending to nouriſh its flowers or ſhoots, in thoſe whoſe bark is tender and young, and the pores open with the heat of the ſeaſon.

This dew has been obſerved in the great leaved Cherries, ſuch as the Black Heart, the White Heart, &c. to fall upon them at the top, juſt at the beginning of the Midſummer ſhoot, which has ſo ſtopped the ſhoot that it has ſhot forth in other places below, and on the top of theſe ſhoots there have been many ſmall flies feeding on this dew, which may plainly be ſeen and taſted on the leaves of Oak and Maple.

Some are of opinion, that Mildews and blights are the ſame thing; but others again, that Mildew is quite another thing than blaſtings. They ſay Mildews are cauſed from the condenſation of a fat and moiſt exhalation in a hot and dry ſummer, from the bloſſoms and vegetables, and alſo from the earth itſelf, which is condenſed into a fat glutinous matter by the coolneſs and ſerenity of the air, and falls down on the earth again, part of which reſts upon the leaves of the Oak and other trees, whoſe leaves are ſmooth, and for that reaſon do not ſo eaſily admit the moiſture into them, as the Elm, and other rougher leaves do.

Other parts of Mildew reſt upon the ears and ſtalks of Wheat, beſpotting the ſame with a different colour from what is natural, being of a glutinous ſubſtance, by the heat of the ſun, and it binds up ſo cloſe the tender ears of Wheat, that it prevents the growth, and occaſions it to be very light in the harveſt.

Some are of opinion, that Mildews are the principal food of bees, it being ſweet, and eaſily converted into honey.

MILIUM. Tourn. Inſt. R. H. 514. tab. 298. Lin. Gen. Plant. 73. [ſo called of Mille, *Lat.* a thouſand, becauſe of the multitude of its grains.] Millet.

The Characters are,

It is of the Corn or Graſs tribe, with one flower in each chaff, the chaff opening with two oval acute-pointed valves. The petal of the flower is bivalve, and ſmaller than the empalement. It hath three very ſhort hairy ſtamina, terminated by oblong ſummits, and a roundiſh germen with two hairy ſtyles, crowned by bruſh-ſhaped ſtigmas. The germen afterward turns to a roundiſh ſeed, covered by the petal of the flower.

This genus of plants is ranged in the ſecond ſection of Linnæus's third claſs, which includes thoſe plants whoſe flowers have three ſtamina and two ſtyles.

The Species are,

1. Milium (*Panicum*) paniculâ laxâ flaccidâ, foliorum vaginis pubeſcentibus. *Millet with a looſe hanging panicle, and the ſheaths of the leaves hairy.* Milium ſemine luteo. C. B. P. 26. *Millet with a yellow ſeed.* Panicum Miliaceum. Lin. Sp.
2. Milium (*Sparſum*) paniculâ ſparsâ erectâ, glumis ariſtatis. *Millet with a looſe erect panicle, and bearded chaff.* Milium paniculâ amplâ erectâ ſparsâ. Houſt. MSS. *Millet with a large, erect, ſparſed panicle.*
3. Milium (*Effuſum*) floribus paniculatis diſperſis. Flor. Suec. 55. *Millet with diſperſed flowers.* Gramen ſylvaticum paniculâ miliaceâ ſparsâ. C. B. P. 3. *Wood Graſs with a ſparſed Millet-like panicle.*
4. Milium (*Confertum*) floribus paniculatis confertis. Prod. Leyd. 57. *Millet with panicles of flowers growing in cluſters.* Gramen paniculatum Alpinum, latifolium, paniculâ miliaceâ ſparsâ. Scheu. Gr. 34. *Broad-leaved, Alpine, Panicle Graſs, with a ſparſed Millet-like panicle.*

The firſt ſort grows naturally in India, but is now cultivated in many parts of Europe as an eſculent grain; this riſes with a Reed-like ſtalk from three to four feet high, and is channelled; at every joint there is one Reed-like leaf, which is joined on the top of the ſheath, which embraces and covers that joint of the ſtalk below the leaf; this ſheath is cloſely covered with ſoft hairs, but the leaf which is expanded has none; that has ſeveral ſmall longitudinal furrows running parallel to the midrib. The top of the ſtalk is terminated by a large looſe panicle, which hangs on one ſide, having a chaffy flower, which is ſucceeded by a ſmall round ſeed, which is often made into puddings, &c. There are two varieties of this, one with white, and the other hath black ſeeds, but do not differ in any other particular.

This plant is ranged under the title of Panicum, by Linnæus, but as it is more generally known by its former appellation, ſo I chuſe to continue it.

The ſecond ſort was diſcovered growing naturally at La Vera Cruz; this has a ſlenderer ſtalk than the former, which riſes about three feet high. The ſheaths which ſurround it have no hairs, but are channelled. The leaves are ſhorter than thoſe of the former. The panicle ſtands erect, and the chaff has ſhorter awns, or beards.

The other two ſorts grow naturally in woods, and are never cultivated in the fields, ſo do not require any farther deſcription.

The common Millet was originally brought from the Eaſtern countries, where it is ſtill greatly cultivated, from whence we are furniſhed annually with this grain, which is by many perſons greatly eſteemed for puddings, &c. but is ſeldom cultivated in England in quantity, but by way of curioſity in ſmall gardens, for feeding of poultry; but the ſeeds generally ripen very well.

They muſt be ſown the beginning of April, upon a warm dry ſoil, but not too thick, becauſe theſe plants divide into ſeveral branches, and ſhould have much room; and when they come up, they ſhould be cleared from weeds, after which they will, in a ſhort time, get the better of them, and prevent their future growth. In Auguſt theſe ſeeds will ripen, when it muſt be cut down, and beaten out, as is practiſed for other grain; but when it begins to ripen, if it be not protected from birds, they will ſoon devour it.

MILLEFOLIUM. See Achillea.

MILLERIA. Houſt. Gen. Nov. Martyn. Cent. 4. Lin. Gen. Plant. 881.

The Characters are,

This hath a compound flower, compoſed of ſeveral florets, and one half floret, which are included in one common empalement of one leaf, which is cut into three parts, and is permanent. The hermaphrodite florets have one tubulous petal, which is erect, and indented at the brim in five parts; theſe have five hairy ſtamina, with erect linear ſummits connected in their middle, to the ſide, and are the length of the petal, and an oblong narrow germen, ſupporting a ſlender ſtyle, crowned by two narrow, obtuſe, ſpreading ſtigmas; theſe florets are barren. The female half florets is of one leaf, ſtretched out on one ſide like a tongue, and is indented at the top; this hath a large three-cornered genmen, ſupporting a ſlender ſtyle, crowned by two long briſtly ſtigmas. The germen afterward turns to an oblong, three-cornered, obtuſe ſeed, incloſed in the empalement.

This genus of plants is ranged in the fourth ſection of Linnæus's nineteenth claſs, which includes thoſe plants with compound flowers, whoſe hermaphrodite flowers are barren, and the female flowers are fruitful.

The Species are,

1. Milleria (*Quinqueflora*) foliis cordatis, pedunculis dichotomis. Hort. Cliff. 426. *Milleria with heart-ſhaped leaves, and forked ſtalks.* Milleria annua, erecta, major, foliis conjugatis, floribus ſpicatis luteis. Houſt. MSS. *Greater, upright, annual Milleria, with leaves growing by pairs, and yellow ſpiked flowers.*
2. Milleria (*Maculata*) foliis infimis cordato-ovatis acutis rugoſis, caulinis lanceolato-ovatis, acuminatis. *Milleria whoſe lower leaves are oval, heart-ſhaped, acute-pointed, and rough, and the upper ones oval, ſpear-ſhaped, and pointed.* Milleria annua erecta ramoſior, foliis maculatis, profundiùs ſerratis. Martyn. Dec. 5. *Upright, annual, branching Milleria, with ſpotted leaves deeply ſawed.*
3. Milleria (*Biflora*) foliis ovatis, pedunculis ſimpliciſſimis. Hort. Cliff. 425. *Milleria with oval leaves, and ſingle foot-ſtalks.* Milleria annua erecta minor, foliis parietariæ, floribus ex foliorum alis. Houſt. MSS. *Smaller, upright, annual Milleria, with a Pellitory leaf, and flowers proceeding from the wings of the leaves.*
4. Milleria (*Triflora*) foliis ovato-lanceolatis acuminatis trinerviis, pedunculis alaribus trifloris. *Milleria with oval, ſpear-ſhaped, acute-pointed leaves, having three veins, and foot-ſtalks proceeding from the wings of the leaves, with three flowers.* Milleria annua erecta, foliis parietariæ longioribus, floribus ex foliorum alis. Edit. Prior. *Annual erect Milleria, with a longer Pellitory leaf, and flowers proceeding from the wings of the leaves.*

The firſt ſort was diſcovered by the late Dr. William Houſtoun, at Campeachy, in the year 1731, from whence he ſent the ſeeds to Europe; and as the characters which diſtinguiſh the genus, were different from all the other genera of the claſs to which it belongs, ſo he conſtituted a new genus with this title. This riſes with an herbaceous branching ſtalk from four to five or ſix feet high, garniſhed with heart-ſhaped leaves about four inches long, and three inches broad toward their baſe, drawing to a point at the end, which are ſlightly ſawed on their edges, having two veins on each ſide the midrib, which diverge and join to it near the baſe, meeting again at the point, which generally is oblique to the foot-ſtalk. The leaves are of a light green, and hairy, ſtanding oppoſite; their foot-ſtalks are about an inch long, and have a part of the leaf running on each ſide like wings. The ſtalks divide upward into forks, and the foot-ſtalks of the flowers come out at the diviſions; theſe branch again by pairs, and terminate in looſe ſpikes of yellow flowers, compoſed of four or five hermaphrodite florets, which are barren, and one female half floret, which is ſucceeded by a ſingle, oblong, angular ſeed, wrapped in the empalement of the flower. It flowers in July and Auguſt, and the ſeeds ripen in autumn.

The ſecond ſort was diſcovered by Mr. Robert Millar, at Campeachy, in the year 1734; this approaches near to the firſt ſort, but the ſtalks riſe ſix or ſeven feet high, branching out very wide. The leaves are ſeven inches long, and four inches and a half broad toward their baſe, ending in long acute points; they are deeper ſawed on their edges, and have ſeveral large black ſpots ſcattered over them; their ſurface is rougher, and they are of a darker green than thoſe of the firſt. The upper leaves are long and ſpear-ſhaped; the foot-ſtalks of the flowers branch out wider, and the ſpikes of flowers are ſhorter than thoſe of the firſt.

The third ſort was diſcovered at Campeachy by the late Dr. Houſtoun; this is alſo an annual plant, which riſes with an herbaceous ſtalk upward of two feet high, branching out at a ſmall diſtance from the root into three or four ſlender ſtalks, which are naked almoſt to the top, where they have two oval ſpear-ſhaped leaves placed oppoſite, which are about two inches long, and three quarters of an inch broad near their baſe, ending in points; they are hairy, and ſtand upon naked foot-ſtalks near an inch long, and are rough, having three longitudinal veins, and are ſlightly indented on their edges. The flowers come out at the foot-ſtalks of the leaves, in ſmall cluſters; the common empalement is compoſed of three orbicular leaves, which are compreſſed together; in each of theſe are ſituated two hermaphrodite florets, which are barren, and one female half floret, which is fruitful, being ſucceeded by a roundiſh angular ſeed, incloſed in the empalement. This flowers and perfects ſeeds about the ſame time with the former.

The fourth ſort was diſcovered by the late Mr. Robert Millar, at Campeachy; this is an annual plant, which riſes with an upright ſtalk three or four feet high, garniſhed the whole length with oval ſpear-ſhaped leaves near four inches long, and almoſt two broad near their baſe; they have three longitudinal veins, and toward the top there are two more which diverge from the midrib, but join again at the point. The upper ſide of the leaves are of a dark green and ſmooth, their under ſides are of a pale green, and indented on their edges. The flowers grow from the wings of the leaves in ſmall cluſters, having three hermaphrodite and one female flower in each, ſtanding upon ſhort foot-ſtalks; theſe have empalements like the former, but they are much ſmaller. This flowers and ſeeds later in the year than either of the former, ſo that unleſs the plants are brought forward in the ſpring, they will not ripen their ſeeds in England.

The ſeeds of theſe plants ſhould be ſown early in the ſpring, on a moderate hot-bed; and when the plants are come up about two inches high, they ſhould be each tranſplanted into a ſeparate pot filled with light rich earth, and plunged into a moderate hot-bed of tanners bark, being careful to ſhade them from the ſun until they have taken root, as alſo to water them frequently. After the plants are rooted, they ſhould have a large ſhare of free air admitted to them, by raiſing of the glaſſes of the hot-bed every day when the weather is warm, and in hot weather muſt be duly watered, for they are very thirſty plants. With this management, the plants will, in a month after tranſplanting, riſe to a conſiderable height; therefore they ſhould be ſhifted into larger pots, and placed in the ſtove, plunging them into the bark-bed, where they may have room to grow, eſpecially the firſt and ſecond ſorts, which uſually grow high and branch out where they are well managed. But the other ſorts ſeldom riſe above three or four feet high, and do not ſpread their branches very far, ſo theſe may be allowed leſs room.

In the middle of July theſe plants will begin to flower, and the ſeeds will be ripe about a month or ſix weeks after; therefore they muſt be gathered when they begin to change of a dark brown colour, otherwiſe they will ſoon fall off, eſpecially thoſe of the two large kinds, which will drop on the leaſt touch when they are ripe. Theſe plants will continue flowering till Michaelmas, or later, if the ſeaſon proves favourable; but when the cold of the autumn comes on, they will ſoon decay.

MIMOSA. Tourn. Inſt. R. H. 605. tab. 375. Lin. Gen. Plant. 597. The Senſitive Plant.

The Characters are,

The empalement of the flower is ſmall, of one leaf, indented in five parts at the top: the flower has one funnel-ſhaped petal, which hath five points. It hath many long hairy ſtamina, terminated by proſtrate ſummits, and an oblong germen ſupporting a ſhort ſlender ſtyle, crowned by a truncated ſtigma. The germen afterward turns to a long jointed pod with ſeveral tranſverſe partitions, incloſing compreſſed ſeeds of various forms, and there are many male, female, and hermaphrodite flowers mixed in ſome of the ſpecies.

This genus of plants Dr. Linnæus has joined to the Acacia of Tournefort, and the Inga of Plumier, and places it in the firſt ſection of his twenty-third claſs, which includes thoſe plants which have male, female, and hermaphrodite flowers on the ſame plant, which have many ſtamina and one ſtyle.

The Species are,

1. Mimosa (*Punctata*) inermis, foliis bipinnatis, ſpicis decandris, inferioribus caſtratis corollatis caule erecto tereti. Lin. Sp. 1502. *Senſitive Plant without ſpines, double winged leaves, ſpikes having ten ſtamina, and the lower without ſtamina, and an erect taper ſtalk.* Mimoſa Jamaicenſis. Zan. Hiſt. 144. *Senſitive Plant of Jamaica.*
2. Mimosa (*Plena*) inermis, foliis bipinnatis, ſpicis pentandris, inferioribus plenis. Hort. Upſal. 145. *Smooth Senſitive Plant with double winged leaves, the ſpikes with five ſtamina, and the under one double.* Mimoſa non ſpinoſa, paluſtris & herbacea, procumbens, flore luteo pleno. Houſt. MSS. *Herbaceous, marſh, trailing Senſitive Plant without ſpines, and a double yellow flower.*
3. Mimosa (*Pernambucana*) inermis decumbens, foliis bipinnatis, ſpicis cernuis, pentandris, inferioribus caſtratis. Hort. Upſal. 145. *Smooth Senſitive Plant with inclining ſtalks, double winged leaves, nodding ſpikes of flowers having five ſtamina, but the under ones without any.* Mimoſa ſpuria de Pernambuque, dicta mimoſa Italica. Zan. Hiſt. 151. *Spurions Senſitive Plant of Pernambuque, called Italian Senſitive Plant.*
4. Mimosa (*Pudica*) aculeata, foliis pinnatis. *Prickly Senſitive Plant with winged leaves.* Mimoſa herbacea procumbens, & ſpinoſa, caule tereti & villoſo, ſiliquis articulatis. Houſt. MSS. *Trailing herbaceous Senſitive Plant having ſpines, with a taper and hairy ſtalk, and jointed pods.*
5. Mimosa (*Pudica*) foliis ſubdigitatis pinnatis, caule aculeata, hiſpido. Lin. Sp. 1501. *Senſitive Plant with winged-handed leaves, a prickly declining ſtalk, and ſmall pods growing in cluſters, with prickly coverings.* Mimoſa humilis fruteſcens & ſpinoſa, ſiliquis conglobatis. Plum. Cat. *Low ſhrubby and prickly Senſitive Plant with cluſtered pods, commonly called the Humble Plant.*
6. Mimosa (*Quadrivalvis*) aculeata, foliis bipinnatis, caule quadrangulo, aculeis recurvis, leguminibus quadrivalvibus. Lin. Sp. Plant. 1508. *Prickly Senſitive Plant with double winged leaves, a four-cornered ſtalk, recurved ſpines, and pods having four valves.* Mimoſa herbacea procumbens, & ſpinoſa, caule quadrangulo, ſiliquis quadrivalvibus. Houſt. MSS. *Trailing and prickly herbaceous Senſitive Plant, with a quadrangular ſtalk, and pods having four valves.*
7. Mimosa (*Senſitiva*) foliis conjugatis pinnatis, partialibus bijugis, intimis minimis, caule aculeato. Lin. Sp. Plant. 1501. *Senſitive Plant with conjugated winged leaves, whoſe wings have two pair of lobes, the inner of which are the leaſt, and a prickly ſtalk.* Mimoſa ſpinoſa prima, ſive Braſiliana latifolia, ſiliquis, radiatis. Breyn. Cent. 1. 31. *The firſt prickly, or broad-leaved Senſitive Plant of the Brazils, with radiated pods.*
8. Mimosa (*Aſperata*) caule fruticoſo, foliis bipinnatis, aculeatis, aculeis geminis, ſiliquis radiatis hirſutis. Fig. Plant. tab. 183. fol. 3. *Senſitive Plant with a ſhrubby ſtalk, double winged prickly leaves, whoſe ſpines grow in pairs, and hairy radiated pods.* Æſchynomene ſpinoſa quarta, ſive foliolis Acaciæ anguſtioribus, frondibus validiſſimas ſpinas habentibus. Breyn. Cent. 1. 43. *The fourth prickly Senſitive Plant,*

Plant, with narrow Acacia leaves, armed with ſtrong ſpines.

9. Mimosa (*Viva*) inermis, foliis conjugatis pinnatis, partialibus quadrijugis ſubrotundis, caule inermi herbaceo. Lin. Sp. 1500. *Senſitive Plant with a creeping, herbaceous, unarmed ſtalk, conjugated winged leaves, and globular flowers proceeding from the wings of the ſtalks.* Mimoſa herbacea, non ſpinoſa, minima, repens. Sloan. Hiſt. Jam. 2. p. 58. *The leaſt creeping herbaceous Senſitive Plant, having no ſpines.*

10. Mimosa (*Nilotica*) ſpinis ſtipularibus patentibus, foliis bipinnatis, partialibus extimis glandula interſtinctis, ſpicis globoſis pedunculatis. Haſſelq. It. 475. *Acacia with double winged leaves, and globular ſpikes of flowers having foot-ſtalks.* Acacia Ægyptica. Hern. Mex. 866. *True Egyptian Acacia.*

11. Mimosa (*Farneſiana*) ſpinis ſtipularibus diſtinctis, foliis bipinnatis, partialibus octojugis, ſpicis globoſis ſeſſilibus. Hort. Upſal. 146. Acacia Indica foliis, ſcorpioidis leguminoſæ, ſiliquis fuſcis teretibus reſinoſis. H. L. *Indian Acacia with taper reſinous pods.*

12. Mimosa (*Cornigera*) ſpinis ſtipularibus geminis connatis, foliis bipinnatis. Hort. Cliff. 208. *Acacia with two ſpines joined at their baſe, and doubly winged leaves.* Acacia ſimilis Mexiocana, ſpinis cornu ſimilibus. *The great horned Acacia.*

13. Mimosa (*Unguis cati*) ſpinoſa, foliis bigeminis obtuſis. Hort. Cliff. 207. *Prickly Acacia with four obtuſe leaves.* Acacia quodammodo accedens, ſive Ceratia & Acacia media Jamaicenſis ſpinoſa, bigeminatis foliis, floſculis ſtamineis, atronitente fructu, ſiliquis intortis. Pluk. Phyt. *Acacia with branching leaves and twiſted pods.*

14. Mimosa (*Arborea*) inermis, foliis bipinnatis, pinnis dimidiatis acutis, caule arboreo. Lin. Sp. 1503. *Tree Acacia without thorns, doubly winged leaves, whoſe pinnæ are acute.* Acacia arborea maxima non ſpinoſo, pinnis majoribus flore albo, ſiliqua contorta coccinea verticoſa elegantiſſima. Sloan. Jam. 157.

15. Mimosa (*Purpurea*) inermis, foliis conjugatis pinnatis, foliis intimis minoribus. Lin. Sp. 1500. *Purple Acacia without ſpines, conjugated winged leaves which are ſmalleſt below.* Acacia Americana fruteſcens non aculeata, flore purpuraſcente. Plum. Cat. *Shrubby American Acacia with thorns, and a purpliſh flower.*

16. Mimosa (*Houſtoniana*) inermis, foliis bipinnatis glabris, pinnis tenuiſſimis, ſiliquis latis villoſis. Fig. Pl. 5. *Acacia without thorns, doubly winged ſmooth leaves, whoſe pinnæ are very narrow, and broad hairy pods.* Acacia Americana, non ſpinoſa, flore purpureo, ſtaminibus longiſſimis, ſiliquis planis villoſis, pinnis foliorum tenuiſſimis. Houſt. MSS. *American Acacia without thorns, having purple flowers, with very long filaments, flat hairy pods, and very narrow leaves.*

17. Mimosa (*Lutea*) aculeata, foliis bipinnatis glabris, floribus globoſis pedunculatis, aculeis longiſſimis. *Prickly Acacia with ſmooth doubly winged leaves, globular flowers having foot-ſtalks, and very long ſpines.* Acacia ſpinoſa, foliorum pinnis tenuiſſimis glabris, floribus globoſis lutea, ſpinis longiſſimis. Houſt. MSS. *Prickly Acacia with very narrow ſmooth leaves, round yellow flowers, and very long thorns.*

18. Mimosa (*Glauca*) inermis, foliis bipinnatis, partialibus ſejugis, pinnis plurimis, glandula inter infima. Lin. Sp. Plant. 1502. *Acacia without thorns, doubly winged leaves, whoſe wings are ſeparated, and have ſmall glands between them.* Acacia non ſpinoſa, flore albo, foliorum pinnis latiuſculis glabris, ſiliquis longis planis. Houſt. MSS. *White flowering Acacia without thorns, having broad ſmooth leaves, and long flat pods.*

19. Mimosa (*Anguſtiſſima*) inermis, foliis bipinnatis, pinnis anguſtiſſimis glabris, leguminibus tumidis. *Narrow-leaved unarmed Acacia, with doubly winged ſmooth leaves, and jointed pods.* Acacia non ſpinoſa, floribus globoſis albis foliorum pinnis tenuiſſimis glabris, ſiliquis ad ſingula grana tumidis. Houſt. MSS. *Acacia without thorns, having round white flowers, with very narrow ſmooth leaves, and jointed pods.*

20. Mimosa (*Campeachiana*) ſpinoſa, foliis bipinnatis, pinnis anguſtis, ſpinis ſingulis cornu bovinum per longitudinem fiſſum referentibus. *Acacia with doubly winged leaves having narrow pinnæ, and ſingle ſpines like ox's horns ſplit their length.* Acacia ſpinoſa tenuifolia, ſpinis ſingulis cornu bovinum per longitudinem fiſſum referentibus. Houſt. Cat. *Acacia with ſingle thorns ſhaped like thoſe of an ox's horn, and ſeem as if ſplit thro' their length.*

21. Mimosa (*Cinerea*) ſpinis ſolitariis, foliis bipinnatis, floribus ſpicatis. Flor. Zeyl. 215. *Acacia with ſingle ſpines, doubly winged leaves, and ſpiked flowers.* Acacia ſpinoſa tenuifolia, ſiliquis latis, ſpinis minimis recurvis ſolitariis. Houſt. Cat. *Prickly narrow-leaved Acacia with broad pods, and ſmall recurved ſpines, which come out ſingle.*

22. Mimosa (*Latifolia*) inermis, foliis conjugatis, pinnis terminalibus oppoſitis, lateralibus alternis. Lin. Sp. 1499. *Broad-leaved Acacia without thorns, conjugated leaves whoſe upper pinnæ are oppoſite, but the ſide ones are alternate.* Acacia non ſpinoſa, juglandis folio, flore purpuraſcente. Plum. Sp. 17. *Acacia without thorns, Walnut-tree leaves, and a purple flower.*

23. Mimosa (*Circinalis*) aculeata, foliis conjugatis pinnatis, pinnis æqualibus, ſtipulis ſpinoſis. Lin. Sp. 1499. *Prickly Acacia with conjugated winged leaves, which are equal, and prickly ſtipulæ.* Acacia foliis amplioribus, ſiliquis circinatis. Plum. Sp. 17. *Acacia with broad leaves and twiſted pods.*

24. Mimosa (*Fagifolia*) inermis, foliis pinnatis bijugis petiolo marginato. Lin. Sp. 1498. *Broad-leaved Acacia without ſpines, whoſe wings have four lobes, and running foot-ſtalks.* Arbor ſiliquoſa, faginis foliis, Americana, floribus comoſis. Pluk. Phyt. tab. 141. fol. 2.

The firſt ſort grows naturally in moſt of the iſlands in the Weſt-Indies, and it has been found growing in ſome warm moiſt ſpots, as far north as Virginia. This riſes with upright branching ſtalks ſix or ſeven feet high, which become ligneous toward the root, but are not perennial (at leaſt they are not ſo here in any ſituation, the plants always decaying in winter;) theſe are ſmooth, and garniſhed with double winged leaves, compoſed of four or five pair of long winged lobes, which have about twenty pair of ſmall leaves ranged along the midrib; they are ſmooth and rounded at their points, of a full green on their upper ſide, but pale on their under. Theſe ſmall leaves contract themſelves together on their being touched, but the foot-ſtalks do not decline at the ſame time, as thoſe do which are titled Humble Plants, ſo this is called the Senſitive Plant by way of diſtinction. The flowers are produced upon long foot-ſtalks, which come out from the wings of the leaves, and are diſpoſed in globular heads which nod downward; they are yellow, and all thoſe which have petals have ten ſtamina in each, but thoſe ſituated round the border have neither petals or ſtamina; thoſe on the upper part of the ſpike are ſucceeded by pods an inch and a half long, and a quarter of an inch broad, which change to a dark brown when ripe, incloſing three or four compreſſed, ſhining, black ſeeds.

The ſecond ſort was diſcovered by the late Dr. Houſtoun at La Vera Cruz, growing in ſtagnant waters, where the ſtalks were very broad and flat, and floated on the ſurface, in the ſame way as the pond weeds do; but in thoſe places where the water was dried up the ſtalks grew upright and were round, which is always the caſe when the plants are cultivated in gardens, ſo that they might eaſily paſs for different plants, to thoſe who never ſaw them growing in both ſituations. When this ſort is cultivated in gardens, it has great reſemblance to the firſt, but the ſtalks of this never grow ſo erect, the wings of the leaves are longer, and ſtand more horizontal; the heads of flowers are much larger, the ſtamina are longer, and the flowers on the under ſide of the ſpike which have no ſtamina are double: the pods of this ſort are ſhorter, and much broader than thoſe of the firſt ſort. This is alſo an annual plant in this country. This ſort was ſince diſcovered by a friend of mine, growing naturally in a marſhy ſpot of land in the iſland of Barbuda, from whence he ſent me the ſeeds, with a large branch of the plant, in a glaſs filled with a lixivium, which preſerved it in the ſtate it was gathered, with the flowers and pods upon it.

The third ſort grows naturally in all the iſlands of the Weſt-Indies, where it is titled the ſlothful Senſitive Plant, becauſe the leaves do not contract on their being touched. The ſtalks of this ſort ſeldom riſe more than two feet and a half high, they are ſmooth, and garniſhed with double-winged leaves, compoſed of three or four pair of wings which are ſhorter, and the ſmall leaves are much narrower than thoſe of the two former ſorts; the heads of flowers are ſmaller, and the pods are longer and narrower than thoſe of the other. This ſort will live through the winter in a moderate warm air.

The fourth ſort was diſcovered by the late Dr. Houſtoun, growing naturally at La Vera Cruz. This hath ligneous ſtalks which decline to the ground, ſpreading out two or three feet from the root, and ſend out ſeveral ſide branches, which are armed with ſhort yellowiſh ſpines under the foot-ſtalks of the leaves, and are their whole length cloſely covered with briſtly ſtinging hairs; the foot-ſtalks of the leaves are three inches long, and at the top ſuſtain four ſingle winged leaves, whoſe baſe meet in a point, but ſpread above like the fingers of an open hand. Theſe wings are about three inches long, and are cloſely garniſhed with ſmall narrow lobes, ſet by pairs along the midrib, which is alſo covered on the under ſide with the like briſtly hairs as the ſtalk. The flowers come out from the wings of the leaves upon pretty long foot-ſtalks; they are collected into globular heads, and are of a pale yellowiſh colour; theſe are ſucceeded by ſmall jointed pods, containing two or three ſhining black ſeeds.

The fifth ſort is the moſt common of any in the iſlands of the Weſt-Indies, as alſo in the Engliſh gardens; the ſeeds of this ſort are frequently ſold in the ſeed-ſhops, by the title of Humble Plant. The roots of this are compoſed of a great number of hairy fibres, which mat cloſe together, from which come out ſeveral ligneous ſtalks which naturally decline toward the ground, unleſs they are ſupported; they are armed with ſhort recurved ſpines, and garniſhed with winged leaves, compoſed of four, and ſometimes five wings, whoſe baſe join at a point, where they are inſerted to the foot-ſtalk, ſpreading upward like the fingers of a hand; theſe wings are ſhorter than thoſe of the former ſort, and the ſtalks are not hairy. The flowers come out from the wings of the ſtalks, upon ſhort foot-ſtalks; they are collected in ſmall globular heads, are yellow, and are ſucceeded by ſhort, flat, jointed pods, which have two or three orbicular, bordered, compreſſed ſeeds in each: theſe pods are in cloſe cluſters, almoſt covered with ſtinging hairy covers.

The ſixth ſort grows naturally at La Vera Cruz, from whence the late Dr. Houſtoun ſent the ſeeds. This hath a perennial creeping root, which ſpreads and multiplies greatly in the ſands, where it grows wild; the ſtalks are ſlender, and have four acute angles, armed with ſhort recurved ſpines pretty cloſely; the leaves ſtand upon long prickly foot-ſtalks, which are thinly placed on the branches; they are compoſed of two pair of wings, ſtanding about an inch aſunder; the wings are ſhort, and the ſmall leaves are narrow, and not placed ſo cloſe together, as in many of the other ſpecies. The foot-ſtalks of the flowers come out from the wings of the leaves, ſuſtaining a ſmall globular head of purple flowers; theſe are ſucceeded by four-cornered pods about two inches long, which have four cells, opening with four valves, containing ſeveral angular ſeeds in each.

This ſort ſpreads ſo much at the root, as to render it not ſo productive of flowers and ſeeds as moſt of the others; and the plants which are propagated by parting of the roots, are always weak, ſo that the beſt way is to propagate them by ſeeds, when they can be obtained. This is one of the ſorts, whoſe foot-ſtalks fall on being touched.

The ſeventh ſort grows naturally at La Vera Cruz, from whence the late Dr. Houſtoun ſent the ſeeds. This riſes with a ſlender ligneous ſtalk ſeven or eight feet high, armed with ſhort recurved thorns. The leaves grow upon long foot-ſtalks which are prickly, each ſuſtaining two pair of wings; the exterior pair have two lobes which join at their baſe, and are rounded on their outſide, but ſtrait on their inner edges, very much ſhaped like a pair of thoſe ſhears uſed for ſhearing of ſheep; theſe two outer pair of lobes are much larger than the inner; they are almoſt two inches long, and one broad in the middle. From the place where theſe are inſerted to the ſtalk, come out ſmall branches which have three or four globular heads of pale purple flowers coming out from the ſide, upon ſhort foot-ſtalks, and the principal ſtalk has many of thoſe heads of flowers on the upper part for more than a foot in length; and this, as alſo the branches, are terminated by the like heads of flowers: theſe are ſucceeded by broad, flat, jointed pods, which open with two valves, ſome having but one, others two, and ſome have three orbicular compreſſed ſeeds. The leaves of this ſort move but ſlowly when they are touched, but the foot-ſtalks fall when they are preſſed pretty hard.

The eighth ſort was alſo found by the ſame gentleman, growing naturally at La Vera Cruz. This hath a ſhrubby erect ſtalk about five feet high, which is hairy, and armed with ſhort, broad, ſtrong thorns, which are white, ſtanding on each ſide ſometimes almoſt oppoſite, and at others alternately. The leaves are compoſed of five or ſix pair of wings, which are ranged oppoſite along a ſtrong midrib, and between each pair are placed two ſhort ſtrong ſpines, pointing out each way. The ſmall leaves which compoſe theſe wings are extremely narrow, and ſtand very cloſe to each other. Toward the upper part of the ſtalk, the flowers are produced from the ſides, upon ſhort foot-ſtalks; they are collected into globular heads, and are of a bright purple colour; the ſtalks are alſo terminated by ſmaller heads of the like flowers. Theſe are ſucceeded by flat jointed pods about two inches long, and a quarter of an inch broad, which ſpread open like rays, there being commonly five or ſix of theſe joined together at their baſe to the foot-ſtalk. Theſe pods ſeparate at each articulation, leaving the two ſide membranes or borders ſtanding; and the ſeeds which are compreſſed and ſquare, drop out from the joints of the pods; theſe pods are hairy at firſt, but as they ripen become ſmooth.

This is a perennial plant, which may be preſerved through the winter in a warm ſtove, by which method the ſeeds may be obtained, for they ſeldom flower the firſt year. The foot-ſtalks of this ſort do not fall on being touched, but the ſmall leaves on the wings cloſe up.

The ninth ſort grows naturally in Jamaica; this hath trailing herbaceous ſtalks, which put out roots at every joint, which faſten in the ground and ſpread to a great diſtance, as they will alſo do here, when placed in a bed of tanners bark. I have had a ſingle plant in one ſummer, which has ſpread near three feet ſquare, whoſe branches were cloſely joined, ſo as to cover the ſurface of the bed; but when they are thus permitted to grow, they ſeldom produce flowers. Theſe ſtalks have no thorns, but are garniſhed with winged leaves compoſed of two pair of ſhort wings, whoſe ſmall leaves or lobes are narrow; theſe ſtand upon ſhort foot-ſtalks, which are ſmooth. The leaves of this ſort contract and fall down upon the leaſt touch, ſo that where the plant is extended to a diſtance, a perſon may draw any figure with a ſtick upon the leaves, which will be very viſible till the leaves recover again. The flowers come out from the wings of the leaves, upon naked foot-ſtalks about an inch in length; they are of a pale yellowiſh colour, and are collected into ſmall globular heads; theſe are ſucceeded by ſhort, flat, jointed pods, containing three or four compreſſed roundiſh ſeeds.

Theſe plants are all of them propagated by ſeeds, which ſhould be ſown early in the ſpring, upon a good hot-bed. If the ſeeds are good, the plants will appear in a fortnight or three weeks, when they will require to be treated with care, for they muſt not have much wet till they have acquired ſtrength; nor ſhould they be drawn too weak, ſo that freſh air ſhould be admitted to them at all times when the air is temperate. In about a fortnight or three weeks after the plants come up, they will be fit to tranſplant, eſpecially if the bed in which they were ſown, continues in a proper degree of heat; then there ſhould be a freſh hot-bed prepared to receive them, which ſhould be made a week before the plants are removed into it, that the violent heat may be abated before the earth is laid upon the dung, and the earth ſhould have time to warm before the plants are planted into it. Then the plants muſt be carefully raiſed up from the bed to preſerve the roots entire, and immediately planted in the new bed, at about three or four inches diſtance, preſſing the earth gently to their roots; then they ſhould be gently ſprinkled over with water, to ſettle the earth to their roots; after this they muſt be ſhaded from the ſun till they have taken new root, and the glaſſes of the hot-bed ſhould be covered every night to keep up the heat of the bed. When the plants are eſtabliſhed in their new bed, they muſt have frequent, but gentle waterings; and every day they muſt have free air admitted to them, in proportion to the warmth of the ſeaſon, to prevent their being drawn up weak; but they muſt be conſtantly kept in a moderate degree of heat, otherwiſe they will not thrive. In about a month after the plant will be ſtrong enough to remove again, when they ſhould be carefully taken up, preſerving as much earth to their roots as poſſible, and each planted in a ſeparate ſmall pot, filled with good kitchen-garden earth, and plunged into a hot-bed of tan, carefully ſhading them from the ſun till they have taken new root; then they muſt be treated in the ſame manner as other tender exotic plants from very warm countries.

The ſorts which grow upright and tall, will ſoon riſe high enough to reach the glaſſes of the hot-bed, eſpecially if they thrive well; therefore they ſhould be ſhifted into larger pots, and removed into the ſtove, and if they are plunged into the tan-bed there, it will greatly forward them. The firſt ſort will often flower here, if the plants are raiſed early in the ſpring, and brought forward by their removal from one hot-bed to another; and two or three times I have had their ſeeds ripen, but this can only be expected in very warm ſeaſons.

The perennial ſorts will live through the winter, if they are preſerved in a warm ſtove, and the following ſummer they will produce flowers and ripen their ſeeds. Some of theſe may be propagated by laying down their branches, which will put out roots, and then may be ſeparated from the old plants; and I have ſometimes propagated them by cuttings, but the plants which riſe from ſeeds are preferable to either of theſe.

There is no particular management which theſe plants require, different from others of the ſame warm countries; the great care muſt be to keep them in a proper temperature of heat, and not to give them too much water, eſpecially in cool weather; nor ſhould they be kept too dry, for many of the ſorts require frequent waterings, as they naturally grow in moiſt places. There ſhould alſo be care taken that they do not root into the tan-bed, for they ſoon put out their roots through the holes at the bottom of the pots, which, when they ſtrike into the tan, will cauſe the plants to grow very luxuriant; but when they are removed, and theſe roots are cut or broken off, the plants ſeldom ſurvive it; therefore the pots ſhould be frequently drawn out of the tan, and if any of the roots are beginning to get through the holes at the bottom, they ſhould be cut off cloſe; and when the roots are very cloſely matted together, they ſhould be turned out of the pots, and pared round to reduce them, and then potted again, either in pots of the ſame ſize, or if the plants require, in pots one ſize larger; but they muſt not be over-potted, for then the plants will not thrive.

Some of thoſe ſorts whoſe ſtalks ſpread near the ground, may be turned out of the pots in the middle of June, and planted in a very warm border, where, if they are covered with bell or hand-glaſſes, they will live through the ſummer; but theſe will not grow very large, and upon the approach of cold in the autumn, they are ſoon deſtroyed: however, thoſe who have not conveniency of ſtoves or tan-beds, may raiſe the plants on common hot-beds in the ſpring; and when they have acquired ſtrength, they may be treated in this manner, whereby they will have the pleaſure of theſe plants in ſummer, though not in ſo great perfection, as thoſe who have the advantages beforementioned: but theſe plants will not thrive in the open air in this country, nor will they retain their ſenſibility when they are fully expoſed to the air.

It would be to little purpoſe to trouble the reader with the ſeveral idle ſtories related of theſe plants by travellers, nor to inſert what has been ſaid by others, who have attempted to account for the motion of the leaves of theſe plants on their being touched, ſince there has not been any thing wrote on this ſubject, worthy of being noticed, that I have yet ſeen; I ſhall therefore only mention what I have myſelf obſerved in theſe plants, for more than forty years that I have cultivated them.

The firſt is, that they are more or leſs ſuſceptible of the touch or preſſure, according to the warmth of the air in which they grow; for thoſe plants which are kept in a warm ſtove, contract their leaves immediately on being touched, either with the hand, a ſtick, or any other thing, or by the wind blowing upon them: ſome of the ſorts only contract their ſmall leaves, which are placed along the midrib; others not only contract their ſmall leaves, but the footſtalk alſo declines downward on being touched: the firſt are called Senſitive, and the ſecond Humble Plants; but when theſe plants are placed in a cooler ſituation, they do not move ſo ſoon, nor contract ſo cloſely, as thoſe which are in a greater warmth; and thoſe which are entirely expoſed to the open air, have very little motion, but remain in one ſtate, neither expanded nor cloſed, but between both, eſpecially in cool weather; nor do theſe ſhut themſelves at night, as thoſe do which are in a warm temperature of air.

The ſecond is, that it is not the light which cauſes them to expand, as ſome have affirmed, who have had no experience of theſe things; for in the longeſt days of ſummer, they are generally contracted by five or ſix in the evening, when the ſun remains above the horizon two or three hours longer; and although the glaſſes of the ſtove in which they are placed, is covered cloſe with ſhutters to exclude the light in the middle of the day, yet if the air of the ſtove is warm, the leaves of the plants will continue fully expanded, as I have ſeveral times obſerved. Nor do theſe plants continue ſhut till the ſun riſes in the morning, for I have frequently found their leaves fully expanded by the break of day in the morning; ſo that it is plain the light is not the cauſe of their expanſion, nor the want of it that of their contraction.

I have alſo obſerved, that thoſe plants which are placed in the greateſt warmth in winter, continue vigorous, and retain their faculty of contracting on being touched; but thoſe which are in a moderate warmth, have little or no motion.

When any of the upper leaves of theſe plants are touched, if they fall down and touch thoſe which are below them, it will occaſion their contracting and falling, ſo that by one touching another, they will continue falling for ſome time. When the air of the ſtove in which theſe plants ſtand, is in a proper temperature of warmth, the plants will recover themſelves, and their leaves will be fully expanded in about eight or ten minutes. I have frequently watched them as they have been recovering, and have always found it has been by a vibratory motion, like the index of a clock.

Some of the ſorts are ſo ſuſceptible of the touch, that the ſmalleſt drop of water falling on their leaves will cauſe them to contract, but others do not move without a much greater preſſure.

The roots of all the ſorts have a very ſtrong diſagreeable odour, almoſt like that of a common ſewer. I have met with ſome accounts of theſe plants, in which it is mentioned, that the leaves and branches have a poiſonous quality, and that the Indians extract a poiſon from them, which kills by ſlow degrees, and that the root of the plant is the only remedy to expel it; but how far this is true I cannot ſay, having never made any experiments on the qualities of theſe plants; but if theſe plants are endowed with ſo deadly a quality as related, this ſenſibility with which they are endued, may be deſigned by providence to caution perſons from being too free with it; and as many of them are ſtrongly armed with thorns, ſo that is a guard againſt their being eaten by animals; for in all the enquiries which I have made of thoſe perſons who have reſided in the countries where they naturally grow, I could never learn that any animal will browſe upon them.

Theſe plants are all of them natives of America, ſo were unknown to the other parts of the world till that was diſcovered, for I have not heard of any of them being found in any other country: and a few years ago I ſent ſome of the ſeeds of theſe plants to China, which ſucceeded, and occaſioned great admiration in all who ſaw the plants.

The Acacias are ſo nearly allied to the Mimoſas in their characters, that Linnæus has joined them in the ſame genus; and as his ſyſtem is now generally followed, ſo in compliance with that I have done the ſame.

The tenth ſort of Acacia is the tree from whence the true Succus Acaciæ is taken, and the Gum Arabic exſudes from the branches of the ſame; which, though mentioned as a native of Egypt, yet it is alſo found in divers parts of America, from whence the ſeed of this tree have been ſent into England, and there raiſed in ſeveral gardens near London.

This tree arrives to a large ſize in the countries where it grows, but in England is rarely ſeen more than eight or ten feet high. It frequently flowers in autumn, but never produces any ſeeds.

The eleventh ſort is the moſt common kind in Jamaica and Barbadoes, and the other warm parts of America; and, for the ſweetneſs of its flowers, has been diſperſed through moſt parts of Europe; and though a native of the warmer parts of the Indies, it hath been made familiar to the Italian gardens, and is cultivated likewiſe in great plenty in Portugal and Spain.

The Italian gardeners, who bring over Orange-trees, &c. every year, generally bring alſo many young plants of this ſort to England, under the title of Gazia; but as they are too tender to live in a common green-houſe in England, ſo few of thoſe which are purchaſed of them ſucceed.

I have had ſome plants of this ſort upwards of ſixteen feet high, which have produced great numbers of flowers in July and Auguſt, but theſe were kept in a ſtove in winter, and in glaſs-caſes in ſummer, to ſcreen them from wet and the cold, for they will not flower in the open air in this country. The flowers are of a bright yellow colour, and ſmell ſweet; in the Weſt-Indies it is called Sponge-tree.

The twelfth ſort is at preſent very rare in England, and only to be found in ſome curious gardens. This tree produces its ſpines by pairs, which are extreme large and crooked, and of a whitiſh colour; but I do not remember ever to have ſeen this flower.

In England, from the dried ſamples however, which I have received from Campeachy, with many flowers upon them, there appears but little beauty in them; nor do the trees in their native ſoil make a better appearance, their branches always growing deformed, and being but thinly garniſhed with leaves, when in their greateſt vigour; but for ſeveral months they are deſtitute of leaves, ſo that the only thing remarkable in this tree is, the uncommon wreathed ſpines with which the trunk and branches are fully beſet. Theſe have the reſemblance of animal horns, and are variouſly twiſted and contorted.

The twenty-third ſort was brought from the Bahama Iſlands by Mr. Cateſby, anno 1726. The ſeeds of this plant (which are flat, and one half of a beautiful red colour, the other half of a deep black) grow in long twiſted pods, opening when the ſeeds are ripe, on one ſide, and letting them out, which hanging by a ſmall thread for ſome time out of the pods, make a very agreeable appearance; the leaves of this tree branch out and divide into many ramifications: the lobes are roundiſh, and placed in a very regular order. The flowers have not as yet appeared in England, but from a painting done from the plant in the country, they ſeem to be very beautiful.

The thirteenth ſort was brought from Jamaica, and is growing in the phyſic-garden at Chelſea; this hath four large lobes to each leaf; the ſpines are ſhort, ſtiff, and crooked, and the ſeeds grow in twiſted pods like the former. This plant is well deſcribed in Sir Hans Sloane's Natural Hiſtory of Jamaica. By the inhabitants of America it is called Doctor Long, under which name the ſeeds are frequently brought to England.

Moſt of the other ſorts here mentioned, were collected by the late ingenious Dr. William Houſtoun, in Jamaica, at Vera Cruz and Campeachy, who ſent the ſeeds of moſt of them into Europe, many of which are now growing in the phyſic-garden at Chelſea, where ſome of them have produced flowers and plenty of ſeeds.

Theſe being all tender, are to be placed in ſtoves in the winter, and in ſummer muſt be but a ſhort time expoſed to the open air, and have a warm ſituation.

They are propagated by ſowing their ſeeds on a hot-bed in the ſpring of the year, which will in a ſhort time appear above ground, and in about five or ſix weeks after, be fit to tranſplant, when a freſh hot-bed is to be prepared for them, and ſhould be pretty warm; the next thing to be provided is a quantity of ſmall halfpenny pots, which are to be filled with freſh, light, ſandy earth; theſe ſhould be plunged into the hot-bed, but not into dung; for if theſe beds are made with warm horſe dung, they ought to be covered with earth as deep as the pots, whoſe bottoms ſhould reſt upon the dung, for otherwiſe the roots of the plants may ſuffer by too much heat; but beds of tanners bark ſeldom heat ſo violently. As ſoon as the earth in the pots is warm, which will be in two or three days, you ſhould carefully take up the young plants out of the firſt hot-bed, planting four or five plants into each of theſe pots, giving them a gentle watering to ſettle the earth to their roots, and ſcreening them with mats over the glaſſes from the heat of the ſun, until they have taken root; after which time you muſt give them air, by raiſing the glaſſes in proportion to the heat of the weather, or to the conſtitution of the plants.

The tenth, eleventh, and twelfth, ſorts are very tender, eſpecially while young, therefore ſhould have a hot-bed of tanners bark; and as they increaſe in bulk, ſhould be ſhifted into bigger pots. The earth for theſe ſhould be a little lighter, and more inclined to a ſand, than for the other ſorts; but never plant them in pots that are too large, which is full as bad to theſe as to Orange-trees; neither give them too much water, eſpecially in winter. The tenth ſort being the hardieſt of the three, will, when grown to be woody, ſtand in a common ſtove, which ſhould be kept to the point of temperate heat in winter; and in the ſummer time, in warm weather, may enjoy the open free air: but the eleventh and twelfth ſorts muſt have a bark-ſtove in winter; nor ſhould they be expoſed to the open air in ſummer, at leaſt for four or five years, until they are grown very woody, for they are very tender, and with great difficulty preſerved in this climate. The ſtove in which theſe ſhould be placed in winter, muſt be kept above the temperate point, as marked in the botanical thermometers. Theſe ſhould have very little water in winter, but in ſummer time will require frequent refreſhings, though at that ſeaſon it ſhould not be given them in great quantities at one time. The eleventh ſort is a very beautiful tree. The twelfth ſheds its leaves juſt before the new ones come on, ſo that it is naked of leaves about a month or ſix weeks in the ſpring of the year, which has occaſioned ſome people to throw them away as dead, when, if they had let them remain, they would have come out freſh again. This I thought proper to mention, in order to caution people not to be too haſty in throwing out trees for dead, but preſerve them through the ſucceeding ſummer, to ſee if they will ſhoot again; for I have known ſeveral plants, which, after having been given over by unſkilful perſons for dead, have the July following ſhot out vigorouſly again; and others, which have died to the ſurface of the earth, have riſen again from the root.

The three ſorts of horned Acacias are very often deſtitute of leaves for two or three months, appearing to have no life; but they will put out freſh leaves towards autumn, which is commonly the ſeaſon when they are moſt vigorous. Theſe ſhould be expoſed in the ſummer ſeaſon for about two months, to clear them from inſects, which greatly infeſt them, in a place defended from ſtrong winds; and in the winter they require a moderate degree of warmth.

All the other ſorts here mentioned are propagated by ſeeds, which, ſeldom ripening in this country, muſt be procured from America, particularly at Campeachy, where there is great variety of this tree, many ſorts of which have been hitherto unknown to botanical writers. In bringing over the ſeeds of theſe trees, they ſhould be taken out of the pods when gathered, and put up in papers, and ought to have Tobacco, or ſome other noxious herb, put between the papers, to keep off inſects, otherwiſe the ſeeds will be eaten and deſtroyed before they arrive in England. For the inſects depoſit their eggs in ſmall punctures which they make in the pods; and as theſe are ſoon hatched, ſo they immediately attack the ſeeds for food, and eat holes through them, by which they are ſpoiled from growing. This has often happened to ſeeds which have been ſent me from America.

There are ſeveral of theſe Acacias, which are very tender while they are young; but, after two or three years growth, become hardy enough to bear the open air in ſummer, though ſcarce any of them will live through the winter in a green-houſe, unleſs they have ſome warmth in very cold weather.

Acacia Germanorum. See Prunus Sylveſtris.

Acacia Virginiana. See Robinia.

Acacia, the Three-thorned. See Gleditſia.

MIMULUS. Lin. Gen. Plant. 761. Cynorrhynchium. Mitch. 3.

The Characters are,

The flower hath an oblong, priſmatical, permanent empalement of one leaf; it is of the lip or ringent kind, having one petal, whoſe tube is the length of the empalement, and the brim is divided into two lips. The upper lip is erect, divided at the top into two parts, which are reflexed on their ſide; the lower lip is broad and trifid, the middle ſegment is the leaſt; the palate is convex and bifid. It has four ſlender ſtamina, two longer than the other, terminated by bifid kidney-ſhaped ſummits, and a conical germen ſupporting a ſlender ſtyle, crowned by an oval, bifid, compreſſed ſtigma. The germen afterward turns to an oval capſule with two cells, filled with ſmall ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's fourteenth claſs, which includes thoſe plants whoſe flowers have two long and two ſhort ſtamina, and their ſeeds are included in the capſule.

We know but one Species of this genus at preſent in England, viz.

Mimulus (*Ringens*) erectus, foliis oblongis linearibus ſeſſilibus. Hort. Upſal. 176. tab. 2. *Upright Mimulus with oblong linear leaves ſitting cloſe to the ſtalk.* Digitalis perfoliata glabra, flore violaceo minore. Mor. Hiſt. 2. p. 479. *Smooth perfoliated Foxglove, with a ſmall Violet flower.*

This plant grows naturally in North America in moiſt ground. It has a perennial root and an annual ſtalk, which decays in the autumn; the ſtalk is ſquare, and riſes a foot and a half high, garniſhed at each joint with two oblong ſmooth leaves, which are broadeſt at their baſe, where they almoſt join round the ſtalk, but end in acute points. The lower part of the ſtalk ſends out two or three ſhort branches, and the upper part is adorned with two flowers at each joint, coming from the boſom of the leaves on each ſide the ſtalk; theſe have an oblong curved empalement with five angles, indented at the top into five parts, out of which ariſes the flower, with a long curved tube, ſpreading open at the top into two lips, the upper lip ſtanding erect, which is ſlightly cut into two parts at the top; the under lip turns downward, and is cut into three ſlight ſegments. The flowers are of a Violet colour, but have no ſcent. Theſe appear in July, and are ſucceeded by oblong capſules with two cells, filled with ſmall ſeeds, which in warm ſeaſons ripen in the autumn.

This plant is very hardy in reſpect to cold, but ſhould have a loamy ſoft ſoil, rather moiſt than dry, and not too much expoſed to the ſun. It may be propagated by parting of the roots in the autumn, but the ſlips ſhould not be divided too ſmall; it may alſo be propagated by ſeeds, which ſhould be ſown in autumn, ſoon after they are ripe, for thoſe which are ſown in the ſpring ſeldom grow the ſame year: theſe may be ſown on a border expoſed to the morning ſun, and the plants may be afterward planted in the flower-garden.

MINT. See Mentha.

MIRABILIS. Lin. Gen. Plant. 215. Jalapa. Tourn. Inſt. R. H. 129. tab. 50. Marvel of Peru, or Four o'Clock Flower.

The Characters are,

The empalement of the flower has five, oval, ſpear-ſhaped, ſmall leaves, and is erect, ſwelling, and permanent. The flower has one funnel-ſhaped petal, with a ſlender tube ſitting upon the nectarium, which ſpreads open above, and is cut into five obtuſe ſegments. It hath five ſlender ſtamina, which adhere to the petal, which are unequal and inclined, terminated by roundiſh ſummits, with a roundiſh germen within the nectarium, ſupporting a ſlender ſtyle, crowned by a globular ſtigma. The germen afterward becomes an oval five-cornered nut, incloſing one ſeed.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, which includes thoſe plants whoſe flowers have five ſtamina and one ſtyle.

The Species are,

1. Mirabilis (*Jalapa*) floribus congeſtis terminalibus erectis. Lin. Sp. Plant. 252. *Marvel of Peru, with bunches of flowers erect, terminating the ſtalk.* Admirabilis Peruviana. Cluſ. Hiſt. 2. p. 87.
2. Mirabilis (*Dichotoma*) floribus ſeſſilibus axillaribus erectis ſolitariis. Amœn. Acad. 4. p. 267. *Marvel of Peru, with an erect ſingle flower ſitting cloſe to the wings of the branches.* Jalapa officinarum. Mart. Cent. 1. f. 1. *The then ſuppoſed Jalap of the ſhops.*
3. Mirabilis (*Longiflora*) floribus congeſtis terminalibus longiſſimis nutantibus, foliis ſubvilloſis. Act. Holmenſ. 1756. p. 176. *Long-flowered Marvel of Peru, whoſe flowers are in bunches, terminating the ſtalks and nodding, with hairy leaves.* Mirabilis Mexicana. Hern. Mex. 170. f. 2.

The firſt ſort is the Marvel of Peru, which has been many years cultivated in the Engliſh gardens for ornament; of this there are ſeveral varieties, which differ in the colour of their flowers; two of theſe retain their difference, one of them has purple and white flowers, which are variable, ſome of them are plain purple, others are plain white, but moſt of them are variegated with the two colours; and all theſe varieties are frequently upon the ſame plant, and at others on different plants; the other has red and yellow flowers, which are generally mixed in the ſame flowers, but are often with plain flowers of both colours on the ſame plant, intermixed with thoſe which are variegated; but ſome plants have only plain flowers; and I have never found that the ſeeds of the purple and white ſort, ever produced the yellow and red, nor the latter ever vary to the former, and I have conſtantly cultivated both more than forty years; but although theſe do not change from one to the other, yet as there is no other difference between them than in the colour of their flowers, I have not enumerated them as diſtinct ſpecies.

The ſecond ſort is very common in all the iſlands of the Weſt-Indies, where the inhabitants call it the Four o'Clock Flower, from the flowers opening at that time of the day. Of this ſort I have never ſeen any with variable flowers; they are of a purpliſh red colour, and not much more than half the ſize of the other. The ſtalks of this ſort have thick ſwollen joints; the leaves are ſmaller, and the fruit is very rough, ſo there can be no doubt of their being diſtinct ſpecies, for I have never ſeen any alteration in this from ſeed, and I have cultivated it many years. Tournefort was informed by Father Plumier, that the root of this plant was the officinal Jalap, upon which he conſtituted the genus, and gave that title to it; but the late Dr. Houſtoun was fully informed in the Spaniſh Weſt-Indies of the contrary, and brought over a drawing of the plant which was made by a Spaniard at Halapa, and he carried two or three of the plants to Jamaica, where he planted them in a garden, but after he left the iſland they were deſtroyed by hogs: however, he was fully ſatisfied of its being a Convolvulus, which Mr. Ray had many years before given the Jalap the title of, but upon what authority it does not at preſent appear. Some few years after I received three ſeeds of the Jalap from the Spaniſh Weſt-Indies, one of which grew, and became a large plant, having a bulbous root, as large as thoſe of the Jalap which are imported, but the plant produced no flowers in the three years it lived; and in the winter 1739-40 it died, ſince when I have not been able to procure any ſeeds; however, I am fully ſatisfied that the Jalap is a ſpecies of Convolvulus: indeed the roots of the Marvel of Peru are purgative, and when given in a double quantity for a doſe, will anſwer the purpoſe of Jalap.

The third ſort was ſent from Mexico a few years ſince. The ſeeds of this were firſt ſent me from Paris, by Dr. Monier, of the Royal Academy of Sciences, and afterward I had ſome ſent me from Madrid, by Dr. Hortega. The ſtalks of this ſort fall on the ground, if they are not ſupported; theſe grow about three feet long, and divide into ſeveral branches, which are garniſhed with heart-ſhaped leaves, placed oppoſite; theſe, as alſo the ſtalks, are hairy and viſcous, ſticking to the fingers of thoſe that handle them. The flowers come out at the end of the branches; they are white, and have very long ſlender tubes, and a faint muſky odour; theſe are like the other ſorts, cloſely ſhut all the day, but expand every evening when the ſun declines. The ſeeds of this ſort are larger than thoſe of any other ſpecies, and are as rough as thoſe of the ſecond ſort.

The two varieties of the firſt ſort are very ornamental plants in gardens, during the months of July, Auguſt, and September; and if the ſeaſon continues mild, they often laſt till near the end of October. The flowers do not open till toward the evening, while the weather continues warm, but in moderate cool weather, when the ſun is obſcured, they continue open almoſt the whole day. The flowers are ſo plentifully produced at the ends of the branches, as that when they are open, the plants ſeem entirely covered with them, and there being ſome plain, and others variegated on the ſame plants, they make a fine appearance. The plants are propagated by ſeeds, in the choice of which there ſhould be care taken not to ſave any from thoſe plants whoſe flowers are plain; and thoſe who are deſirous of having only the variegated kinds, are careful to pull off all the plain flowers from thoſe plants which they intend for ſeeds, to prevent them from bearing any ſeeds; by this method they rarely have any plants with plain flowers.

The ſeeds ſhould be ſown on a moderate hot-bed in March, and when the plants come up, they ſhould have plenty of air admitted to them, when the weather is mild, to prevent their being drawn up weak; and when they are about two inches high, they ſhould be tranſplanted on another very moderate hot-bed; or if they are each planted in a ſmall pot filled with light earth, and plunged into a moderate hot-bed, it will be a more ſecure way, for then there will be no danger in ſhaking them out of the pots, when they are to be planted in the borders, ſo as to preſerve all the earth to their roots; by this method, they will not require to be ſhaded, whereas thoſe that are to be tranſplanted from the ſecond hot-bed to the borders, often riſe with little earth to their roots, ſo muſt be carefully ſhaded, otherwiſe they often miſcarry.

When they are in the ſecond hot-bed, they ſhould be ſhaded till they have taken freſh root, after which they muſt have plenty of free air admitted to them to prevent their being drawn up weak, and in May they muſt be gradually inured to the open air. The beginning of June, if the ſeaſon is favourable, they ſhould be tranſplanted into the borders of the pleaſure-garden, giving them proper room, and after they have taken new root, they will require no further care. If theſe ſeeds are ſown in a warm border the beginning of April, they will grow very well, but the plants will be late in the ſeaſon before they flower.

As the ſeeds of theſe plants ripen very well every year, ſo there are not many who are at the trouble of preſerving their roots; but if theſe are taken out of the ground in autumn, and laid in dry ſand all the winter, ſecured from froſt, and planted again in the ſpring, they will grow much larger, and flower earlier than the ſeedling plants: or if the roots are covered in winter with tanners bark to keep out the froſt, they may remain in the borders, provided the ſoil be dry. If the roots which are taken out of the ground, are planted the following ſpring in large pots, and plunged into a hot-bed, under a deep frame, they may be brought forward, and raiſed to the height of four or five feet, as I have frequently practiſed; and theſe plants have come earlier in the ſeaſon to flower, ſo have been intermixed with other ornamental plants, to decorate halls and ſhady courts, where they have appeared very beautiful.

The other two ſpecies require the ſame treatment, but the ſecond ſort is not quite ſo hardy as the other two, ſo unleſs the plants are brought forward in the ſpring, they will not flower till very late, ſo their ſeeds will not ripen.

MISLETOE. See VISCUM.

MITELLA. Tourn. Inſt. R. H. 241. tab. 126. Lin. Gen. Plant. 496. [ſo called of Mitella, *Lat.* a little mitre, becauſe the ſeed-veſſel of this plant reſembles a biſhop's mitre.] Baſtard American Sanicle.

The CHARACTERS are,

The flower has a bell-ſhaped empalement of one leaf, cut into five points, which is permanent. It hath five petals, ending in many hairy points, and are inſerted in the empalement, as are alſo the ten awl-ſhaped ſtamina, which are ſhorter than the petals, and terminated by roundiſh ſummits. It hath a roundiſh germen, which is bifid, with ſcarce any ſtyle, crowned by two obtuſe ſtigmas. The empalement afterward becomes an oval capſule with one cell, opening with two valves, filled with ſmall ſeeds.

This genus of plants is ranged in the ſecond ſection of Linnæus's tenth claſs, which contains thoſe plants whoſe flowers have ten ſtamina and two ſtyles or ſtigmas.

The SPECIES are,

1. MITELLA (*Diphylla*) ſcapo diphyllo. Lin. Gen. Nov. 29. *Mitella with flower-ſtalks having two leaves.* Mi-

tella Americana, florum petalis fimbriatis. Tourn. Inſt. 242. *American Mitella with fringed petals to the flowers.*

2. Mitella (*Nuda*) ſcapo nudo. Amœn. Acad. 2. p. 252. *Mitella with a naked ſtalk.*

The firſt ſort grows naturally in the woods, in moſt parts of North America. It has a perennial root, from which come out many heart-ſhaped angular leaves, ſome of which are obtuſe, and others end in acute points; they are indented on their edges, and of a lucid green, a little hairy, and ſtand upon pretty long foot-ſtalks. The flower-ſtalks ariſe immediately from the root, having two or three angular leaves toward the bottom, and about the middle of the ſtalk come out two ſmall leaves with acute angles, placed oppoſite. The ſtalks riſe eight or nine inches high, and are terminated by a looſe ſpike of ſmall whitiſh flowers, whoſe petals are fringed on their edges; theſe appear the beginning of June, and are ſucceeded by roundiſh capſules filled with ſmall ſeeds.

The ſecond ſort grows naturally in the northern parts of Aſia; this is of a humbler growth than the firſt, ſeldom riſing more than five or ſix inches high. The leaves are not ſo angular as thoſe of the firſt ſort, and the flower-ſtalks are always naked, having no leaves. The ſpikes of flowers are ſhorter, and more compact.

Both theſe are propagated by parting of their roots; the beſt time for this is in autumn: they ſhould be planted in a ſhady ſituation, and they love a ſoft loamy ſoil.

MITELLA MAXIMA. See Bixa.

MOLDAVICA. See Dracocephalum.

MOLLE. See Schinus.

MOLLUGO. Lin. Gen. Plant. 99.

The Characters are,

The empalement of the flower is compoſed of five oblong ſmall leaves, which are coloured on their inſide, and is permanent. The flower has five oval petals, which are ſhorter than the empalement, and three briſtly ſtamina, which ſtand near the ſtyle, and are terminated by ſingle ſummits, with an oval germen having three furrows, ſupporting three very ſhort ſtyles, crowned by obtuſe ſtigmas. The germen afterward becomes an oval capſule with three cells, filled with ſmall kidney-ſhaped ſeeds.

This genus of plants is ranged in the third ſection of Linnæus's third claſs, which includes thoſe plants whoſe flowers have three ſtamina and three ſtyles.

The Species are,

1. Mollugo (*Verticillata*) foliis verticillatis cuneiformibus acutis, caule ſubdiviſo decumbente, pedunculis unifloris. Hort. Upſal. 24. *Mollugo with acute wedge-ſhaped leaves, growing in whorls, a trailing divided ſtalk, and foot-ſtalks bearing a ſingle flower.* Alſine procumbens, galii facie Africana. Hort. Lugd. *Trailing African Chickweed, with the appearance of Ladies Bedſtraw.*

2. Mollugo (*Quadrifolia*) foliis quaternis obovatis, paniculâ dichotomâ. Hort. Cliff. 28. *Moluggo with four leaves at each joint, which are almoſt oval, and a panicle ariſing at the diviſion of the branches.* Herniaria alſines folio. Tourn. Inſt. 507. *Rupturewort with a Mouſe Ear leaf.*

There are two or three ſpecies of this genus, which are rarely admitted into gardens, ſo I have not enumerated them here.

Both theſe ſorts are annual; the firſt is a native of warm countries, ſo is leſs hardy than the ſecond; they are both trailing plants, whoſe ſtalks lie flat on the ground; the firſt ſpreads out eight or nine inches every way, and at each joint is garniſhed with ſix or ſeven ſmall leaves ſpread out in form of a ſtar. The flowers are ſmall, like thoſe of Chickweed, one ſtanding upon each foot-ſtalk; theſe are ſucceeded by oval capſules filled with ſmall ſeeds, which, if permitted to ſcatter, the plants will come up the following ſpring without any care; but when the ſeeds happen to fall upon earth which is thrown upon a hot-bed, the plants will be forwarder and ſtronger than thoſe in the open air. This is preſerved in ſome gardens for the ſake of variety, but has no great beauty.

MOLUCCELLA. Lin. Gen. Plant. 643. Molucca. Tourn. Inſt. R. H. 187. tab. 88. [This plant takes its name from the Molucca Iſlands, becauſe it was found there.] Molucca Balm.

The Characters are,

The flower hath a large permanent empalement of one leaf, which is deeply indented at the brim, where it ſpreads open. The flower is of the lip kind, with a ſhort tube and chaps. The upper lip is erect, concave, and entire. The under lip is trifid, the middle ſegment being longer than the other. It has four ſtamina ſituated under the upper lip, two of which are ſhorter than the other, crowned by ſingle ſummits, and a germen with four parts, ſupporting a ſtyle ſituated with the ſtamina, crowned by a bifid ſtigma. The germen afterward turns to four angular convex ſeeds, ſitting in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fourteenth claſs, which includes thoſe plants whoſe flowers have two long and two ſhort ſtamina, and are ſucceeded by naked ſeeds in the empalement.

The Species are,

1. Moluccella (*Lævis*) calycibus campaniformibus ſubquinquedentatis, denticulis æqualibus. Lin. Sp. 821. *Molucca Balm with bell-ſhaped empalements, indented in five equal parts.* Molucca lævis. Dod. Pempt. 92. *Smooth Molucca Balm.*

2. Moluccella (*Spinoſa*) calycibus ringentibus octodentatis. Lin. Sp. 821. *Molucca Balm whoſe empalements are ringent, indented in eight parts.* Molucca ſpinoſa. Dod. Pempt. 92. *Prickly Molucca Balm.*

The firſt ſort riſes with a ſquare ſtalk three feet high, ſpreading out into many branches, which are ſmooth, and come out by pairs, garniſhed with roundiſh leaves, which are deeply notched on their edges, ſtanding upon long foot-ſtalks placed oppoſite; they are ſmooth, of a light green on both ſides, and at the baſe of their foot-ſtalks the flowers come out in whorls; theſe have very large ſpreading empalements, which are indented in five parts, and immediately under them come out two bunches of pretty long ſpines, one on each ſide the ſtalk, each bunch conſiſting of five or ſix ſpines ariſing from the ſame point. The flowers are ſmall, and being ſituated at the bottom of the large empalements, are not viſible at a diſtance; they are white, with a caſt of purple, and ſhaped like thoſe of the other lip flowers, having the upper lip entire, and hollowed like a ſpoon, and the under lip is cut into three ſegments, the middle one being the longeſt. After the flower is paſt, the germen turn to four club-ſhaped angular ſeeds incloſed in the empalement. It flowers in July, but unleſs the ſeaſon proves warm and dry, the ſeeds do not ripen in England. The ſmell of this plant is to ſome perſons very diſagreeable, and to others very pleaſant.

The ſecond ſort hath ſquare ſmooth ſtalks, of a purpliſh colour, which riſe four feet high, and branch out in the ſame manner. The leaves are ſmaller, and ſtand upon ſhorter foot-ſtalks; they are deeper, and more acutely indented on their edges. The empalements of the flowers are not ſo large, and are cut into eight ſegments, each being terminated by an acute ſpine. The flowers are like thoſe of the former ſpecies, as are alſo the ſeeds; this is not ſo hardy as the firſt ſort.

The firſt grows naturally in ſeveral parts of Syria, and the ſecond is a native of the Molucca Iſlands, from whence this genus received its title. They are both annual plants, which decay ſoon after their ſeeds are ripe, and being natives of warm countries, they ſeldom perfect their ſeeds in England, when they are ſown in the ſpring; therefore the beſt way is to raiſe the plants in autumn, and plant them in ſmall pots; theſe ſhould be placed under a hot-bed frame in winter, where they may have free air in mild weather, by taking off the glaſſes, but covered in froſty weather, obſerving to keep them pretty dry, otherwiſe they are very ſubject to rot, when they are cloſely covered in froſty weather. In the ſpring the plants may be turned out of the pots, with all the earth about their roots, and planted in a warm border, defended from ſtrong winds, giving them a little water to ſettle the earth to their roots; after this they will require no other care but to keep them clean from weeds, and to ſupport them with ſtakes, to prevent their being broken by the winds. The plants thus preſerved through the winter, will flower the latter end of June, ſo from theſe good ſeeds may be expected.

MOLY. See Allium.

MOMORDICA. Tourn. Inſt. R. H. 103. tab. 29, 30. Lin. Gen. Plant. 1090. Male Balſam Apple; in French, *Pomme de Marveille*.

The Characters are,

It hath male and female flowers upon the ſame plant. The male flowers have a ſpreading empalement of one leaf. The flower hath one petal, which adheres to the empalement. It has three ſhort awl-ſhaped ſtamina; in two of the ſtamina the ſummits are bifid, and eared on both ſides; the third has a ſingle eared ſummit; theſe are compreſſed in a body. The female flowers have the ſame empalement and petal as the male, but ſit upon the germen; theſe have three ſhort filaments without ſummits. The germen ſupports one taper trifid ſtyle, crowned by three oblong gibbous ſtigmas. The germen afterward turns to an oblong fruit, opening with an elaſticity, having three membranaceous cells, filled with compreſſed ſeeds.

This genus of plants is ranged in the tenth ſection of Linnæus's twenty-firſt claſs, which contains the plants with male and female flowers on the ſame plant, whoſe ſtamina coaleſce together.

The Species are,

1. Momordica (*Balſamina*) pomis angulatis tuberculatis, foliis glabris patenti-palmatis. Hort. Cliff. 451. *Male Balſam Apple with angular warted fruit, and ſmooth open-handed leaves.* Momordica vulgaris. Tourn. Inſt. R. H. 103. *Common male Balſam Apple.*
2. Momordica (*Charantia*) pomis angulatis tuberculatis, foliis villoſis, longitudinaliter palmatis. Hort. Cliff. 451. *Male Balſam Apple with angular warted fruit, and hairy leaves, which are longitudinally handſhaped.* Momordica Zeylanica, pampineâ fronde, fructu longiori. Tourn. Inſt. R. H. 103. *Male Balſam Apple of Ceylon, with a Vine leaf and a longer fruit.*
3. Momordica (*Zeylanica*) pomis ovatis acuminatis tuberculatis, foliis glabris palmatis ſerratis. *Male Balſam Apple with an oval, acute-pointed, warted fruit, and ſmooth band-ſhaped leaves, which are ſawed.* Momordica Zeylanica, pampineâ fronde, fructu breviori. Tourn. Inſt. 103. *Male Balſam Apple of Ceylon, with a Vine leaf and a ſhorter fruit.*
4. Momordica (*Elaterium*) pomis hiſpidis, cirrhis nullis. Lin. Sp. Plant. 1010. *Male Balſam Apple with a prickly fruit, and no tendrils to the Vines.* Cucumis ſylveſtris aſininus dictus. C. B. P. 314. *Wild Cucumber, called Aſſes Cucumber, and the Elaterium of Boerbaave.*

The firſt ſort grows naturally in Aſia, the ſecond and third in the iſland of Ceylon; they are annual plants, which periſh ſoon after they have ripened their fruit; theſe have trailing ſtalks like thoſe of the Cucumber and Melon, which extend three or four feet in length, ſending out many ſide branches which have tendrils, by which they faſten themſelves to any neighbouring plants, to ſecure themſelves from being toſſed and blown about by the winds, and are garniſhed with leaves ſhaped like thoſe of the Vine. The leaves of the firſt and third ſorts are ſmooth, and deeply cut into ſeveral ſegments, and ſpread open like a hand; but thoſe of the ſecond ſort are extended more in length, and are hairy. The fruit of the firſt ſpecies is oval, ending in acute points, having ſeveral deep angles, which have ſharp tubercles placed on their edges; it changes to a red or purpliſh colour when ripe, opening with an elaſticity, and throwing out its ſeeds.

The fruit of the ſecond ſort is much longer than that of the firſt, and not ſo deeply channelled. The tubercles are ſcattered all over the ſurface, and are not ſharp like thoſe of the other; this fruit is yellow, when ripe, and caſts out its ſeeds with an elaſticity.

The fruit of the third ſort is ſhort and pointed like that of the firſt, but does not ſwell ſo large in the middle. The angles of this are not deep, and the whole ſurface is cloſely ſet with ſharp tubercles; this changes to a deep Orange colour when ripe, and caſts out its ſeeds in the like manner.

The fourth ſort is commonly called Wild or Spurting Cucumber, from its caſting out its ſeeds, together with the viſcid juice in which the ſeeds are lodged, with a violent force, if touched when ripe; and from hence it has ſometimes the appellation of Noli me tangere, or *touch me not*. This plant grows naturally in ſome of the warm parts of Europe, but in England it is cultivated in gardens for the fruit, which is uſed in medicine, or rather the fæcula of the juice of the fruit, which is the Elaterium of the ſhops.

This plant hath a large fleſhy root ſomewhat like that of Briony, from which come forth every ſpring ſeveral thick, rough, trailing ſtalks, which divide into many branches, and extend every way two or three feet; theſe are garniſhed with thick, rough, almoſt heart-ſhaped leaves, of a gray colour, ſtanding upon long foot-ſtalks. The flowers come out from the wings of the ſtalk, theſe are male and female, growing at different places on the ſame plant, like thoſe of the common Cucumber, but they are much leſs, of a pale yellow colour, with a greeniſh bottom: the male flowers ſtand on ſhort thick foot-ſtalks, but the female flowers ſit upon the young fruit, which, after the flower is faded, grows to be an inch and a half long, and ſwelling like a Cucumber, of a gray colour like the leaves, and covered over with ſhort prickles. Theſe do not change their colour when ripe, like moſt of the other fruit of this claſs; but if attempted to be gathered, they quit the foot-ſtalk, and caſt out the ſeeds and juice with great violence; ſo that where any plants are growing, and the fruit permitted to ſtand till it is ripe, the ſeeds will be ſcattered all round to a great diſtance, and there will be plenty of the plants produced the following ſpring.

But when the fruit is deſigned for uſe, it ſhould always be gathered before it is ripe, otherwiſe the greateſt part of the juice will be loſt, which is the only valuable part; for the juice which is expreſſed, with part of the parenchyma of the fruit, is not to be compared with the other for its virtues; for the Elaterium which is made from clear juice of the fruit, is much whiter, and will retain its virtues much longer, than that which is extracted by preſſure.

The three firſt ſorts are annual; their ſeeds muſt be ſown on a hot-bed the beginning of March, and when the plants come up, they ſhould be tranſplanted out into a freſh hot-bed, after the manner of Cucumbers or Melons, putting two plants of the ſame kind under each light, and the plants watered and ſhaded until they have taken root; after which they muſt be treated as Cucumbers, permitting their branches to extend upon the ground in the ſame manner, and obſerve to keep them clear from weeds.

With this management (provided you do not let them have too much wet, or expoſe them too much to the open air) they will produce their fruit in July, and their ſeeds will ripen in Auguſt and September, when you muſt obſerve to gather it as ſoon as you ſee the fruit open, otherwiſe it will be caſt abroad, and with difficulty gathered up again.

Theſe plants are preſerved in curious gardens for the oddneſs of their fruit; but as they take up a great deal of room in the hot-beds, requiring frequent attendance, and being of little beauty or uſe, ſo they are not much cultivated in England, except in botanic gardens for variety.

There are ſome perſons who put theſe plants in pots, and faſten them up to ſtakes, to ſupport the Vines from trailing on the ground, and place the pots in ſtoves; where, when they are ſkilfully managed, they will produce their fruit tolerably well; and in this way they make a better appearance, than when the Vines ſpread on the ground like Cucumbers and Melons. But when the plants ſpread on the ground, which is their natural way of growing, they thrive much better, and produce more fruit, than when they are ſupported; for though theſe plants have claſpers, yet theſe are not formed for climbing, but merely to faſten themſelves about any neighbouring ſupport, to ſecure them from being raiſed by the wind and broken; which would often happen, where they grow in the open air and are fully expoſed, were it not for this ſecurity.

The fourth ſort is eaſily propagated by ſeeds, which (as was before mentioned) if permitted to ſcatter, there will be a ſupply of plants come up the following ſpring; or if the ſeeds are ſown upon a bed of light earth, the plants will come up in about a month after, and may be tranſplanted to an open ſpot of ground, in rows at three or four feet diſtance, and almoſt as far aſunder in the rows; if theſe are carefully tranſplanted while young, there will be little hazard of their growing; and after they have taken new root, they will require no further care, but to keep them clear from weeds. If the ground is dry in which they are planted, the roots will continue three or four years, unleſs the winter ſhould prove very ſevere, which will kill them.

MONARDA. Lin. Gen. Plant. 34. Leonurus. Tourn. Inſt. R. H. 187. tab. 87.

The Characters are,

The flower has a tubulous cylindrical empalement of one leaf, which is channelled, and cut into five equal parts at the brim. The flower hath one petal, and is of the lip kind, having a cylindrical tube longer than the empalement, divided at the top into two lips. The upper lip is narrow, entire, and erect; the under lip is broad, trifid, and reflexed; the middle ſegment being long and narrow, thoſe on the ſide are obtuſe. It hath two briſtly ſtamina the length of the upper lip, in which it is involved, terminated by compreſſed erect ſummits. In the bottom of the tube is ſituated a four-pointed germen, ſupporting a ſlender ſtyle involved with the ſtamina, and crowned by an acute bifid ſtigma. The germen afterward turns to four naked ſeeds, incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, which includes the plants whoſe flowers have two ſtamina and one ſtyle.

The Species are,

1. Monarda (*Fiſtuloſa*) capitulis terminalibus, caule obtuſ-angulo. Hort. Upſal. 12. *Monarda with heads of flowers terminating the ſtalks, which have obtuſe angles.* Leonurus Canadenſis, origani folio. Tourn. Inſt. R. H. 187. *Canada Lion's Tail, with an Origanum leaf.*
2. Monarda (*Didyma*) floribus capitatis, ſub-didynamis, caule acutangulo. Lin. Sp. Plant. 32. *Monarda with headed flowers, whoſe ſtamina are almoſt in two bodies, and an acute angular ſtalk.* Monarda floribus capitatis verticillatiſque, caule acutangulo, foliis lanceolato-ſerratis glabris. Butt. Cun. 226. *Monarda with flowers collected in heads and whorls, an acute-angular ſtalk, and ſmooth, ſawed, ſpear-ſhaped leaves, commonly called Oſwego Tea.*
3. Monarda (*Punctata*) floribus verticillatis, corollis punctatis. Hort. Upſal. 12. *Monarda with flowers growing in whorls, whoſe petals are ſpotted.* Clinopodium Virginianum, anguſtifolium, floribus amplis luteis, purpurâ maculâ notatis, cujus caulis ſub quovis verticillo decem vel duodecim foliolis rubentibus eſt circumcinctis. Baniſt. Raii Sup. 300. *Narrow-leaved Field Baſil of Virginia, with large yellow flowers ſpotted with purple, whoſe ſtalks have ten or twelve rediſh leaves under each whorl of flowers.*

The firſt ſort grows naturally in Canada, and many other parts of North America. It hath a perennial root, compoſed of many ſtrong fibres, which ſpread far on every ſide. The ſtalks riſe near three feet high, which are hairy, and have obtuſe angles; theſe ſend out two or four ſmall ſide branches toward the top, garniſhed with oblong leaves, broad at their baſe, but terminate in acute points; they are hairy, a little indented on their edges, ſtanding on ſhort hairy foot-ſtalks, and are placed oppoſite. The ſtalk and branches are terminated by heads of purple flowers, which have a long involucrum, compoſed of five acute-pointed leaves. The flowers have each two ſtamina which are longer than the petal, with a ſtyle of the ſame length, crowned by a bifid ſtigma. The flowers appear in July, and are ſucceeded by ſeeds which ripen in the autumn.

The ſecond ſort grows naturally in North America, where the inhabitants frequently uſe the leaves for tea, ſo it is commonly called Oſwego Tea, by which title it was brought to England. This hath a perennial root and an annual ſtalk, which decays every autumn. The ſtalks of this ſort are ſmooth, having four acute angles; they riſe about two feet high, and are garniſhed with ſmooth, oval, ſpear-ſhaped leaves, which are indented on their edges, and ſtand oppoſite on very ſhort foot-ſtalks; theſe when bruiſed, emit a very grateful refreſhing odour; the ſtalks ſend out toward their top two or four ſmall ſide branches, which are garniſhed with ſmall leaves of the ſame ſhape with the other. The flowers are produced in large heads or whorls at the top of the ſtalk, and there is often a ſmaller whorl of flowers, growing round the ſtalk at a joint below the head; and out of the head ariſes a naked foot-ſtalk, ſuſtaining a ſmall head or whorl of flowers: the flowers are of a bright red colour; they have two lips, the upper lip is long, narrow, and entire, the under lip is cut into three parts; they have each two ſtamina which are longer than the petal, terminated by compreſſed ſummits, and many of them have two ſhorter ſtamina, without ſummits. The plant flowers in July, but in a moiſt ſeaſon, or when the plants are in a moiſt ſoil, they will continue in flower till the middle or latter end of September.

Both theſe ſorts may be propagated by parting of their roots; the firſt does not multiply ſo faſt as the ſecond, but as that produces plenty of ſeeds, ſo it may be eaſily propagated that way. If the ſeeds are ſown in the autumn ſoon after they are ripe, the plants will come up the following ſpring; but if they are not ſown till ſpring, the plants ſeldom riſe till the next year. When the plants are come up and are fit to remove, they ſhould be tranſplanted into a ſhady border about nine inches diſtance, and when they have taken new root, they will require no other care but to keep them clean from weeds till the autumn, when they ſhould be tranſplanted into the borders where they are to remain. The following ſummer they will flower and produce ripe ſeeds, but the roots will continue ſeveral years, and may be parted every other year to increaſe them. This loves a ſoft loamy ſoil, and a ſituation not too much expoſed to the ſun.

The ſecond ſort ſeldom ripens ſeeds in England, but it increaſes faſt enough by its creeping roots, as alſo by ſlips or cuttings, which, if planted in a ſhady border in May, will take root in the ſame manner as Mint or Balm; but as the roots multiply ſo faſt, there is ſeldom occaſion to uſe any other method to propagate them.

This ſort loves a moiſt light ſoil, and in a ſituation where the plants have only the morning ſun, they will continue longer in flower than thoſe which are expoſed to the full ſun. This is a very ornamental plant in gardens, and the ſcent of the leaves is very refreſhing and agreeable to moſt people, and ſome are very fond of the tea made with the young leaves.

The third ſort grows naturally in North America; this is a biennial plant, and probably in its native country may be an annual, for the roots periſh after the plants have perfected their ſeeds. This hath ſquare ſtalks which riſe about two feet high, branching out from the bottom to the top, and are garniſhed with ſpear-ſhaped leaves, which come out in cluſters at each joint, where there are two larger leaves placed oppoſite, and ſeveral ſmaller come out on each ſide the ſtalk; the larger leaves are about two inches and a half long, and three quarters of an inch broad, and are ſlightly indented on their edges. Toward the upper part of their ſtalk the flowers come out in large whorls, having to each whorl an involucrum, compoſed of ten or twelve ſmall ſpear-ſhaped leaves, of a purpliſh red colour on their upper ſide; the flowers are pretty large, of the ſame form with thoſe of the other ſorts, of a dirty yellow colour ſpotted with purple; they have each two long ſtamina ſituated under the upper lip, which are terminated by bifid compreſſed ſummits, and are ſucceeded by four naked ſeeds incloſed in the empalement. It flowers in July, and if the ſummer proves favourable, the ſeeds ſometimes ripen in the autumn.

This plant is propagated by ſeeds, which, if ſown on a border of light earth expoſed to the eaſt, the plants will riſe very freely; when they are fit to remove, they may be tranſplanted into a ſhady border, in the ſame manner as hath been directed for the firſt ſort; and if they ſhould ſhoot up ſtalks to flower, they ſhould be cut down to ſtrengthen the roots, that they may put out lateral buds, for when they are permitted to flower the firſt year, the roots ſeldom live through the winter, therefore they ſhould be prevented: in the autumn the plants may be removed, and planted in the open borders of the pleaſure-garden, where they will flower the following ſummer; and if the ſeaſon ſhould prove dry, they ſhould be duly watered, otherwiſe they will not be near ſo beautiful, nor will the plants produce good ſeeds.

MONBIN. See Spondias.

MONTIA. See Heliocarpus.

MORÆA. Lin. Gen. Plant. 60.

The Characters are,

The ſheath of the flower has two valves; the flower is compoſed of ſix petals, the three upper are erect and bifid, the three under ſpread open; it hath three ſhort ſtamina, terminated by oblong ſummits. The germen is ſituated below the flower, ſupporting a ſingle ſtyle, crowned by a trifid erect ſtigma. The germen afterward becomes a three-cornered capſule, having three furrows, with three cells, containing ſeveral round ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's third claſs, intitled Triandria Monogynia, the flower having three ſtamina and one ſtyle.

The Species are,

1. Moræa (*Vegeta*) ſpatha uniflora, foliis gladiolatis. *Morea with one flower in each ſheath, and ſword-ſhaped leaves.* Moræa foliis canaliculatis. Lin. Sp. 59. *Morea with channelled leaves.*
2. Moræa (*Juncea*) ſpatha biflora, foliis ſubulatis. *Morea with two flowers in each ſheath, and awl-ſhaped leaves.* Moræa foliis ſubulatis. Lin. Sp. 59. *Morea with awl-ſhaped leaves.*

Theſe plants are both natives of the Cape of Good Hope, from whence I received their ſeeds, which have ſucceeded in the Chelſea garden, where the plants have ſeveral times produced their flowers, which differing from all the other genera of plants in the ſame claſs, I have taken the liberty of titling it Morea, in honour of Robert More, Eſq; of Shrewſbury, who is well ſkilled in the ſcience of botany, and alſo in other parts of natural hiſtory.

The firſt ſort has fibrous roots like thoſe of the Flag-leaved Iris, from whence ariſes many ſmall ſword-ſhaped leaves, five or ſix inches long, and half an inch broad in the middle, diminiſhing toward both ends, of a deep green colour, lying over each other at their baſe, in the ſame manner as the Iris; the flower-ſtalk ariſes between the leaves from the root, about eight inches high, having one ſmall leaf at each joint, and is terminated by one flower, which is covered with a ſpatha (or ſheath) having two valves; the flower is of a dirty white, each petal having a bluſh of purple toward their upper part, and a pretty broad ſpot of yellow toward their tails; within are three ſlender ſtamina terminated by oblong ſummits, and one ſtyle crowned by a trifid ſtigma. The flowers appear in June, and the ſeeds ripen the end of July.

The ſecond ſort hath a ſmall bulbous root, a little compreſſed on the ſides, with a ſmooth dark-coloured ſkin, from which ariſe three or four awl-ſhaped leaves of a pale green, ſome of which are five inches long, and others are ſeven or eight, and about half an inch broad, terminating with three angles; the foot-ſtalks of the flowers riſe about ſix inches high, and generally bend at their lower joint; theſe are garniſhed with a ſmall leaf at each joint, whoſe baſe almoſt ſurrounds the ſtalk, which is terminated by two flowers, encompaſſed with a withered ſheath; the flowers are of an Orange colour; the petals are pretty broad upward, but are connected at their baſe. Theſe appear in June, and the ſeeds ripen the end of July.

The plants are propagated either by ſeeds, or from offſets of the ſecond ſort, and by parting or dividing the roots of the firſt; the beſt time for tranſplanting of them, and ſeparating the offſets of the ſecond ſort, and parting the roots of the firſt, is in Auguſt, that they may put out new fibres before winter; and that is alſo the right ſeaſon for ſowing of the ſeeds, for when they are ſown at this time of the year in ſmall pots, and plunged into a bed of old tanners bark, under a common frame in winter, there is little danger of theſe ſeeds miſcarrying. The plants will alſo require this ſort of ſhelter in winter, for as they are too tender to thrive in the open air in England, and if they are placed in a green-houſe, they are apt to draw up weak, therefore when they are ſheltered under a frame, ſo as to enjoy the free open air in winter when the weather is warm, and ſecured from froſt and hard rains, they will flower and ripen their ſeeds better than with any other management: in ſummer they ſhould be fully expoſed to the open air till October, when they ſhould be removed into ſhelter.

MORINA. Tourn. Cor. 48. tab. 480. Lin. Gen. Plant. 39. Diototheca. Vaill. Mem. Acad. 1722.

The Characters are,

It hath a double empalement; that under the fruit is tubulous, cylindrical, of one leaf, indented at the brim, and permanent; that of the flower is tubulous, bifid, of one leaf, and permanent. The flower hath one petal, with a long tube enlarged upward, and a little incurved. The top is divided into two lips; the upper lip is ſmall and bifid, the under lip is cut into three equal obtuſe ſegments, the middle one being extended beyond the other. It hath two briſtly ſtamina ſituated near the ſtyle, terminated by heart-ſhaped erect ſummits. The globular germen is ſituated under the flower, ſupporting a ſlender ſtyle which is longer than the ſtamina, crowned by a target-ſhaped ſtigma; the germen afterward becomes a ſingle ſeed, crowned by the empalement of the flower.

This genus of plants is ranged in the firſt ſection of Linnæus's ſecond claſs, which contains thoſe plants whoſe flowers have two ſtamina and one ſtyle.

There is but one Species of this genus at preſent known, which is,

Morina (*Orientalis.*) Hort. Cliff. 14. Morina Orientalis, carlinæ folio. Tourn. Cor. *Eaſtern Morina, with a Carline Thiſtle leaf.*

This plant was diſcovered by Dr. Tournefort, in his travels in the Levant, who gave it this name in honour of Dr. Morin, a phyſician at Paris.

It grows naturally near Erzeron in Perſia, and was in the Engliſh gardens before the ſevere winter in 1740, which killed all the plants that were here, alſo thoſe in the garden at Paris; ſo the only plant remaining was in the garden of Monſieur du Hamel. The root of this plant is taper and thick, running deep into the ground, ſending out ſeveral thick ſtrong fibres as large as a finger; the ſtalk riſes near three feet high; it is ſmooth, of a purpliſh colour toward the bottom, but hairy and green at the top, garniſhed at each joint by three or four prickly leaves like thoſe of the Carline Thiſtle; they are four or five inches long, and an inch and a half broad, of a lucid green on their upper ſide, but of a pale green on their under, and a little hairy, armed on their edges with ſpines. The flowers come out from the wings of the leaves on each ſide the ſtalk; theſe have very long tubes, which are ſlender at the bottom, but are enlarged upward, and are a little incurved; the brim ſpreads open with two large lips, the upper lip is indented at the top and rounded, the lower lip is cut into three obtuſe ſegments; under the lip are ſituated two briſtly ſtamina which are crooked, and crowned with yellow ſummits. Theſe flowers appear in July, but I never had any ſeeds ſucceed them. Some of the flowers are white, and others of a purpliſh red on the ſame plant.

This plant is propagated by ſeed, which ſhould be ſown ſoon after it is ripe in the autumn, otherwiſe the plants will not come up the following ſummer; for I have ſeveral times obſerved, where the ſeeds have been ſown in the ſpring, they have remained in the ground fourteen or fifteen months before the plants have appeared. Theſe ſeeds ſhould be ſown in the places where the plants are to remain, becauſe they ſend forth tap-roots, which run very deep into the ground; and when theſe are broken or injured in tranſplanting, the plants ſeldom thrive after. They may be ſown in open beds or borders of freſh light earth, being careful to mark the places, that the ground may not be diſturbed; for it frequently happens, that the ſeeds do not come up the firſt year, when they are ſown in autumn; but when they are ſown in the ſpring, they never come up the ſame year. The ground where the ſeeds are ſown muſt be kept clear from weeds, which is all that is neceſſary to be done, until the plants come up; where they are too cloſe together, they ſhould be thinned while young, ſo as to leave them near eighteen inches apart; after which time, they will require no other culture but to keep them conſtantly clear from weeds; and in the ſpring, juſt before the plants put out new leaves, to dig the ground gently between them, and lay a little freſh earth over the ſurface of the bed to encourage them.

In autumn theſe plants decay to the ground, and ſend forth new leaves the following ſpring, but it will be three years from the time of the plants firſt coming up to their flowering, though after that time they will flower every ſeaſon; and the roots will continue many years, provided they are not diſturbed, or killed by very ſevere froſt.

MORUS. Tourn. Inſt. R. H. 589. tab. 363. Lin. Gen. Plant. 936. [of μαυρὸς, black, becauſe its fruit is ordinarily ſo.] The Mulberry-tree; in French, *Murier*.

The Characters are,

It hath male flowers growing at ſeparate diſtances from the female on the ſame tree. The male flowers are collected in long taper ropes or katkins; theſe have no petals, but have four awl-ſhaped erect ſtamina, which are longer than the empalement, terminated by ſingle ſummits. The female flowers are collected into roundiſh heads; theſe have no petals, but a heart-ſhaped germen, ſupporting two long, rough, reflexed ſtyles, crowned by ſingle ſtigmas. The empalement of theſe afterward become large, fleſhy, ſucculent fruit, compoſed of ſeveral protuberances, in each of which is lodged one oval ſeed.

This genus is ranged in the fourth ſection of Linnæus's twenty-firſt claſs, which contains thoſe plants which have male and female flowers at ſeparate diſtances on the ſame plant, and the male flowers have four ſtamina.

The Species are,

1. Morus (*Nigra*) foliis cordatis. Hort. Cliff. 441. *Mulberry with rough heart-ſhaped leaves.* Morus fructu nigro. C. B. P. 459. *Mulberry with a black fruit, or the common Mulberry.*
2. Morus (*Laciniatis*) foliis palmatis hirſutis. *Mulberry with hand-ſhaped hairy leaves.* Morus fructu nigro minori foliis eleganter laciniatis. Tourn. Inſt. R. H. 589. *Smaller black Mulberry with elegant cut leaves.*
3. Morus (*Rubra*) foliis cordatis ſubtus villoſis, amentis cylindricis. Lin. Sp. Plant. 986. *Mulberry with heart-ſhaped leaves which are hairy on their under ſide, and cylindrical katkins.* Morus Virginienſis arbor, loti arboris inſtar ramoſa, foliis ampliſſimis. Pluk. Phyt. tab. 246. fol. 4. *Virginia Mulberry branching like the Nettle-tree, having very large leaves.*
4. Morus (*Alba*) foliis obliquè cordatis lævibus. Hort. Cliff. 441. *Mulberry with oblique, ſmooth, heart-ſhaped leaves.* Morus fructu albo. C. B. P. 459. *Mulberry with a white fruit.*
5. Morus (*Tinctoria*) foliis obliquè cordatis acuminatis hirſutis. *Mulberry with oblique, heart-ſhaped, acute-pointed, hairy leaves.* Morus fructu viridi, ligno ſulphureo tinctorio. Sloan. Hiſt. Jam. 2. p. 3. *Mulberry with a green fruit, whoſe wood dyes a ſulphur colour, or Fuſtick wood.*
6. Morus (*Papyrifera*) foliis palmatis, fructibus hiſpidis. Lin. Sp. Plant. 986. *Mulberry with hand-ſhaped leaves and prickly fruit.* Morus ſativa, foliis urticæ mortuæ, cortice papyrifera. Kæmp. Amœn. 471. *Cultivated Mulberry with leaves like Dead Nettle, and of whoſe bark paper is made.*
7. Morus (*Tatarica*) foliis ovato-oblongis utrinque æqualibus, inæqualiter ſerratis. Flor. Zeyl. 337. *Mulberry with oval oblong leaves, which are equal on both ſides, but unequally ſawed.* Tinda-parua. Hort. Mal. 1. p. 87. fol. 49.
8. Morus (*Zanthoxylum*) foliis ovato-oblongis acuminatis obliquis, ramis aculeatis. *Mulberry with oval, oblong, acute-pointed leaves, which are oblique to the foot-ſtalk, and prickly branches.* Zanthoxylum aculeatum, carpini foliis, Americanum, cortice cinereo. Pluk. Phyt. 239. fol. 3. *Prickly Zanthoxylum of America, with Hornbeam leaves and an Aſh-coloured bark.*

The firſt ſort is the common black Mulberry-tree, which is cultivated for the delicacy of its fruit. This tree grows naturally in Perſia, from whence it was firſt brought to the ſouthern parts of Europe, but is now become common in every part of Europe, where the winters are not very ſevere; for in the northern parts of Sweden, theſe trees will not live in the open air; and in ſeveral parts of Germany they are planted againſt walls, and treated in the ſame way as Peach, and other tender fruits are here.

Theſe trees are generally of both ſexes, having male flowers or katkins on the ſame tree with the fruit; but it often happens, that ſome of the trees which are raiſed from ſeeds, have generally male flowers, and produce no fruit; ſo that thoſe who plant theſe trees for their fruit, ſhould never make choice of ſuch as have been propagated by ſeeds, unleſs they have ſeen them produce fruit in the nurſery. It is alſo the ſureſt way to mark ſuch trees as are fruitful in the nurſery, at the time when their fruit is upon them, becauſe thoſe trees which are propagated by layers, are ſometimes of the male ſort; for I have ſeveral times obſerved, that ſome of the large branches of theſe trees have produced only katkins, when the other parts of the trees have been very fruitful; ſo that unleſs care is taken in the choice of the branches for making the layers, there is the ſame hazard as in ſeedling trees: nor ſhould the ſhoots which come out near the roots of old trees be ever laid down, for theſe rarely produce fruit until they have been planted many years, although the trees from which theſe were produced might be very fruitful. I have obſerved ſome trees which produced only katkins for many years after they were planted, and afterward have become fruitful; the ſame I have obſerved in Walnut-trees, and my honoured friend the Chevalier Rathgeb, has informed me, that he has obſerved the ſame in the Lentiſk and Turpentine-trees.

The old Mulberry-trees are not only more fruitful than the young, but their fruit are much larger and better flavoured; ſo that where there are any of theſe old trees, it is the beſt way to propagate from them, and to make choice of thoſe branches which are moſt fruitful. The uſual method of propagating theſe trees, is by laying down their branches, which will take root in one year, and are then ſeparated from the old trees; but as the moſt fruitful branches are often ſo far from the ground as not be layed, unleſs by raiſing of boxes or baſkets of earth upon ſupports for this purpoſe, ſo the better way is to propagate them by cuttings, which, if rightly choſen and ſkilfully managed, will take root very well; and in this method there will be no difficulty in having them from trees at a diſtance, and from the moſt fruitful branches. Theſe cuttings ſhould be the ſhoots of the former year, with one joint of the two years wood to their bottom; the cuttings ſhould not be ſhortened, but planted their full length, leaving two or three buds above ground. The beſt ſeaſon for planting them is in March, after the danger of hard froſt is over; they ſhould be planted in light rich earth, preſſing the ground pretty cloſe about them; and if they are covered with glaſſes, it will forward their putting out roots; but where there is not ſuch conveniency, the ground about them ſhould be covered with moſs, to prevent its drying; and where this is carefully done, the cuttings will require but little water, and will ſucceed much better than with having much wet. If the cuttings ſucceed well and make good ſhoots, they may be tranſplanted the following ſpring into a nurſery, where they ſhould be regularly trained to ſtems, by fixing down ſtakes by each, to which the principal ſhoots ſhould be faſtened; and moſt of the lateral branches ſhould be cloſely pruned off, leaving only two or three of the weakeſt to detain the ſap, for the augmentation of the ſtem; for when they are quite diveſted of their ſide ſhoots, the ſap is mounted to the top, ſo that the heads of the trees grow too faſt for the ſtems, and become too weighty for their ſupport. In about four years growth in the nurſery, they will be fit to tranſplant where they are to remain; for theſe trees are tranſplanted with greater ſafety while young, than when they are of a large ſize.

If the cuttings are planted in a bed fully expoſed to the ſun, it will be proper to arch the bed over with hoops, that they may be ſhaded with mats in the heat of the day during the ſpring, till they have put out roots; after which, the more they are expoſed to the ſun, the better they will ſucceed, provided the ground is covered with moſs or mulch to prevent its drying, for the ſun will harden the ſhoots, and thereby they will be in leſs danger of ſuffering by the early froſts in autumn; for when theſe are in a ſhady ſituation, they are apt to grow vigorouſly in ſummer, ſo will be replete with moiſture, and the early froſts in October frequently kill their tops; and if the following winter proves ſevere, they are often killed to their roots, and ſometimes are entirely deſtroyed. I have two or three times made trial of planting the cuttings of Mulberries on a hot-bed, and have found them ſucceed extremely well. This I was led to by obſerving ſome ſticks of Mulberry-trees which were cut for forks, and thruſt into the hot-bed to faſten down the Vines of Cucumbers; which, although they had been cut from the tree a conſiderable time, yet many of them put out roots and ſhot out branches; ſo that where any perſon is in haſte to propagate theſe trees, if the cuttings are planted on a moderate hot-bed, they will take root much ſooner than in the common ground.

This tree delights to grow in rich light earth, ſuch as is in moſt of the old kitchen-gardens about London, where there is alſo a great depth of earth; for in ſome of thoſe gardens there are trees of a very great age, which are very healthy and fruitful, and their fruit is larger and better flavoured than thoſe of younger trees. I have never yet ſeen any of theſe trees which were planted in a very ſtiff ſoil, or on ſhallow ground, either upon clay, chalk, or gravel, which have been healthy or fruitful, but their ſtems and branches are covered with moſs, ſo that the little fruit which they ſometimes produce are ſmall, ill taſted, and late before they ripen.

If theſe trees are planted in a ſituation where they are defended from the ſtrong ſouth and north-weſt winds, it will preſerve their fruit from being blown off; but this ſhelter, whether it be trees or buildings, ſhould be at ſuch a diſtance as not to keep off the ſun; for where the fruit has not the benefit of his rays to diſſipate the morning dews early, they will turn mouldy and rot upon the trees. There is never any occaſion for pruning theſe trees, more than to cut off any of the branches which may grow acroſs others, ſo as to rub and wound their bark, by their motion occaſioned by the wind; for their ſhoots ſhould never be ſhortened, becauſe the fruit is produced on the young wood.

The ſecond ſort grows naturally in Sicily, from whence I received a parcel of the ſeeds, and raiſed a good number of the plants; all theſe were totally different in their leaves from the common Mulberry, ſo that I am certain of its being a diſtinct ſpecies. It is alſo a tree of humbler growth, but the fruit is ſmall and has no flavour, ſo is not worth propagating; ſome of the trees produced fruit two or three years in the Chelſea garden.

The white Mulberry is commonly cultivated for its leaves to feed ſilk-worms in France, Italy, &c. though the Perſians generally make uſe of the common black Mulberry for that purpoſe; and I have been aſſured by a gentleman of honour, who has made trial of both ſorts of leaves, that the worms fed with thoſe of the black ſort produce much better ſilk than thoſe fed with the white; but he obſerves that the leaves of the black ſort ſhould never be given to the worms after they have eaten for ſome time of the white, leſt the worms ſhould burſt, which is often the caſe when they are thus treated.

The trees which are deſigned to feed ſilk-worms, ſhould never be ſuffered to grow tall, but rather kept in a ſort of hedge; and inſtead of pulling off the leaves ſingly, they ſhould be ſheared off together with their young branches, which is much ſooner done, and not ſo injurious to the tree.

This white ſort may be propagated either from ſeeds or layers, as the black Mulberry, and is equally hardy; but the moſt expeditious method of raiſing theſe trees in quantity, is from the ſeeds, which may be procured in plenty from the ſouth of France or Italy: the beſt way to ſow theſe ſeeds in England, is to make a moderate hot-bed, which ſhould be arched over with hoops, and covered with mats; upon this bed the ſeeds ſhould be ſown in the end of March, and covered over with light earth about a quarter of an inch deep: in very dry weather the bed muſt be frequently watered, and in the heat of the day ſhaded with mats, and alſo covered in the nights when they are cold; with this management the plants will come up in five or ſix weeks, and as they are tender when they firſt appear, ſo they muſt be guarded againſt froſty mornings, which often happen in May, and deſtroy ſuch tender plants; during the ſummer they muſt be kept clean from weeds, which is all the culture they require: but there muſt be care taken of them the firſt winter, eſpecially to cover them in autumn, when the firſt froſts come, which will kill the tender plants to the ground, if they are not protected; the following March theſe plants ſhould be tranſplanted into the nurſery to get ſtrength, where they may remain two or three years, and then ſhould be removed where they are to continue.

There are two or three varieties of this tree, which differ in the ſhape of their leaves, ſize, and colour of their fruit; but as they are of no other uſe than for their leaves, the ſtrongeſt ſhooting and the largeſt leaved ſhould be preferred.

The third ſort, which is the large-leaved Virginian Mulberry with black ſhoots, is more uncommon than either of the former; there is a large tree of this growing in the gardens of the Biſhop of London at Fulham, which has been ſeveral years an inhabitant of that garden, but has never produced any fruit that I could learn, but hath ſome years a great number of katkins, much like thoſe of the Hazel-nut, which occaſioned Mr. Ray to give it the name of Corylus; but it may be one of the male trees which do not produce fruit, as it ſometimes happens in the common ſorts of Mulberries; the leaves of this are ſomewhat like thoſe of the common Mulberry-tree, but are rougher.

This tree has not been propagated yet in this country, for though it has been budded and grafted upon both the black and white Mulberries, yet I cannot hear that it hath ſucceeded upon either, ſo that I ſuſpect it is not of this genus; and the tree being pretty tall, cannot be laid down, which is the moſt likely method to propagate it. This is very hardy, and will endure the cold of our climate in the open air very well, and is coveted as a curioſity by ſuch as delight in a variety of trees and ſhrubs.

The fifth ſort is the tree whoſe wood is uſed by the dyers, and is better known by the title of Fuſtick, which is given to the wood, than by its fruit, which is of no eſtimation. This grows naturally in moſt of the iſlands in the Weſt-Indies, but in much greater plenty at Campeachy, where it abounds greatly. This wood is one of the commodities exported from Jamaica, where it grows in greater plenty than in any other of the Britiſh iſlands.

This tree in the countries where it grows naturally, riſes to the height of ſixty feet or upward; it has a light brown bark, which hath ſome ſhallow furrows; the wood is firm, ſolid, and of a bright yellow colour. It ſends out many branches on every ſide, covered with a white bark, and are garniſhed with leaves about four inches long, which are broad at their baſe, indented at the foot-ſtalk, where they are rounded, but one ſide is broader than the other, ſo that they are oblique to the foot-ſtalk; theſe diminiſh gradually, and end in acute points; they are rough like thoſe of the common Mulberry, of a dark green, and ſtand upon ſhort foot-ſtalks. Toward the end of the young branches come out ſhort katkins of a pale herbaceous colour, and in other parts of the ſame branches the fruit is produced, growing upon ſhort foot-ſtalks; they are as large as nutmegs, of a roundiſh form, full of protuberances like the common Mulberry, green within, and alſo on the outſide, of a luſcious ſweet taſte when ripe.

It is too tender to thrive in this country, unleſs preſerved in a warm ſtove. There are ſeveral of the plants now growing in the Chelſea garden, which were raiſed from ſeeds ſent from Jamaica, by William Williams, Eſq; with many other curious ſorts, which are natives of that iſland. The ſeeds of this plant come up freely on a hot-bed, and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot filled with freſh light earth, and plunged into a hot-bed of tanners bark, and ſhaded from the ſun till they have taken new root; then they ſhould be treated in the ſame way as other plants from thoſe hot countries, always keeping them in the tan-bed in the ſtove, where they will make good progreſs. Theſe plants retain their leaves great part of the year in the ſtove.

The ſixth ſort grows naturally in China and Japan; it alſo grows naturally in South Carolina, from whence I have received the ſeeds; the inhabitants of Japan make paper of the bark; they cultivate the trees for that purpoſe on the hills and mountains, much after the ſame manner as Oſiers are cultivated here, cutting down the young ſhoots in autumn for their bark. There were ſeveral of theſe trees raiſed from ſeeds a few years paſt, in the gardens of his Grace the Duke of Northumberland, who was ſo good as to favour me with one of the plants, which thrives very well in the open air without any ſhelter, as many of the trees and plants of thoſe countries will do, if they grow on the mountains. This plant makes very ſtrong vigorous ſhoots, but ſeems not to be of tall growth, for it ſends out many lateral branches from the root upward. The leaves are large, ſome of them are entire, others are deeply cut into three, and ſome into five lobes, eſpecially while the trees are young, dividing in form of a hand; they are of a dark green, and rough to the touch, but of a pale green, and ſomewhat hairy on their under ſide, falling off on the firſt approach of froſt in autumn, as do thoſe of the common Mulberry. The deſcription which Kæmpfer gives of the fruit is, that they are a little larger than Peas, ſurrounded with long purple hairs, are compoſed of acini, or protuberances, and when ripe, change to a black purple colour, and are full of ſweet juice.

This tree may be propagated by laying down the branches, in the ſame way as is practiſed for the common Mulberry; or it may be multiplied by planting the cuttings, in the ſame manner as before directed for the common ſort.

The ſeventh ſort grows naturally in India, where it becomes a large tree. It hath ſoft, thick, yellowiſh bark, with a milky juice like the Fig, which is aſtringent. The branches come out on every ſide, which are garniſhed with oblong oval leaves, ſtanding upon ſhort foot-ſtalks; both ſides of theſe leaves are equal, but their edges are unequally ſawed; they are rough, of a dark green on their upper ſide, but pale on their under, ſtanding alternately on the branches. The flowers come out in round heads at the foot-ſtalks of the leaves, on each ſide the branches; they are of an herbaceous white colour; the male flowers have four ſtamina; the female flowers are ſucceeded by roundiſh fruit, which are firſt green, afterwards white, and when ripe turn to a dark red colour. I received the ſeeds of this plant from Bombay, which ſucceeded in the Chelſea garden. The plants are too tender to live out of a ſtove in this country; for as I raiſed a good number of the plants, ſo when they had obtained ſtrength, I placed ſome of them in different ſituations, where they were defended from the froſt, but not any of them ſurvived the winter, but thoſe which were in the bark-ſtove, where they are conſtantly kept, and treated in the ſame manner as other tender plants, giving them but little water in winter, with which management the plants thrive, and retain their leaves all the year.

The eighth ſort grows naturally in Jamaica, and alſo in the Bahama Iſlands, from both which places I have received the ſeeds. The wood of this tree is cut, and ſold for the ſame uſes as the fifth, from which this tree has not been well diſtinguiſhed by the botaniſts: this does not grow to ſo great a ſize as the fifth; the branches are ſlenderer, the leaves are narrower, and are rounded at their baſe, ſawed on their edges, and end in acute points. At the foot-ſtalk of each leaf comes out two ſharp thorns, which, in the older branches grow to the length of two inches. The fruit is ſhaped like that of the fifth ſort, but is ſmaller.

MOSCHATELLINA. See Adoxa.

MOSS. See Muscus.

MOTHERWORT. See Cardiaca.

MOULD, or earth, the goodneſs of which may be known by the ſight, ſmell, and touch.

Firſt, by the ſight: thoſe Moulds that are of a bright Cheſtnut, or hazelly colour, are counted the beſt; of this colour are the beſt loams, and alſo the beſt natural earth, and this will be the better yet, if it cuts like butter, and does not ſtick obſtinately, but is ſhort, tolerably light, breaking into ſmall clods, is ſweet, will be tempered without cruſting or chapping, in dry weather, or turning to mortar in wet.

The next to that, the dark gray and ruſſet Moulds are accounted the beſt, the light and dark Aſh-colour are reckoned the worſt, ſuch as are uſually found on common, or heathy ground; the clear tawny is by no means to be approved, but that of a yellowiſh red colour is accounted the worſt of all; this is commonly found in wild and waſte parts of the country, and for the moſt part produce nothing but Furz and Fern, according as their bottoms are more or leſs of a light and ſandy, or of a ſpewy gravel, or clayey nature.

Secondly, by the ſmell: all lands that are good and wholeſome, will, after rain, or breaking up by the ſpade, emit a good ſmell.

Thirdly, by the touch: by this means we may diſcover whether it conſiſts of ſubſtances entirely arenaceous, or clammy; or, according as it is expreſſed by

Mr. Evelyn, whether it be tender, fatty, deterſive, or ſlippery, or more harſh, gritty, porous, or friable.

That being always the beſt that is between the two extremes, and does not contain the two different qualities of ſoft and hard mixed, of moiſt and dry, of churliſh and mild, that is neither too unctuous or too lean, but ſuch as will diſſolve, of a juſt conſiſtence, between ſand and clay, and ſuch as will not ſtick to the ſpade or fingers upon every flaſh of rain.

A loam, or brick Mould, is not to be diſapproved, as requiring little help or improvement but the ſpade, and is eſteemed both by the gardener and floriſt.

MUCILAGE is a viſcous clammy ſubſtance about ſeeds, &c.

MUCILAGINOUS ſignifies, endowed with a clammy viſcous matter.

MULBERRY. See Morus.

MULLEIN. See Verbascum.

MULTISILIQUOUS plants are ſuch as have after each flower, many diſtinct, long, ſlender, and, oftentimes, crooked caſes, or ſiliquæ, in which their ſeed is contained, and, which, when they ripen, open of themſelves, and let the ſeeds drop. Of this kind is the Bear's-foot, Columbines, common Houſeleek, Navelwort, Orpine, &c.

MUMMY, a ſort of grafting wax, made of one pound of common black pitch, and a quarter of a pound of common turpentine, put into an earthen pot, and ſet on the fire in the open air; in doing this you ought to hold a cover in your hand, ready to cover it, in order to quench it, by putting it thereon, which is to be done ſeveral times, ſetting it on the fire again, that the nitrous and volatile parts may be evaporated. The way to know when it is enough, is by pouring a little of it on a pewter plate, and if it be ſo, it will coagulate preſently; then this melted pitch is to be poured into another pot, and a little common wax is to be added to it, mixing them well together, and then to be kept for uſe.

Dr. Agricola directs the uſing this Mummy as follows:

When you would dreſs roots with this wax, you muſt melt it, and afterwards let it cool a little; then dip in the ends of the roots you would plant (for he propoſes it for the planting pieces of roots of trees, &c.) one after the other, but not too deep, and afterwards to put them in water, and to plant them in the earth, the ſmall end downwards, ſo that the larger end may appear a little way out thereof, and have the benefit of the air, and then to preſs the earth very hard down about them, that they may not receive too much wet, becauſe that would rot them.

Mummy for exotic plants; the ſame author directs the making it as follows:

Take half a pound of gum copal, beat it very fine, and ſearce it; take three pounds of Venice turpentine and melt it over a ſlow fire in a ſtrong earthen pot; when the turpentine is melted and liquidated, put the ſifted gum into it, keep it continually ſtirring with a little ſtick, augmenting the fire gradually, and it will all diſſolve inſenſibly; afterwards let the turpentine evaporate well, and it will thicken; and when it is become of a ſufficient conſiſtence, you may make it up into little rolls, like ſealing-wax, and keep it for uſe.

This Mummy, he ſays, is an excellent vulnerary for plants, it being ſubject to no corruption, as other gummy things are; it hinders any rottenneſs between the ſtock and the root, by means of which the callus is formed the ſooner, and ſpreads over all the parts, and the ſtock becomes entirely connected with the root. It alſo gives ſtrength and vigour to the root, and likewiſe facilitates it.

Vegetable Mummy; the ſame author directs the making of this as follows:

Fill a large kettle, or earthen pot, about a third part full of common black pitch, and add to it a little fine reſin, or ſulphurated pitch, and a little yellow wax; melt theſe together till they become liquid, then take them off the fire, and let them ſtand till they have done ſmoking, and, when cool, you may, with a bruſh, plaſter the inciſions which are made for the inoculation, grafting, &c.

Garden or Foreſt Mummy; the ſame author directs the making it as follows:

Take three pounds of common turpentine, and four pounds of common pitch; melt the turpentine over the fire, and, having beaten the pitch to a powder, throw it in; when they are well mixed together, and grown pretty thick, take it off, and keep it for uſe.

This compoſition may be either made up into little ſticks, like thoſe of ſealing-wax, to be made uſe of on little trees, or it may be kept in little pots, and melted over a ſlow fire, when there is occaſion to uſe it, and, dipping a little bruſh in it, you may plaſter the graft.

The Noble Mummy, or grafting wax; to make this the ſame author directs:

Take two pounds of pure pitch, ſuch as is called at Ratiſbon virgin pitch, and add to it half a pound of good turpentine; put them together in an earthen pot, and ſet them over the fire, that the volatile part of the turpentine may evaporate, otherwiſe it would be very prejudicial to trees and roots. Prove it as you did the former, to know when it is enough; then add to it half a pound of virgin wax, and half an ounce of pounded Myrrh and Aloes; when theſe are well mixed, make it up into little rolls or plaſters, or elſe it may be kept in gallipots.

The time he directs when the operation of the roots is to be performed, is in the month of September, October, and November; though it may ſucceed well at any time of the year, yet thoſe months are the moſt proper ſeaſons for it. The only difference he ſays, is, what is planted in the ſpring, will ſhoot out in June or July, and what is planted in autumn comes not forth till the month of April.

The aforeſaid author mentions great performances by uſing theſe Mummies; thoſe who have a mind to be ſatisfied, may peruſe his treatiſe.

MUNTINGIA. Plum. Gen. Nov. 41. tab. 6. Lin. Gen. Plant. 575.

The Characters are,

The empalement of the flower is cut into five ſegments to the bottom. The flower hath five heart-ſhaped petals, narrow at their baſe, which are inſerted in the empalement, and ſpread open like a Roſe. It has a great number of ſtamina, which are terminated by roundiſh ſummits. In the center is ſituated a roundiſh germen, having no ſtyle, but is crowned by a ſtigma divided into many parts. The germen afterward turns to a ſoft fruit, with one cell, crowned by the ſtigma, like a navel, and filled with ſmall ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's thirteenth claſs, which includes thoſe plants whoſe flowers have many ſtamina and one ſtigma. According to Tournefort's ſyſtem, it muſt be ranged in the eighth ſection of his twenty-firſt claſs, which contains the trees and ſhrubs with a Roſe flower, whoſe empalement becomes a fruit, having hard ſeeds.

We know but one Species of this genus, viz.

Muntingia (*Calabura.*) Jacq. Hiſt. tab. 107. Muntingia folio ſericeo molli, fructu majori. Plum. Nov. Gen. 41. *Muntingia with a ſoft ſilky leaf, and a larger fruit.*

The title of this genus was given to it by Father Plumier, in honour of Dr Muntingius, who was profeſſor of botany at Groningen in Holland, who publiſhed a folio book of botany, entitled, Phytographia Curioſa, in which there are many figures of plants exhibited, engraven on copper-plates; he alſo publiſhed two books of plants in quarto, one of which is entitled, Aloidarum, in which the figures of ſeveral ſorts of Aloes are exhibited; the title of the other is, De Herba Britannica Antiquorum.

This plant is figured and deſcribed by Sir Hans Sloane, in his Hiſtory of Jamaica, by the title of Loti arboris folio anguſtiore, rubi flore, fructu polyſpermo umbilicato, 2. p. 80. This riſes to the height of thirty feet or more in its native ſoil, ſending out many branches toward the top, which are covered with a ſmooth, dark, purple bark, garniſhed with leaves about three inches long, and three quarters broad at their baſe, where they are rounded to a heart-ſhape at the foot-ſtalk, but end in acute points, are very woolly on their under ſide, but ſmooth above, and of a lucid green; they are ſlightly ſawed on their edges, and are placed alternately. The flowers come out from the wings of the ſtalks, ſtanding upon long foot-ſtalks, compoſed of five heart-ſhaped petals, which are white, and ſpread open, reſembling thoſe of the Bramble, having many ſtamina about half the length of the petals, terminated by globular ſummits, and in the center is ſituated a roundiſh germen, crowned by a many-pointed ſtigma. The germen afterward turns to a pulpy umbilicated fruit, as large as the fruit of the Cockſpur Hawthorn, and, when ripe, of a dark purple colour, incloſing many ſmall, hard, angular ſeeds; this ſort has produced flowers and fruit in England.

The ſeeds of this plant were ſent by Mr. Robert Millar from Jamaica, which ſucceeded in ſome of the Engliſh gardens.

The plants are propagated by ſeeds, which ſhould be ſown in pots filled with light rich earth, and plunged into a moderate hot-bed of tanners bark, and in warm weather the glaſſes ſhould be raiſed to admit freſh air. Theſe ſeeds will often remain in the ground a whole year before the plants will appear; in which caſe the pots muſt be kept conſtantly clear from weeds, and ſhould remain in the hot-bed till after Michaelmas, when they may be removed into the ſtove, and plunged into the bark-bed, between other pots of tall plants, where they may remain during the winter ſeaſon. Theſe pots ſhould be now and then watered, when the earth appears dry, and in the beginning of March the pots ſhould be removed out of the ſtove, and placed into a freſh bark-bed under frames, which will bring up the plants ſoon after.

When the plants are come up about two inches high, they ſhould be carefully taken out of the pots, and each planted into a ſeparate ſmall pot filled with light rich earth, and then plunged into the hot-bed again, obſerving to ſhade them from the ſun until they have taken new root, after which time they ſhould be duly watered, and in warm weather they muſt have a large ſhare of freſh air. In this hot-bed the plants may remain until autumn, when the nights begin to be cold; at which time they ſhould be removed into the ſtove, and plunged into the bark-bed. During the winter ſeaſon theſe plants muſt be kept warm, eſpecially while they are young, and frequently refreſhed with water; but it muſt not be given to them in large quantities, leſt it rot the tender fibres of their roots. It will be proper to continue theſe plants in the ſtove all the year, but in warm weather they ſhould have a large ſhare of freſh air; but as the plants grow in ſtrength, they will be more hardy, and may be expoſed in ſummer for two or three months, and in winter will live in a dry ſtove, if kept in a moderate degree of heat.

MURUCUIA. See PASSIFLORA.

MUSA. Plum. Nov. Gen. 24. tab. 34. Lin. Gen. Plant. 1010. The Plantain-tree.

The CHARACTERS are,

It hath male and female flowers upon the ſame foot-ſtalk, ſome of which are hermaphrodite; theſe are produced on a ſingle ſtalk (or ſpadix;) the male flowers are ſituated on the upper part of the ſpike, and the female below; theſe are in bunches, each bunch having a ſheath, or cover, which falls off. The flowers are of the lip kind. The petals conſtitute the upper lip, and the nectarium the under; they have ſix awl-ſhaped ſtamina, five of which are ſituated in the petal, and the ſixth in the nectarium; this is double the length of the other, terminated by a linear ſummit; the others have none. The germen is ſituated under the flower, which is long, having three obtuſe angles, ſupporting an erect cylindrical ſtyle, crowned by a roundiſh ſtigma. The germen afterward turns to an oblong, three-cornered, fleſhy fruit, covered with a thick rind, divided into three parts.

This genus of plants is ranged in the firſt ſection of Linnæus's twenty-third claſs, which includes thoſe plants with male and female flowers, which have hermaphrodite flowers on the ſame ſtalk. Plumier ranges it in Tournefort's claſs, with the anomalous flowers of ſeveral petals; and Garçin places it among the plants with a Lily flower.

The SPECIES are,

1. MUSA (*Paradiſiaca*) ſpadice nutante floribus maſculis perſiſtentibus. Lin. Sp. 1477. *Muſa with a nodding ſpike, and nodding male flowers.* Muſa fructu cucumerino longiorio. Plum. Nov. Gen. 24. *Muſa with a longer Cucumber-ſhaped fruit, commonly called Plantain-tree.*
2. MUSA (*Sapientum*) ſpadice nutante floribus maſculis deciduis. Lin. Sp. 1477. *Muſa with a nodding ſpike, and deciduous male flowers.* Muſa fructu cucumerino, breviore. Plum. Nov. Gen. 24. *Muſa with a ſhorter Cucumber-ſhaped fruit, commonly called Bonana.*

The firſt ſort is cultivated in all the iſlands of the Weſt-Indies, where the fruit generally ſerves the negroes for bread, and ſome of the white people alſo prefer it to moſt other ſorts, eſpecially to the Yams, and Caſſada bread.

This plant riſes with a ſoft herbaceous ſtalk fifteen or twenty feet high, and upward; the lower part of the ſtalk is often as large as a man's thigh, diminiſhing gradually to the top, where the leaves come out on every ſide, which are often more than ſix feet long, and near two feet broad, with a ſtrong fleſhy midrib, and a great number of tranſverſe veins running from the midrib to the borders. The leaves are thin and tender, ſo that where they are expoſed to the open air, they are generally torn by the wind; for as they are large, the wind has great power againſt them: theſe leaves come out from the ſide of the principal ſtalk, incloſing it with their baſe; they are rolled up at their firſt appearance, but when they are advanced above the ſtalk, they expand quite flat, and turn backward; as theſe leaves come up rolled in the manner before mentioned, their advance upward is ſo quick, that their growth may be almoſt diſcerned by the naked eye; and if a line is drawn acroſs, level with the top of the leaf, in an hour's time the leaf will be near an inch above it. When the plant is grown to its full height, the ſpike of flowers will appear from the center of the leaves, which is often near four feet in length, and nods on one ſide. The flowers come out in bunches, thoſe on the lower part of the ſpike being the largeſt; the others diminiſh in their ſize upward; each of theſe bunches is covered with a ſpathæ or ſheath, of a fine purple colour within, which drops off when the flowers open. The upper part of the ſpike is made up of male or barren flowers, which are not ſucceeded by fruit, but thoſe of the ſecond ſort fall off with their covers. The fruit of this is eight or nine inches long, and above an inch diameter, a little incurved, and has three angles; it is at firſt green, but, when ripe, of a pale yellow colour. The ſkin is tough, and within is a ſoft pulp of a luſcious ſweet flavour. The ſpikes of fruit are often ſo large as to weigh upwards of forty pounds.

The fruit of the firſt ſort is generally cut before it is ripe, and roaſted in the embers, then it is eaten inſtead of bread. The leaves are uſed for napkins and table cloths, and are food for hogs.

The ſecond ſort, which is commonly called Bonana, differs from the firſt, in having its ſtalks marked with dark purple ſtripes and ſpots. The fruit is ſhorter, ſtraiter, and rounder, and the male flowers drop off; the pulp is ſofter, and of a more luſcious taſte, ſo is generally eaten by way of deſert, and ſeldom uſed in the ſame way as the Plantain, therefore is not cultivated in ſuch plenty.

Both theſe plants were carried to the Weſt-Indies from the Canary Iſlands, to which place it is believed they were carried from Guinea, where they grow naturally: theſe plants are alſo cultivated in Egypt, and in moſt other hot countries, where they grow to perfection in about ten months, from their firſt planting, to the ripening of their fruit; when their ſtalks are cut down, ſeveral ſuckers come up from the root; they will alſo produce fruit in ten months after, ſo that by cutting down the ſtalks at different times, there is a conſtant ſucceſſion of fruit all the year.

In Europe there are ſome of theſe plants preſerved in the gardens of curious perſons, who have hot-houſes capacious enough for their reception, in many of which they have ripened their fruit very well; but as they grow very tall and their leaves are large, they require more room in the ſtove than moſt people care to allow them: they are propagated by ſuckers, which come from the roots of thoſe plants which have fruited; and many times the younger plants, when they are ſtinted in growth, will put out ſuckers; theſe ſhould be carefully taken off, preſerving ſome fibres to their roots, and planted in pots filled with light rich earth, and plunged into the tan-bed in the ſtove: theſe may be taken off any time in ſummer, and it is beſt to take them off when young, becauſe if their roots are grown large, they do not put out new fibres ſo ſoon, and when the thick part of the root is cut in taking off, the plants often rot.

During the ſummer ſeaſon theſe plants muſt be plentifully watered, for the ſurface of their leaves being large, there is a great conſumption of moiſture, by perſpiration in hot weather, but in the winter they muſt be watered more ſparingly; though at that ſeaſon they muſt be often refreſhed, but it muſt not be given them in ſuch quantities.

The pots in which theſe plants are placed, ſhould be large in proportion to the ſize of the plants, for their roots generally extend pretty far, and the earth ſhould be rich and light. The degree of heat with which theſe plants thrive beſt, is much the ſame with the Anana, or Pine Apple, in which I have had many of theſe plants produce their fruit in perfection, and they were near twenty feet high.

The moſt ſure method to have theſe plants fruit in England is, after they have grown for ſome time in pots, ſo as to have made good roots, to ſhake them out of the pots with the ball of earth to their roots, and plant them into the tan-bed in the ſtove, obſerving to lay a little old tan near their roots for their fibres to ſtrike into, and in a few months the roots of theſe plants will extend themſelves many feet each way in the bark; and theſe plants will thrive a great deal faſter than thoſe which are confined in pots, or tubs. When the bark-bed wants to be renewed with freſh tan, there ſhould be great care taken of the roots of theſe plants, not to cut or break them, as alſo to leave a large quantity of the old tan about them, becauſe if the new tan is laid too near them, it will ſcorch their roots, and injure them: theſe plants muſt be plentifully ſupplied with water, otherwiſe they will not thrive; in winter they ſhould be watered twice a week, giving at leaſt two quarts to each plant, but in ſummer they muſt be watered every other day, and double the quantity given to them each time. If the plants puſh out their flower-ſtems in the ſpring, there will be hopes of their perfecting their fruit; but when they come out late in the year, the plants will ſometimes decay before the fruit is ripe. The ſtoves in which theſe plants are placed ſhould be at leaſt twenty feet in height, otherwiſe there will not be room for their leaves to expand; for when the plants are in vigour, the leaves are often eight feet in length, and two feet broad: ſo that if the ſtems grow to be fourteen feet to the diviſion of the leaves, and the houſe is not twenty feet high, the leaves will be cramped, which will retard the growth of the plants; beſides, when the leaves are bent againſt the glaſs, there will be danger of their breaking them, when they are growing vigorouſly; for I have had in one night the ſtems of ſuch bent leaves force through the glaſs, and by the next morning advanced two or three inches above the glaſs.

I have ſeen ſome bunches of fruit of the firſt ſort, which were upwards of forty pounds weight, and perfectly ripe in England; but this is not ſo good a fruit, as to tempt any perſon to be at the expence of raiſing them in England. The ſecond ſort is preferred to the firſt, for the flavour of its fruit, in all thoſe hot countries where theſe plants abound: the bunches of theſe are not near ſo large as thoſe of the firſt ſort, nor are the ſingle fruit near ſo long; theſe change to a deeper yellow colour as they ripen, but their taſte is ſomewhat like that of meally Figs. Some perſons who have reſided in the Weſt-Indies, having eaten ſome of theſe fruit which were produced in England, and thought them little inferior to thoſe which grew in America; and I imagine, that the inhabitants of thoſe countries would not eſteem theſe fruits ſo much, had they variety of other ſorts; but, for want of better, they eat many kinds of fruit, which would not be valued in Europe, could they be obtained in perfection.

MUSCARI. Tourn. Inſt. R. H. 347. tab. 180. Muſk, or Grape Hyacinth, vulgò.

The CHARACTERS are,

The flower has no empalement. It hath one oval pitcher-ſhaped petal, which is reflexed at the brim. It hath three nectariums on the top of the germen, and ſix awl-ſhaped ſtamina which are ſhorter than the petal, whoſe ſummits join together, and in the center is ſituated a roundiſh three-cornered germen, ſupporting a ſingle ſtyle, crowned by an obtuſe ſtigma. The germen afterward turns to a roundiſh three-cornered capſule, having three cells, filled with roundiſh ſeeds.

Dr. Linnæus has joined this genus to the Hyacinth, which is placed in the firſt ſection of his ſixth claſs, which contains the plants whoſe flowers have ſix ſtamina and one ſtyle.

The SPECIES are,

1. MUSCARI (*Botryoide*) corollis globoſis uniformibus, foliis canaliculato-cylindricis ſtrictis. *Muſcari with uniform globular petals, and cylindrical gutter-ſhaped leaves.* Muſcari arvenſe, juncifolium, cæruleum, minus. Tourn. Inſt. 348. *Smaller blue Field Muſcary, with Ruſh leaves, commonly called Grape Hyacinth.*
2. MUSCARI (*Comoſus*) corollis angulato-cylindricis, ſummis ſterilibus longiùs pedicellatis. *Muſcari with angular cylindrical petals, which on the top of the ſpike are barren, and have longer foot-ſtalks.* Muſcari arvenſe, latifolium, purpuraſcens. Tourn. Inſt. 347. *Broad-leaved, purple, Field Muſcari, commonly called Fair-haired Hyacinth.*
3. MUSCARI (*Racemoſus*) corollis ovatis, ſummis ſeſſilibus foliis laxis. *Muſcari with oval petals.* Muſcari obſoletiore flore. Cluſ. Hiſt. 1. p. 178. *Muſcari with an obſolete flower, commonly called Muſk Hyacinth.*
4. MUSCARI (*Monſtroſus*) corollis ſubovatis. *Muſcari with almoſt oval corolla.* Hyacinthus paniculâ cæruleâ. C. B. P. 42. *Blue paniculated Hyacinth, called Feathered Hyacinth.*
5. MUSCARI (*Orchioide*) corollis ſexpartitis, petalis tribus exterioribus brevioribus. *Muſcari with petals which are cut into ſix parts.* Hyacinthus orchioides Africanus major bifolius maculatus, flore ſulphureo, obſoleto majore. Breyn. Prod. 3. 24. *Greater African Hyacinth, reſembling Orchis, with two ſpotted leaves, and a larger, obſolete, ſulphur-coloured flower.*

The firſt ſort grows naturally in the vineyards and arable fields in France, Italy, and Germany, and where it is once planted in a garden, it is not eaſily rooted out, for the roots multiply greatly, and if they are permitted to ſcatter their ſeeds, the ground will be filled with the roots. There are three varieties of this, one with blue, another with white, and a third with Aſh-coloured flowers: the firſt ſort hath a ſmall, round, bulbous root, from which come out many leaves about ſix inches long, which are narrow, and their edges are incurved, ſo as to be ſhaped like a gutter: between theſe ariſe the flower-ſtalk, which is naked, and toward the top garniſhed with a cloſe ſpike of blue flowers, ſhaped like pitchers, ſitting very cloſe to the ſtalk; theſe ſmell like freſh ſtarch, or the ſtones of Plumbs which are freſh. They flower in April, and the ſeeds ripen the latter end of June.

The ſecond ſort grows naturally in Spain and Portugal, from whence I have received both roots and ſeeds; this hath a bulbous root as large as a middling Onion, from which come out five or ſix leaves a foot long, and three quarters of an inch broad at their baſe, diminiſhing gradually to a point. The flower-ſtalk riſes about a foot high, the lower half naked, but the upper is garniſhed with cylindrical, angular, purple flowers, ſtanding upon foot-ſtalks half an inch long; theſe grow horizontally, but the ſtalk is terminated by a tuft of flowers whoſe petals are oval, and have neither germen or ſtyle, ſo are barren. This ſort flowers the latter end of April, or the beginning of May; there is a variety of this with white, and another with blue flowers, but the purple is the moſt common.

The third ſort hath pretty large, oval, bulbous roots, from which ariſe ſeveral leaves, which are about eight or nine inches long, and half an inch broad; they are incurved a little on their ſides, and end in obtuſe points; theſe embrace each other at their baſe; out of the middle of theſe, the ſtalk which ſuſtains the flowers ariſes; they are naked below, but their upper parts are garniſhed with ſmall flowers growing in a ſpike; theſe have oval pitcher-ſhaped petals, which are reflexed at their brim, and are of an Aſh-coloured purple, or obſolete colour, ſeeming as if faded, but have an agreeable muſky ſcent: theſe ſtalks do not riſe more than ſix inches high, ſo the flowers make no great appearance; but where they are in ſome quantity, they will perfume the air to a conſiderable diſtance. This ſort flowers in April, and the ſeeds ripen in July.

Of this there are two varieties, one of which has the ſame coloured flowers with this here enumerated, on the lower part of the ſpike, but they are larger, and have more of the purple caſt, but the flowers on the upper part of the ſpike are yellow, and have a very grateful odour. The Dutch gardeners title it Tibcadi Muſcari. As this is ſuppoſed to be only a ſeminal variety of the third, I have not enumerated it as diſtinct. There is another variety of this with very large yellow flowers, that has been lately raiſed from ſeeds in Holland, which the floriſts there ſell for a guinea a root.

The fourth ſort hath a large bulbous root, from which come out ſeveral plain leaves a foot long, and about half an inch broad at their baſe; they are ſmooth, and end in obtuſe points. The flower-ſtalks riſe near a foot and a half high; they are naked at the bottom for about ſeven or eight inches, above which the panicles of flowers begin, and terminate the ſtalks. The flowers ſtand upon foot-ſtalks which are more than an inch long, each ſuſtaining three, four, or five flowers, whoſe petals are cut into ſlender filaments like hairs; they are of a purpliſh blue colour, and have neither ſtamina or germen, ſo do never produce ſeeds. It flowers in May, and, after the flowers are paſt, the ſtalks and leaves decay to the root, and new ones ariſe the following ſpring.

The fifth ſort grows naturally at the Cape of Good Hope, from whence I received the ſeeds, which ſucceeded in the Chelſea garden, where the plants have flowered for ſeveral years paſt; this hath a ſmall, white, bulbous root, about the ſize of a Hazel nut, from which comes out generally but two, (though ſometimes when the roots are ſtrong) three leaves, which are five or ſix inches long, and one inch and a half broad in the middle, ending in obtuſe points; theſe are of a lucid green, and have many ſpots, or protuberances on their upper ſurface. The flower-ſtalk riſes between them to the height of ſix or ſeven inches; it is round, ſmooth, and naked for three inches high or more, and is terminated by a ſpike of flowers, which are of a pale ſulphur colour; theſe have no foot-ſtalks; they have one petal, which is of an irregular figure, and cut at the top into ſix parts. The ſtamina are almoſt equal with the petal, and ſtand round the ſtyle, which is of the ſame length. The flowers appear in March, but are ſeldom ſucceeded by good ſeeds here.

The four firſt ſorts are very hardy, ſo will thrive in the open air, and require no other culture than any other hardy bulbous-rooted flower; which is, to take up their roots every ſecond or third year to ſeparate their bulbs, for as ſome of the ſorts multiply pretty faſt, ſo when they are become large bunches, they do not flower ſo ſtrong as when they are ſingle: the beſt time to take them out of the ground, is ſoon after their ſtalks and leaves are decayed; then they ſhould be ſpread on a mat, in a dry ſhady room for a fortnight to dry, after which they may be kept in boxes like other bulbous roots, till Michaelmas, when they may be planted again in the borders of the flower-garden, and treated in the ſame way as the common hardy kinds of Hyacinths.

The firſt ſort ſhould not be admitted into the flower-garden, becauſe the roots will propagate ſo faſt, as to become a troubleſome weed there.

The ſecond ſort has but little beauty, ſo a few of theſe only ſhould be allowed a place merely for the ſake of variety; this is ſo hardy, as to thrive in any ſoil or ſituation.

The third ſort merits a place for the extreme ſweetneſs of its flowers, but eſpecially that variety of it with yellow flowers, called Tibcady.

The fourth ſort may alſo be allowed to have place in the common borders of the pleaſure-garden, where they will add to the variety, and are by no means to be deſpiſed.

They are all eaſily propagated by offsets, which moſt of their roots ſend out in pretty great plenty, ſo that there is little occaſion for ſowing of their ſeeds, unleſs it be to gain ſome new varieties.

The fifth ſort is too tender to thrive in the open air in England, ſo the roots muſt be planted in ſmall pots, filled with light rich earth; and in the autumn they ſhould be placed under a hot bed-frame, where they may be protected from froſt, but ſhould have as much free air as poſſible in mild weather; for when theſe are placed in a green-houſe, their leaves are drawn long and narrow, and the flower-ſtalks are generally weak, ſo never flower ſo well as when they have plenty of free air. Theſe flowers will continue a month where they are not drawn, but will decay in half that time in a green-houſe.

Theſe roots ſhould be tranſplanted in July, when their ſtalks and leaves are decayed, and ſhould be placed in the open air during the ſummer ſeaſon, but ſhould have very little water when their leaves are decayed.

MUSCIPULA. See Silene.

MUSCOSE, MUSCOSUS, Moſſy, or abounding with Moſs.

MUSCOSITY, Moſſineſs.

MUSCUS, Moſs.

Theſe, though formerly ſuppoſed to be only excreſcences produced from the earth, trees, &c. yet are no leſs perfect plants than thoſe of greater magnitude, having roots, branches, flowers, and ſeeds, but yet cannot be propagated from the latter by any art.

The botaniſts diſtinguiſh theſe into ſeveral genera, under each of which are ſeveral ſpecies; but as they are plants of no uſe or beauty, it would be to little purpoſe to enumerate them in this place.

Theſe plants chiefly flouriſh in cold countries, and in the winter ſeaſon, and are many times very injurious to fruit-trees, which grow upon cold barren ſoils, or where they are ſo cloſe planted as to exclude the free acceſs of air. The only remedy in ſuch caſes is to cut down part of the trees, and plough up the ground between thoſe left remaining: and in the ſpring of the year, in moiſt weather, you ſhould, with an iron inſtrument made a little hollow, the better to ſurround the branches of the trees, ſcrape off the Moſs, carrying it off the place; and by two or three times thus cleanſing them, together with carefully ſtirring the ground, it may be entirely deſtroyed from the trees; but if you do not cut down part of the trees, and ſtir the ground well, the rubbing off the Moſs will ſignify little; for the cauſe not being removed, the effect will not ceaſe, but the Moſs will in a ſhort time be as troubleſome as ever.

MUSHROOMS are, by many perſons, ſuppoſed to be produced from the putrefaction of the dung, earth, &c. in which they are found; but notwithſtanding this notion is pretty generally received amongſt the unthinking part of mankind, yet by the curious naturaliſts, they are eſteemed perfect plants, though their flowers and ſeeds have not as yet been perfectly diſcovered. But ſince they may, and are annually propagated by the gardeners near London, and are (the eſculent ſort of them) greatly eſteemed by moſt curious palates, I ſhall briefly ſet down the method practiſed by the gardeners who cultivate them for ſale.

But firſt, it will not be improper to give a ſhort deſcription of the true eatable kind, ſince there are ſeveral unwholſome ſorts, which have been by unſkilful perſons gathered for the table.

The true Champignon, or Muſhroom, appears at firſt of a roundiſh form, like a button; the upper part of which, as alſo the ſtalk, is very white; but being opened, the under part is of a livid fleſh colour, but the fleſhy part when broken is very white; when theſe are ſuffered to remain undiſturbed, they will grow to a large ſize, and explicate themſelves almoſt to a flatneſs, and the red part underneath will change to a dark colour.

In order to cultivate them, if you have no beds in your own, or in neighbouring gardens, which produce them, you ſhould look abroad in rich paſtures, during the months of Auguſt and September, until you find them (that being the ſeaſon when they are naturally produced;) then you ſhould open the ground about the roots of the Muſhrooms, where you will find the earth, very often, full of ſmall white knobs, which are the offſets, or young Muſhrooms; theſe ſhould be carefully gathered, preſerving them in lumps with the earth about them: but as this ſpawn cannot be found in the paſture, except at the ſeaſon when the Muſhrooms are naturally produced, you may probably find ſome in old dunghills, eſpecially where there has been much litter amongſt it, and the wet hath not penetrated it to rot it; as likewiſe, by ſearching old hot-beds, it may be often found; for this ſpawn has the appearance of a white mould, ſhooting out in long ſtrings, by which it may be eaſily known wherever it is met with: or this may be procured by mixing ſome long dung from the ſtable, which has not been thrown on a heap to ferment; which being mixed with ſtrong earth, and put under cover to prevent wet getting to it, the more the air is excluded from it, the ſooner the ſpawn will appear; but this muſt not be laid ſo cloſe together as to heat, for that will deſtroy the ſpawn: in about two months after the ſpawn will appear, eſpecially if the heap is cloſely covered with old thatch, or ſuch litter as hath lain long abroad, ſo as not to ferment, then the beds may be prepared to receive the ſpawn: theſe beds ſhould be made of dung, in which there is good ſtore of litter, but this ſhould not be thrown on a heap to ferment; that dung which hath lain ſpread abroad for a month or longer, is beſt. Theſe beds ſhould be made on dry ground, and the dung laid upon the ſurface; the width of theſe beds at bottom ſhould be about two feet and a half or three feet, the length in proportion to the quantity of Muſhrooms deſired; then lay the dung about a foot thick, covering it about four inches with ſtrong earth. Upon this lay more dung, about ten inches thick; then another layer of earth, ſtill drawing in the ſides of the bed, ſo as to form it like the ridge of a houſe, which may be done by three layers of dung and as many of earth. When the bed is finiſhed it ſhould be covered with litter or old thatch, to keep out wet, as alſo to prevent its drying; in this ſituation it may remain eight or ten days, by which time the bed will be in a proper temperature of warmth to receive the ſpawn; for there ſhould be only a moderate warmth in it, great heat deſtroying the ſpawn, as will alſo wet; therefore when the ſpawn is found, it ſhould always be kept dry until it is uſed, for the drier it is, the better it will take in the bed; for I had a parcel of this ſpawn, which had lain near the oven of a ſtove upward of four months, and was become ſo dry, that I deſpaired of its ſucceſs; but I never have yet ſeen any which produced ſo ſoon, nor in ſo great quantity as this.

The bed being in a proper temperature for the ſpawn, the covering of litter ſhould be taken off, and the ſides of the bed ſmoothed; then a covering of light rich earth about an inch thick ſhould be laid all over the bed, but this ſhould not be wet; upon this the ſpawn ſhould be thruſt, laying the lumps four or five inches aſunder; then gently cover this with the ſame light earth above half an inch thick, and put the covering of litter over the bed, laying it ſo thick as to keep out wet, and prevent the bed from drying: when theſe beds are made in the ſpring or autumn, as the weather is in thoſe ſeaſons temperate, ſo the ſpawn will then take much ſooner, and the Muſhrooms will appear perhaps in a month after making; but thoſe beds which are made in ſummer, when the ſeaſon is hot, or in winter, when the weather is cold, are much longer before they produce.

The great ſkill in managing of theſe beds is, that of keeping them in a proper temperature of moiſture, never ſuffering them to receive too much wet: during the ſummer ſeaſon the beds may be uncovered, to receive gentle ſhowers of rain at proper times; and in long dry ſeaſons the beds ſhould be now and then gently watered, but by no means ſuffer much wet to come to them; during the winter ſeaſon they muſt be kept as dry as poſſible, and ſo cloſely covered as to keep out cold. In froſty or very cold weather, if ſome warm litter ſhaken out of a dung heap is laid on, it will promote the growth of the Muſhrooms; but this muſt not be laid next the bed, but a covering of dry litter between the bed and this warm litter; and as often as the litter is found to decay, it ſhould be renewed with freſh; and as the cold increaſes, the covering ſhould be laid ſo much thicker. If theſe things are obſerved, there may be plenty of Muſhrooms produced all the year; and theſe produced in beds, are much better for the table than any of thoſe which are gathered in the fields.

A bed thus managed, if the ſpawn takes kindly, will continue good for ſeveral months, and produce great quantities of Muſhrooms; from theſe beds when they are deſtroyed, you ſhould take the ſpawn for a freſh ſupply, which may be laid up in a dry place until the proper ſeaſon of uſing it, which ſhould not be ſooner than five or ſix weeks, that the ſpawn may have time to dry before it is put into the bed, otherwiſe it will not ſucceed well.

Sometimes it happens, that beds thus made do not produce any Muſhrooms till they have lain five or ſix months, ſo that theſe beds ſhould not be deſtroyed, though they ſhould not at firſt anſwer expectation; for I have frequently known theſe to have produced great quantities of Muſhrooms afterward, and have continued a long time in perfection.

MUSTARD. See Sinapi.

MYAGRUM. Tourn. Inſt. R. H. 211. tab. 99. Lin. Gen. Plant. 713. Gold of Pleaſure.

The Characters are,

The empalement of the flower is compoſed of four oblong, oval, coloured leaves, which fall off. The flower hath four roundiſh obtuſe petals, placed in form of a croſs. It hath ſix ſtamina the length of the petals, four of which are a little longer than the other, terminated by ſingle ſum-

mits. In the center is ſituated an oval germen, ſupporting ſlender ſtyle, crowned by an obtuſe ſtigma. The germen afterward becomes a turbinated, heart-ſhaped, ſhort pod, having two valves with a rigid ſtyle on the top, incloſing roundiſh ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's fifteenth claſs, which contains the plants whoſe flowers have four long and two ſhorter ſtamina, and the ſeeds are incloſed in ſhort ſmall pods.

The Species are,

1. Myagrum (*Sativum*) ſiliculis ovatis, pedunculatis polyſpermis. Hort. Cliff. 328. *Myagrum with oval pods having foot-ſtalks, incloſing ſeveral ſeeds.* Alyſſon ſegetum foliis auriculatis acutis. Tourn. Inſt. R. H. *Corn Madwort with eared acute-pointed leaves, commonly called Gold of Pleaſure.*
2. Myagrum (*Alyſſum*) ſiliculis cordatis pedunculatis polyſpermis, foliis denticulatis obtuſis. *Myagrum with heart-ſhaped pods ſtanding upon foot-ſtalks, having many ſeeds and indented leaves.* Alyſſon ſegetum foliis auriculatis acutis fructu majori. Tourn. Inſt. 217. *Corn Madwort, with acute-eared leaves and a larger fruit.*
3. Myagrum (*Rugoſum*) ſiliculis globoſis compreſſis punctato-rugoſis. Hort. Cliff. 328. *Myagrum with globular, compreſſed, ſmall pods, having rough punctures.* Rapiſtrum arvenſe, folio auriculato acuto. Tourn. Inſt. 211. *Field Charlock with an acute-eared leaf.*
4. Myagrum (*Perenne*) ſiliculis biarticulatis diſpermis, foliis extrorſum ſinuatis denticulatis. Hort. Upſal. 182. *Myagrum with ſhort pods, having two joints and two ſeeds, and outer leaves which are ſinuated and indented.* Rapiſtrum monoſpermum. C. B. P. 95. *One-ſeeded Charlock.*
5. Myagrum (*Perfoliatum*) ſiliculis obcordatis ſubſeſſilibus, foliis amplexicaulibus. Hort. Upſal. 182. *Myagrum with ſmall heart-ſhaped pods ſitting cloſe to the ſtalk, and the leaves embracing it.* Myagrum monoſpermum latifolium. C. B. P. 109. *Broad-leaved Myagrum having one ſeed in a pod.*

The firſt ſort grows naturally in Corn fields in the ſouth of France and Italy; I have alſo found it growing in the Corn in Eaſthamſted-park, the ſeat of William Trumbull, Eſq; but it is not common in this country. It is an annual plant, with an upright ſtalk about a foot and a half high, ſending out two or four ſide branches toward the top, which grow erect; they are ſmooth, and have a fungous pith; the lower leaves are from three to four inches long, of a pale or yellowiſh green, and are eared at their baſe; thoſe upon the ſtalks diminiſh in their ſize all the way up, and are entire, and almoſt embrace the ſtalks with their baſe. The flowers grow in looſe ſpikes at the end of the branches, ſtanding upon foot-ſtalks an inch long; they are compoſed of four ſmall yellowiſh petals, placed in form of a croſs; theſe are ſucceeded by oval capſules, which are bordered, and crowned at the top with the ſtyle of the flower, having two cells, which are filled with red ſeeds.

The ſecond ſort is alſo an annual plant, and differs from the firſt in having a taller ſtalk; the leaves are much longer, narrower, and are regularly indented on their edges, ending in obtuſe points. The flowers are larger, but of the ſame form and colour; the capſules are much larger, and are ſhaped like a heart. Both theſe plants flower in June and July, and their ſeeds ripen in September.

The third ſort grows naturally on the borders of arable fields, in the ſouth of France and Italy. This is an annual plant, whoſe lower leaves are five or ſix inches long; they are hairy and ſucculent; their baſe is eared, and they end in acute points. The ſtalks riſe a foot and a half high, they are brittle and hairy, branching out toward the top like the two former, and are terminated by ſhort looſe ſpikes of ſmall pale flowers, which are ſucceeded by ſmall, rough, roundiſh capſules, compreſſed at the top. It flowers in July, and the ſeeds ripen in autumn.

The fourth ſort grows naturally amongſt the Corn, in France and Germany. This is alſo an annual plant; the lower leaves are large, jagged, and hairy; the ſtalks branch out from the bottom, and are garniſhed with leaves about four inches long and two broad; they are hairy, and unequally jagged. The ſtalks are terminated by very long looſe ſpikes of yellow flowers, which are ſucceeded by ſhort pods with two joints, each including one roundiſh ſeed. It flowers about the ſame time with the former.

The fifth ſort grows naturally in the ſouth of France and Italy; this hath a ſmooth branching ſtalk upward of two feet high; the lower leaves are five or ſix inches long, ſmooth, ſucculent, and a little indented; the upper leaves almoſt embrace the ſtalks with their baſe. The flowers are produced in long looſe ſpikes, which are yellow, and ſit cloſe to the ſtalk; theſe are ſucceeded by heart-ſhaped compreſſed pods, divided into two cells by a longitudinal partition, each containing one roundiſh ſeed. It flowers at the ſame time with the former.

If the ſeeds of all theſe are permitted to ſcatter in the autumn, the plants will riſe without any care, and only require to be thinned and kept clean from weeds. Theſe autumnal plants will always ripen their ſeeds, whereas thoſe which are ſown in the ſpring ſometimes fail.

MYOSOTIS. Dill. Gen. 3. Lin. Gen. 180. Mouſe-ear.

The Characters are,

The flower hath an oblong, erect, permanent empalement, cut into five points; the flower is ſalver-ſhaped, having a ſhort cylindrical tube, cut into five obtuſe ſegments at the brim; the chaps are cloſed by five ſmall ſcales which join, and are prominent. It hath five ſhort ſtamina in the neck of the tube, terminated by ſmall ſummits; and four germen ſupporting a ſlender ſtyle the length of the tube, crowned by an obtuſe ſtigma; the germina afterward become four oval ſeeds incloſed in the empalement.

This genus of plants is ranged in the firſt ſection of Linnæus's fifth claſs, intitled Pentandria Monogynia, the flower having five ſtamina and one ſtyle.

The Species are,

1. Myosotis (*Virginica*) ſeminibus aculeatis glochidibus, foliis ovato-oblongis, ramis divaricatis. Lin. Sp. 189. *Mouſe-ear with prickly ſeeds, oblong oval leaves, and divaricated branches.* Cynogloſſum Virginianum, flore & fructu minimo. Mor. Hiſt. 3. tab. 30. fol. 9. *Virginian Hound's-tongue, with ſmall flowers and ſeeds.*
2. Myosotis (*Lappula*) ſeminibus aculeis glochidibus, foliis lanceolatis piloſis. Flor. Suec. 150. *Mouſe-ear with prickly ſeeds, and hairy ſpear-ſhaped leaves.* Cynogloſſum minus. C. B. P. 257. *Smaller Hound's-tongue.*
3. Myosotis (*Apula*) ſeminibus nudis, foliis hiſpidis, racemis folioſis. Lin. Sp. 189. *Mouſe-ear with naked ſeeds, ſtinging leaves, and leafy branches.* Echium luteum minimum. C. B. P. 254. *The leaſt yellow Viper's Bugloſs.*

There are one or two other ſpecies of this genus which grow naturally in England, ſo are rarely admitted into gardens, therefore are omitted here: and thoſe here enumerated are ſeldom cultivated except in botanic gardens, being plants of little beauty or uſe. Thoſe perſons who are deſirous of keeping them, ſhould ſow their ſeeds in the autumn, upon an open bed or border of light earth, and in the ſpring thin the plants where they are too cloſe, and keep them clean from weeds, which is all the culture they require; and if their ſeeds are permitted to ſcatter, the plants will riſe without farther trouble.

MYOSURUS, Mouſe-tail.

This plant is very near a-kin to the Ranunculus, in which genus it is ranged by ſome botaniſts; the flowers are extremely ſmall, and are ſucceeded by long ſlender ſpikes of ſeeds, reſembling the tail of a mouſe, from whence it had the name. It grows wild upon moiſt grounds in divers parts of England, where it flowers the latter end of April; and the ſeeds ripen in a month after, when the plants decay, being annual. It is rarely cultivated in gardens, ſo I ſhall not trouble the reader with any further account of it.

MYRICA. Lin. Gen. Plant. 981. Gale. Tourn. Act. Reg. Scien. 1706. The Candleberry Myrtle, Gale, or Sweet Willow; by ſome Myrtus Brabantica, or Dutch Myrtle; in French, *Piment Royal.*

The Characters are,

The male flowers are upon different plants from the female; the male flowers are produced in a looſe, oblong, oval katkin, imbricated on every ſide; under each ſcale is ſituated one moon-ſhaped flower, having no petal, but hath four or ſix ſhort ſlender ſtamina, terminated by large twin ſummits, whoſe lobes are bifid. The female flowers have neither petal or ſtamina, but an oval germen ſupporting two ſlender ſtyles, crowned by ſingle ſtigmas. The germen afterward becomes a berry with one cell, incloſing a ſingle ſeed.

This genus of plants is ranged in the fourth ſection of Linnæus's twenty-ſecond claſs, which includes the plants whoſe male flowers have four ſtamina, and are upon different plants from the fruit.

The Species are,

1. Myrica (*Gale*) foliis lanceolatis ſubſerratis, caule fruticoſo. Lin. Sp. Plant. 1024. *Myrica with ſpear-ſhaped ſawed leaves and a ſhrubby ſtalk.* Gale frutex odoratus ſeptentrionalium. J. B. 1. p. 2. 225. *Northern, ſhrubby, ſweet Gale, ſweet Willow, Dutch Myrtle, or Gale.*
2. Myrica (*Cerifera*) foliis lanceolatis ſubſerratis, caule arboreſcente. Kalm. *Myrica with ſpear-ſhaped leaves, and a ſhrubby ſtalk.* Myrtus Brabanticæ ſimilis Carolinienſis baccifera, fructu racemoſo ſeſſili monopyreno. Pluk Phyt. tab. 48. fol. 9. *Carolina Myrtle like that of the Dutch, with berries growing in bunches, and ſitting cloſe to the ſtalks, commonly called Candleberry Myrtle.*
3. Myrica (*Carolinienſis*) foliis lanceolatis ſerratis, caule ſuffruticoſa. *Myrica with ſpear-ſhaped ſawed leaves, and a ſhrubby ſtalk.* Myrtus Brabanticæ ſimilis Carolinienſis humilior, foliis latioribus & magis ſerratis. Cateſb. Car. vol. i. p. 13. *Lower Carolina Myrtle, or Candleberry-tree reſembling that of Brabant, having broader leaves which are more ſawed.*
4. Myrica (*Aſplenifolia*) foliis oblongis alternatim ſinuatis. Hort. Cliff. 456. *Myrica with oblong oval leaves, which are alternately ſinuated.* Gale Mariana Aſplenii folio. Pet. Muſ. 773. *Maryland Gale with a Spleenwort leaf.*
5. Myrica (*Quercifolia*) foliis oblongis oppoſitè ſinuatis glabris. *Myrica with oblong ſmooth leaves, which are oppoſitely ſinuated.* Laurus Africana minor, folio quercûs. Hort. Amſt. 2. p. 161. *Smaller African Bay with an Oak leaf.*
6. Myrica (*Hirſuta*) foliis oblongis oppoſitè ſinuatis hirſutis. *Myrica with oblong hairy leaves, which are oppoſitely ſinuated.*
7. Myrica (*Cordifolia*) foliis ſubcordatis ſerratis ſeſſilibus. Hort. Cliff. 456. *Myrica with ſawed leaves which are almoſt heart-ſhaped, and ſit cloſe to the ſtalk.* Gale Capenſis, ilicis cocciferæ foliò. Pet. Muſ. 774. *Gale from the Cape, with a leaf like the Kermes Oak.*

The firſt ſort grows naturally upon bogs in many parts of England, particularly in the northern and weſtern counties, as alſo in Windſor-park, and near Tunbridge-wells. This riſes with many ſhrubby ſtalks near four feet high, which divide into ſeveral ſlender branches, garniſhed with ſtiff ſpear-ſhaped leaves, about an inch and a half long, and half an inch broad in the middle; they are of a light or yellowiſh green, ſmooth, and a little ſawed at their points, and emit a fragrant odour when bruiſed; they are placed alternately on their branches. The male flowers or katkins are produced from the ſide of the branches, growing upon ſeparate plants from the female, which are ſucceeded by cluſters of ſmall berries, each having a ſingle ſeed. It flowers in July, and the ſeeds ripen in autumn.

The leaves of this ſhrub has been by ſome perſons gathered and uſed for Tea, but it is generally ſuppoſed to be hurtful to the brain; but from this uſe of it, a learned phyſician a few years ſince, wrote a treatiſe to prove this to be the true Tea, in which he has only ſhewn his want of knowledge in theſe things.

It grows naturally in bogs, ſo cannot be made to thrive on dry land, for which reaſon it is ſeldom preſerved in gardens.

The ſecond ſort grows naturally in North America, where the inhabitants get a ſort of green wax from the berries, which they make into candles. The method of collecting and preparing this, is deſcribed by Mr. Cateſby, in his Hiſtory of Carolina.

This grows naturally in bogs and ſwampy lands, where it riſes with many ſtrong ſhrubby ſtalks eight or ten feet high, ſending out ſeveral branches, garniſhed with ſtiff ſpear-ſhaped leaves near three inches long, and one broad in the middle; they are ſmooth and entire, having ſcarce any foot-ſtalks, of a yellowiſh lucid green on their upper ſide, but paler on their under, ſtanding alternately, and pretty cloſe to the branches; theſe have a very grateful odour when bruiſed. The katkins come out upon different plants from the berries; theſe are about an inch long, ſtanding erect. The female flowers come out on the ſide of the branches in longiſh bunches, which are ſucceeded by ſmall roundiſh berries, covered with a ſort of meal. This ſhrub delights in a moiſt ſoft ſoil, in which it thrives extremely well, and lives in the open air without any protection.

The third ſort grows naturally in Carolina; this doth not riſe ſo high as the former, the branches are not ſo ſtrong, and they have a grayiſh bark; the leaves are ſhorter, broader, and are ſawed on their edges, but in other reſpects is like the ſecond ſort; the berries of this are alſo collected for the ſame purpoſe.

Theſe ſorts are propagated by ſeeds, which ſhould be ſown in the autumn, and then the plants will come up the following ſpring; but if the ſeeds are kept out of the ground till the ſpring, they ſeldom grow till the year after. Theſe plants will require water in dry weather, and ſhould be ſcreened from froſts while young, but when they have obtained ſtrength, they will reſiſt the cold of this country very well.

The fourth ſort grows naturally in Philadelphia, from whence many of the plants have been brought to England, and thoſe which have been planted on a moiſt ſoil have thriven very well; ſome of theſe creep at their roots, and ſend up ſuckers plentifully, in the ſame manner as in their native ſoil.

This riſes with ſlender ſhrubby ſtalks near three feet high, which are hairy, and divide into ſeveral ſlender branches, which are garniſhed with leaves from three to four inches long, and half an inch broad; they are alternately indented almoſt to the midrib, and have a great reſemblance to thoſe of Spleenwort; they are of a dark green, hairy on their under ſide, and ſit cloſe to the ſtalks. The male flowers or katkins come out on the ſide of the branches between the leaves; theſe are oval, and ſtand erect. I have not ſeen any of theſe plants in fruit, ſo I can give no deſcription of it.

This ſort may be propagated by ſuckers, which are ſent out from the roots when it is planted in a looſe moiſt ſoil, and will endure the cold full as well as the two former ſorts.

The fifth and ſixth ſorts grow naturally at the Cape of Good Hope; theſe only differ from each other, in one having very ſmooth ſhining leaves, and thoſe of the other hairy. I do not know if they are really different ſpecies, but as I received them from Holland as ſuch, and the plants ſtill retaining their difference, ſo I have enumerated them both.

Theſe riſe with ſhrubby ſlender ſtalks about four feet high, which divide into ſmaller branches, which in one ſort are ſmooth, and in the other they are hairy; theſe are cloſely garniſhed with leaves about an inch and a half long, and almoſt an inch broad; ſome having two, others three, deep indentures on their ſides, which are oppoſite; in one ſort they are ſmooth and ſhining, and in the other they are hairy, and of a darker green; they ſit cloſe to the branches, and end in obtuſe points which are indented: between the leaves come out ſome oval katkins, which drop off, ſo that all the plants which I have ſeen have been male, therefore I can give no account of the fruit. Theſe retain their leaves all the year, but are too tender to live through the winter in the open air in England, ſo muſt be placed in the green-houſe in winter. As theſe do not produce ſeeds here, ſo they are propagated by layers, but they do not take root very freely, ſo that the plants are not very common in Europe at preſent; for I do not find that the cuttings of theſe plants will eaſily take root, having made ſeveral trials of them in all the different methods; nor have the Dutch gardeners had better ſucceſs, ſo that the plants are as ſcarce there as in England.

When the layers are laid down, that part of the ſhoot which is laid ſhould be tongued at a joint, as is practiſed in laying of Carnations; and the young ſhoots only ſhould be choſen for this purpoſe, for the old branches will not put out roots. Theſe layers are often two years before they will have taken root enough to tranſplant, for they ſhould not be ſeparated from the old plants till they have made good roots, becauſe they are very ſubject to miſcarry if they are not well rooted.

When they are taken off from the old plants, they ſhould be each put into a ſeparate ſmall pot, filled with ſoft, rich, loamy earth; and if they are placed under a common frame, ſhading them from the ſun in the middle of the day, it will forward their taking new root; then they may be placed in a ſheltered ſituation during the ſummer, and in the autumn removed into the green-houſe, and treated in the ſame way as other plants from the ſame country. The beſt ſeaſon for laying down the branches, I have obſerved to be in July, and by the ſame time the following year they have been fit to remove.

The ſeventh ſort is a native of the Cape of Good Hope; this hath a weak ſhrubby ſtalk which riſes five or ſix feet high, ſending out many long ſlender branches, which are cloſely garniſhed their whole length with ſmall heart-ſhaped leaves, which ſit cloſe to the branches, and are ſlightly indented and waved on their edges. The flowers come out between the leaves in roundiſh bunches; theſe are male in all the the plants I have yet ſeen; they have an uncertain number of ſtamina, and are all included in one common ſcaly involucrum or cover. Theſe flowers appear in July, but make no great appearance; the leaves of this ſort continue all the year green.

This is propagated in the ſame way as the two former ſorts, and is difficult to increaſe, ſo is not common in the European gardens. It requires the ſame treatment as the two former ſorts.

MYRRHIS. See Chærophyllum, Scandix, Siſon.

MYRTUS. Tourn. Inſt. R. H. 640. tab. 409. Lin. Gen. Plant. 543. Myrtle; in French, *Mirte*.

The Characters are,

The empalement of the flower is of one leaf, cut into five acute points at the top, is permanent, and ſits on the germen. The flower has five large oval petals which are inſerted in the empalement, and a great number of ſmall ſtamina which are alſo inſerted in the empalement, terminated by ſmall ſummits. The germen is ſituated under the flower, ſupporting a ſlender ſtyle, crowned by an obtuſe ſtigma. The germen afterward turns to an oval berry with three cells, crowned by the empalement, each cell containing one or two kidney-ſhaped ſeeds.

This genus of plants is ranged in the firſt ſection of Linnæus's twelfth claſs, in which is contained thoſe plants whoſe flowers have about twenty ſtamina and one ſtyle.

The Species are,

1. Myrtus (*Communis*) foliis ovatis, pedunculis longioribus. *Myrtle with oval leaves, and longer foot-ſtalks to the flowers.* Myrtus latifolia Romana. C. B. P. 468. *Broad-leaved Roman Myrtle, or common broad-leaved Myrtle.*
2. Myrtus (*Belgica*) foliis lanceolatis acuminatis. *Myrtle with ſpear-ſhaped acute-pointed leaves.* Myrtus latifolia Belgica. C. B. P. 469. *Broad-leaved Dutch Myrtle.*
3. Myrtus (*Acuta*) lanceolato-ovatis acutis. *Myrtle with ſpear-ſhaped, oval, acute-pointed leaves.* Myrtus ſylveſtris, foliis acutiſſimis. C. B. P. 469. *Wild Myrtle with very acute-pointed leaves.*
4. Myrtus (*Bœtica*) foliis ovato-lanceolatis confertis. *Myrtle with oval ſpear-ſhaped leaves growing in cluſters.* Myrtus latifolia Bœtica 2 vel foliis laurinus, confertim naſcentibus. C. B. P. 469. *Second broad-leaved Spaniſh Myrtle, with Bay leaves growing in cluſters, commonly called Orange-leaved Myrtle.*
5. Myrtus (*Italica*) foliis ovato-lanceolatis acutis, ramis erectioribus. *Myrtle with oval, acute-pointed, ſpear-ſhaped leaves, and erect branches.* Myrtus communis Italica. C. B. P. 468. *Common Italian Myrtle, called upright Myrtle.*
6. Myrtus (*Tarentina*) foliis ovatis, baccis rotundioribus. *Myrtle with oval leaves and rounder berries.* Myrtus minor vulgaris. C. B. P. 469. *Common ſmaller Myrtle, called the Box-leaved Myrtle.*
7. Myrtus (*Minima*) foliis lineari-lanceolatis acuminatis. *Myrtle with linear, ſpear-ſhaped, acute-pointed leaves.* Myrtus foliis minimis & mucronatis. C. B. P. 469. *Myrtle with the ſmalleſt ſharp-pointed leaves, commonly called Roſemary-leaved Myrtle.*
8. Myrtus (*Zeylanica*) pedunculis multifloris, foliis ovatis ſubpetiolatis. Lin. Sp. Plant. 472. *Myrtle with many flowers on each foot-ſtalk, and oval leaves having ſhort foot-ſtalks.* Myrtus Zeylanica odoratiſſima, baccis niveis monococcis. H. L. 434. *Sweet-ſmelling Myrtle of Ceylon, with ſnow white berries containing one ſeed.*

The firſt ſort is the common broad-leaved Myrtle, which is one of the hardieſt kinds we have. The leaves of this are an inch and a half long, and one inch broad, of a lucid green, ſtanding upon ſhort foot-ſtalks. The flowers are larger than thoſe of the other ſorts, and come out from the ſide of the branches, on pretty long foot-ſtalks; theſe are ſucceeded by oval berries of a dark purple colour, incloſing three or four hard kidney-ſhaped ſeeds. It flowers in July and Auguſt, and the berries ripen in winter. This ſort is by ſome called the flowering Myrtle, becauſe it generally has a greater quantity of flowers, and thoſe are larger than of any other ſort.

The ſecond ſort has leaves much leſs than thoſe of the former, and are more pointed, ſtanding cloſer together on the branches; the midrib on the under ſide of the leaves is of a purple colour, they are of a darker green, and ſit cloſer to the branches. The flowers are ſmaller, and have ſhorter foot-ſtalks than thoſe of the firſt ſort; this flowers a little later in the ſummer, and ſeldom ripens its berries here.

The double flowering Myrtle I take to be a variety of this, for the leaves and growth of the plant, the ſize of the flowers, and the time of flowering, agree better with this than any of the other ſorts.

The third ſort grows naturally in the ſouth of France and in Italy; the leaves of this are much ſmaller than thoſe of the ſecond, being leſs than an inch long, and not more than half an inch broad, of an oval ſpear-ſhape, ending in acute points, of a dull green, and ſet pretty cloſe on the branches. The flowers are ſmaller than either of the former, and come out from the wings of the leaves toward the end of the branches; the berries are ſmall and oval.

The fourth ſort hath a ſtronger ſtalk and branches than either of the former ſorts, and riſes to a greater height; the leaves are oval, ſpear-ſhaped, and are placed in cluſters round the branches; theſe are of a dark green. The flowers are of a middling ſize, and come out ſparingly from between the leaves; the berrries are oval, and ſmaller than thoſe of the firſt ſort, but ſeldom ripens in England. The gardeners call this the Orange-leaved Myrtle, and by ſome it is ſtiled the Bay-leaved Myrtle. This ſort is not ſo hardy as the former.

The fifth ſort is the common Italian Myrtle; this hath oval ſpear-ſhaped leaves, ending in acute points; the branches of this grow more erect than thoſe of either of the former ſorts, as do alſo the leaves, from whence it is called by the gardeners upright Myrtle. The flowers of this ſort are not large, and the petals are marked with purple at their points, while they remain cloſed; the berries are ſmall, oval, and of a purple colour. There is a variety of this with white berries, in which it only differs from this; and I believe the Nutmeg Myrtle is only a variety of this, for I have raiſed ſeveral of the plants from ſeed, many of which were ſo like the Italian Myrtle, as not to be diſtinguiſhed from it.

The ſixth ſort is commonly called the Box-leaved Myrtle; the leaves of this are oval, ſmall, and ſit cloſe on the branches; they are of a lucid green, ending in obtuſe points; the branches are weak, and frequently hang downward, when they are permitted to grow without ſhortening, and have a grayiſh bark. The flowers are ſmall, and come late in the ſummer, the berries are ſmall and round.

The ſeventh ſort is called the Roſemary-leaved Myrtle, and by ſome it is called the Thyme-leaved Myrtle. The branches of this grow pretty erect; the leaves are placed cloſe on the branches; they are ſmall, narrow, and end in acute points; they are of a lucid green, and have a fragrant odour when bruiſed. The flowers of this are ſmall, and come late in the ſeaſon, and are but ſeldom ſucceeded by berries here.

There are ſome other varieties of theſe Myrtles, which are propagated in the gardens for ſale; but as their difference has been occaſioned by culture, ſo it would be multiplying their titles to little purpoſe. Thoſe which are here enumerated I believe to be really diſtinct, for I have raiſed moſt of them from ſeeds, and have not found them change from one to another, though there has been other ſmall variations among the plants.

The eighth ſort is a native of the Iſland of Ceylon: this is much tenderer than either of the former ſorts, ſo cannot be kept through the winter in England, without ſome artificial heat. This hath a ſtrong upright ſtalk, covered with a ſmooth gray bark, dividing upward into many ſlender ſtiff branches, garniſhed with oval leaves placed oppoſite, which are near two inches long, and an inch and a quarter broad, ending in points; they are of a lucid green, and have very ſhort foot-ſtalks. The flowers come out at the ends of the branches, ſeveral of them being ſuſtained upon one common foot-ſtalk, which branches out, and each flower ſtands on a very ſlender diſtinct foot-ſtalk; they are very like the flowers of Italian Myrtle, but always appear in December and January, and are never ſucceeded by berries here.

I ſhall firſt treat of the method of cultivating and propagating the common ſorts of Myrtle, as they all require nearly the ſame management, and ſhall afterward take notice of that of the laſt mentioned, which require a different treatment; but as the varieties of the common ſorts of Myrtle are cultivated in the gardens for ſale, I ſhall juſt mention the titles by which they are known, that the curious may be informed how many there are.

Two ſorts of Nutmeg Myrtles, one with a broader leaf than the other.

The Bird's Neſt Myrtle, the ſtriped Nutmeg Myrtle, the ſtriped upright Myrtle, the ſtriped Roſemary-leaved Myrtle, the ſtriped Box-leaved Myrtle, and the ſtriped broad-leaved Myrtle.

Theſe plants may be all propagated from cuttings, the beſt ſeaſon for which is in the beginning of July, when you ſhould make choice of ſome of the ſtraiteſt and moſt vigorous young ſhoots, which ſhould be about ſix or eight inches long, and the leaves on the lower part muſt be ſtripped off about two or three inches high, and the part twiſted which is to be placed in the ground; then having filled a parcel of pots (in proportion to the quantity of cuttings deſigned) with light rich earth, you ſhould plant the cuttings therein, at about two inches diſtance from each other, obſerving to cloſe the earth faſt about them, and give them ſome water to ſettle it to the cuttings; then place the pots under a common hot-bed frame, plunging them either into ſome old dung, or tanners bark, which will prevent the earth from drying too faſt; but you muſt carefully ſhade them with mats in the heat of the day, and give them air in proportion to the warmth of the ſeaſon, not forgetting to water them every two or three days, as you ſhall find the earth in the pots require it. With this management, in about ſix weeks, the cuttings will be rooted, and begin to ſhoot, when you muſt inure them to the open air by degrees, into which they ſhould be removed towards the latter end of Auguſt, or the beginning of September, placing them in a ſituation where they may be ſheltered from cold winds, in which place they may remain till the middle or latter end of October, when the pots ſhould be removed into the green-houſe, but ſhould be placed in the cooleſt part thereof, that they may have air given to them whenever the weather is mild, for they require only to be protected from ſevere cold, except the Orange-leaved, and the ſtriped Nutmeg Myrtles, which are ſomewhat tenderer than the reſt, and ſhould have a warmer ſituation.

During the winter ſeaſon, they muſt be frequently, but gently watered; and, if any decayed leaves appear, they ſhould be conſtantly picked off, as alſo the pots kept clear from weeds, which, if permitted to grow, will ſoon overſpread the young plants, and deſtroy them.

If theſe pots are placed under a common hot-bed frame in winter, where they may be ſcreened from froſt, and have the free air in mild weather, the young plants will ſucceed better than in a green-houſe, provided they do not receive too much wet, and are not kept cloſely covered, which will occaſion their growing mouldy, and dropping their leaves.

The ſpring following theſe plants ſhould be taken out of the pots very carefully, preſerving a ball of earth to the roots of each of them, and every one ſhould be placed into a ſeparate ſmall pot filled with rich light earth, obſerving to water them well to ſettle the earth to their roots, and place them under a frame until they have taken root; after which they ſhould be inured to the open air, and in May they muſt be placed abroad for the ſummer, in a ſheltered ſituation, where they may be defended from ſtrong winds.

During the ſummer ſeaſon they will require to be plentifully watered, eſpecially being in ſuch ſmall pots, which in that ſeaſon ſoon dry; therefore you ſhould obſerve to place them where they ſhould receive the morning ſun, for when they are too much expoſed to the ſun in the heat of the day, the moiſture contained in the earth of theſe ſmall pots will ſoon be exhaled, and the plants greatly retarded in their growth thereby.

In Auguſt following you ſhould examine your pots, to ſee if the roots of the plants have not made way out through the hole in the bottom of the pots, which if you obſerve, you muſt then ſhift them into pots a ſize larger, filling them up with the like rich earth, and obſerve to trim the roots which were matted to the ſide of the pots, as alſo to looſen the earth from the outſide of the ball with your hands, ſome of which ſhould be taken off, that the roots may the eaſier find paſſage into the freſh earth; then you muſt water them well, and place the pots in a ſituation where they may be defended from ſtrong winds; and at this time you may trim the plants, in order to reduce them to a regular figure; and if they are inclinable to make crooked ſtems, you ſhould thruſt down a ſlender ſtrait ſtick cloſe by them, to which their ſtems ſhould be faſtened, ſo as to bring them upright.

If care be taken to train them thus while they are young, the ſtems afterward, when they have acquired ſtrength, will continue ſtrait without any ſupport, and their branches may be pruned, ſo as to form either balls or pyramids, which for ſuch plants as are preſerved in the green-houſe, and require to be kept in ſmall compaſs, is the beſt method to have them handſome; but then theſe ſheered plants will not produce any flowers, for which reaſon that ſort with double flowers ſhould not be clipped, becauſe the chief beauty of that conſiſts in its flowers; but it will be neceſſary to ſuffer a plant or two of each kind to grow rude, for the uſe of their branches in noſegays, &c. for it will greatly deface thoſe which have been conſtantly ſheered to cut off their branches.

As theſe plants advance in ſtature, they ſhould annually be removed into larger pots, acording to the ſize of their roots; but you muſt be careful not to put them into pots too large, which will cauſe them to ſhoot weak, and many times prove the deſtruction of them; therefore when they are taken out of the former pots, the earth about their roots ſhould be pared off, and that within ſide the ball muſt be gently looſened, that the roots may not be too cloſely confined; and then place them into the ſame pots again, provided they are not too ſmall, filling up the ſides and bottom of them with freſh rich earth, and giving them plenty of water to ſettle the earth to their roots; which ſhould be frequently repeated, for they require to be often watered both in winter and ſummer, but in hot weather they muſt have it in plenty.

The beſt ſeaſon for ſhifting theſe plants is either in April or Auguſt, for if it be done much ſooner in the ſpring, the plants are then in a ſlow growing ſtate, and ſo not capable to ſtrike out freſh roots again very ſoon; and if it be done later in autumn, the cold weather coming on will prevent their taking root; nor is it adviſeable to do it in the great heat of ſummer, becauſe they will require to be very often watered, and alſo to be placed in the ſhade, otherwiſe they will be liable to droop for a conſiderable time; and that being the ſeaſon when theſe plants ſhould be placed amongſt other exotics, to adorn the ſeveral parts of the garden, theſe plants, being then removed, ſhould not be expoſed until they have taken root again, which, at that time (if the ſeaſon be hot and dry) will be three weeks or a month.

In October, when the nights begin to be froſty, you ſhould remove the plants into the green-houſe; but if the weather proves favourable in autumn (as it often happens) they may remain abroad until the beginning of November; for if they are carried into the green-houſe too ſoon, and the autumn ſhould prove warm, they will make freſh ſhoots at that ſeaſon, which will be weak, and often grow mouldy in winter, if the weather ſhould be ſo ſevere as to require the windows to be kept cloſely ſhut, whereby they will be greatly defaced; for which reaſon they ſhould always be kept as long abroad as the ſeaſon will permit, and removed out again in the ſpring before they ſhoot out; and during the winter ſeaſon that they are in the green-houſe, they ſhould have as much free air as poſſible when the weather is mild.

The three firſt-mentioned ſorts I have ſeen planted abroad in warm ſituations, and upon a dry ſoil, where they have endured the cold of our winters for ſeveral years very well, with only being covered in very hard froſts with two or three mats, and the ſurface of the ground about their roots covered with a little mulch to prevent the froſt from entering the ground; but in Cornwall and Devonſhire, where the winters are more favourable than in moſt other parts of England, there are large hedges of Myrtle which have been planted ſeveral years, and are very thriving and vigorous, ſome of which are upward of ſix feet high; and I believe, if the double flowering kind were planted abroad, it would endure the cold as well as any of the other ſorts, it being a native of the ſouthern parts of France. This, and the Orange-leaved kind, are the moſt difficult to take root from cuttings; but if they are planted toward the latter end of June, making choice of only ſuch ſhoots as are tender, and the pots are plunged into an old bed of tanners bark which has loſt moſt of its heat, and the glaſſes ſhaded every day, they will take root extremely well, as I have more than once experienced. The Orange-leaved ſort, and thoſe with variegated leaves, are ſomewhat tenderer than the ordinary ſorts, and ſhould be houſed a little ſooner in autumn, and placed farther from the windows of the green-houſe.

The eighth ſort is at preſent rare in Europe, ſo is in very few gardens. This ſort was by Dr. Linnæus ſeparated from the Myrtles in the former editions of his works, and had the title of Myrſine applied to it; but in his Species of Plants, he has joined it to that genus again, to which, according to his ſyſtem, it properly belongs; for the number of petals, ſtamina, and ſtyle, do agree with thoſe of the Myrtle, but it differs in fructification, this having but one ſeed in each fruit, and the Myrtle has four or five.

This plant is with difficulty propagated, which occaſions its preſent ſcarcity, for as it does not produce ripe ſeeds in Europe, it can only be increaſed by layers or cuttings. By the former method the layers are commonly two years before they take root, and the cuttings frequently fail, though the latter is preferred, when performed at a proper ſeaſon and in a right method; the beſt time to plant the cuttings is in May: in the choice of them, it ſhould be the ſhoots of the former year, with a ſmall piece of the two years wood at bottom; theſe ſhould be planted in ſmall pots, filled with ſoft loamy earth, for ſmall pots are to be preferred to large ones for this purpoſe, and they ſhould be plunged into a very moderate hot-bed of tanners bark; and if the pots are each covered with ſmall bell or hand-glaſſes, ſuch as have been uſed for blowing of Carnations to exclude the air, it will be of great ſervice to promote the cuttings putting out roots, though they are covered with the glaſſes of the hot-bed above them; the cuttings ſhould be ſhaded from the ſun in the heat of the day, and gently refreſhed with water, as the earth in the pots is found to dry, but they ſhould by no means have too much wet; thoſe cuttings which ſucceed, will have taken root by July, when they ſhould be gradually inured to bear the open air, into which it will be proper to remove them about the middle of that month, that they may be ſtrengthened before winter, but it will not be proper to tranſplant the cuttings till ſpring; the pots muſt be removed into a temperate ſtove in autumn, and during the winter the cuttings muſt be gently refreſhed with water. In the ſpring they ſhould be carefully taken up, and each planted in a ſmall pot filled with light earth from a kitchen-garden, and plunged into a moderate hot-bed to forward their taking freſh root; then they ſhould be gradually hardened, and in July placed in the open air in a ſheltered ſituation, where they may remain till the end of September, and then be removed into the ſtove.

This plant will not live through the winter in England in a green-houſe, but if it is placed in a moderate degree of warmth, it will flower well in winter; and in July, Auguſt, and September, the plants ſhould be placed abroad in a ſheltered ſituation.

MYRTUS BRABANTICA. See MYRICA.